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ABSTRACT

We propose a simple informational theory to explain why autocratic regimes introduce local elections. Because citizens have better information on local officials than the distant central government, delegation of authority via local elections improves selection and performance of local officials. However, local officials under elections have no incentive to implement unpopular centrally mandated policies. The model makes several predictions: i) elections pose a trade-off between performance and vertical control; ii) elections improve the selection of officials; and iii) an increase in bureaucratic capacity reduces the desirability of elections for the autocrat. To test (i) and (ii), we collect a large village-level panel dataset from rural China. Consistent with the model, we find that elections improve (weaken) the implementation of popular (unpopular) policies, and improve official selection. We provide a large body of qualitative and descriptive evidence to support (iii). In doing so, we shed light on why the Chinese government has systematically undermined village governments twenty years after they were introduced.

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1 Introduction

It has long been observed that many autocracies run national elections, and several theories have been proposed to explain this regularity. The main thrust of these theories is that elections cement the regime's grip on power by helping to share spoils within the elite or to signal the mobilization capacity of the regime.[1] Less attention has been paid to the fact that several autocracies have introduced elections at the local level, such as Indonesia under Suharto (1968-1998), Pakistan under Zia (1977-88), China in the late 1980s and early 1990s, Saudi Arabia in 2005, Vietnam in 1998 and Yemen in 2001. The functions of these locally elected bodies are typically managerial or administrative, with little political consequence. Hence existing theories that explain the presence of elections at the elite level do not provide a good framework for understanding the presence of local elections.[2] Thus, the main goal of this paper is to address this gap in the literature and provide a theory and empirical evidence on the conditions under which an autocratic regime would allow local elections.

A small number of studies in political science suggest that local elections may be useful to an autocrat as they can improve the monitoring and selection of government officials.[3] In this paper, we focus on this idea and fully develop its implications in a formal model of local elections in autocracies that is based on gaps in accountability due to local information. This theory has sharp predictions on what should happen to specific policies when local elections are introduced and it also suggests the circumstances that would lead an autocrat to introduce (or indeed later eliminate) local elections. We then test and validate these predictions using a new dataset collected by the authors that document the evolution of village governance in China during the 1980s, 1990s and 2000s.

In our theory, the autocrat tasks local officials with implementing a series of policies in the

[1] See Geddes(2006) for a summary of the facts and a view of elections as deterring military and other insider rivals, an argument fully presented in Magaloni (2008). See also Myerson (2008), Boix and Svolik (2013) and Bidner et al. (2015) for formal models on how electoral institutions allow efficient power-sharing among elites in weakly institutionalized countries. Gandhi and Przeworski (2006) propose that elections allow for the cooperation of outsider elites. Miller (2015) argues that through elections citizens can express dissatisfaction which allows the regime the information necessary to react in time.Gandhi and Lust-Okar (2009) offers a literature review on elections in autocratic regimes.

[2] For a general overview of the global situation of local elections, see United Cities and Local Governments (2007)

[3] See Geddes (2005), Manion (2006) and Birney (2007).

village. The central government, however, has poor information regarding the quality of the official and his activities, which limits his ability to control what happens in the village. In other words, he has both a problem of adverse selection and of moral hazard. In contrast, local villagers enjoy better information about the quality of the official as well his activities. By introducing elections, the central government effectively delegates the monitoring of the official to the villagers, which should improve both selection and incentives. At the same time, relative to appointment by the regime, local elections introduce an important cost for the autocrat. Since the central government and villagers do not have perfectly aligned preferences, and local officials are responsible for the implementation of central directives that are often unpopular, a local official that is elected by(and therefore accountable to) villagers has less incentive to implement unpopular policies.

As a consequence, the model highlights a stark trade-off: elections should improve the performance of local officials for congruent policies, where both citizens and government agree on what they want. However, for incongruent policies, the local official should perform worse in the eyes of the central government as elections make the official more accountable to citizens. We show that this trade-off does not disappear even if the central government has the ability to manipulate local elections – i.e., the central government has to suffer a reduction in control in order to increase performance.

In order to empirically test this trade-off we need a setting where we observe policies before and after the introduction of local elections, and where local officials are responsible for implementing both popular and unpopular policies. China provides such a context. During the 1980s and 1990s, local elections were rolled out across all village governments, which govern the lives of around one billion individuals. The debates that led to the electoral reforms are well documented and show that elections were mainly supposed to address the poor performance of local officials in rural China.[4] Moreover, village governments were responsible for a wide array of policies and had ample fiscal autonomy. Hence, local officials were crucial for many policy outcomes, from the widely demanded local public goods such as schools to the extremely unpopular One Child Policy.[5]

[4]In their description of the process that brought about village elections, O'Brien and Li (2000) conclude "the self-government programme is best seen as an effort to rejuvenate village leadership by cleaning out incompetent, corrupt and high-handed cadres." For further discussion please see Section 2.

[5]For a summary of the responsibilities of this body see O'Brien (1994) as well as Section 2.

We collect a new annual panel dataset of over 200 representative villages that span twenty years, the Village Democracy Survey (VDS).[6] The data include the timing and results of local elections, the local government budgets, as well as several important policy variables. Specifically, we observe examples of both congruent and incongruent policies. The uncontroversially congruent policies in our data comprise expenditure on public goods and allocation to families of common property such as land (as opposed to allocation to firms, a practice associated with corruption in our setting). Similarly, the One Child Policy and collaboration with the upper-government in permanently expropriating village land are widely viewed as extremely unpopular with villagers.[7]

We exploit the staggered timing of the introduction of elections across villages to construct a *difference-in-differences* estimate of the effect of the introduction of elections on congruent and incongruent policies. We show that the introduction of village elections dramatically increased local government public goods expenditure and reduced land excluded from family use. At the same time, we find that elections weakened the enforcement of the One Child Policy and reduced (or delayed) instances of land expropriation. These empirical results are consistent with the presence of the trade-off predicted by the model.

The model also makes four other predictions: i) elected officials who provide better outcomes in congruent policies have a higher retention rate; ii) local elected officials are more competent than their appointed counterparts; iii) the authoritarian government implements local elections that can be easily influenced; iv) a large increase in bureaucratic capacity can lead to the return of appointment as a method of local governance. In the model, the autocrat has two alternative solutions to the local governance problem. On the one hand, as discussed, it can delegate authority to villagers via elections, but this entails a loss of control which is reflected in the fact that centrally mandated unpopular policies are poorly implemented. On the other hand, it can improve bureaucratic capacity and therefore vertical control. However, this is very costly in monetary terms as it requires expanding the size and human and physical capital of the bureaucracy in order to better collect and process information at the village level. Thus, when the autocrat has few resources, he is more likely to

[6]The villages were chosen in the early 1980s. Thus, they are representative of China in the early 1980s, with the exception that Tibet is not in the sample due to the difficulty in collecting data from rural Tibet.

[7]Please see Section 4 for a full description of these policies.

choose local elections as a means to govern, whereas when he has more resources available, he is more likely to build bureaucratic capacity to directly monitor the bureaucrat – i.e., centralize power.

To validate the theory, we test each prediction to the extent that the data allow. We use the VDS to examine (i) to (iii). We provide support for (i) with evidence that higher public goods expenditures and weaker implementation of the One Child Policy are positively associated with re-election probabilities. We confirm (ii) by showing that elections caused officials to become younger and more educated.[8] We provide rich descriptive evidence for (iii) by carefully documenting electoral procedures and the organization of the village government in the VDS and showing that the central government retained some control by controlling the nomination of candidates (until 1998), maintaining the Communist Party Branch as a co-governing body in the village, and by allowing a number of procedural aberrations in the conduct of elections throughout the period of analysis.

Finally, we argue for (iv) by examining a large body of aggregate descriptive and qualitative evidence. The qualitative evidence documents that cost-saving was one of the motivations for introducing elections in the 1980s. The aggregate data show that as China grew economically from a very poor country in the early reform era to a middle-income country by the 2000s, it dramatically increased investment in the bureaucratic capacity of the central government. We also document that the policies that have been introduced since the 2000s have systematically undermined the importance of elections by reducing the powers and necessity of the village official, and by increasing the amount of central monitoring of local officials. Note that the effective weakening the autonomy of village-level officials in recent years has been noted in other studies such as Oi et al. (2012).[9] In short, the broad patterns are consistent with the idea that elections were useful when bureaucratic capacity was limited by budgetary constraints and were dismissed when better tools of vertical control became affordable.

In summary, the simple model we propose provides a coherent rationale both for the introduction of elections in the 1980s and 1990s, and for the recentralization that began in the 2000s. Our empirical results validate the central trade-off in the model and shed light on a fundamental force driving

[8]For this, we use a similar difference-in-differences strategy as for analyzing the effect of elections on congruent and incongruent policies.

[9]Elections were not removed in name, perhaps because such a move would have been very controversial. Instead, they were undermined by making elected officials unimportant. See Section 4.3 for a more detailed discussion.

the internal organization of local institutions in autocracies, and therefore their capacity to provide local public goods and services. More generally, the theory provides insights on the changing trade-offs between local elections and more centralized power as an economy develops. The evidence, taken together, also sheds light on an *a priori* puzzle. Why would the Chinese government in the 2000s systematically undermine local elections, which we document to have been effective in improving local governance? Our study suggests a simple explanation: if the autocrat can afford better direct control, then it does not need to suffer the policy costs associated with electoral monitoring.

Our model of delegation contributes to the existing formal literature on the inner workings of autocracies and weakly institutionalized polities (e.g. Padró i Miquel, 2007; Acemoglu et al., 2008; Egorov and Sonin, 2011; Boix and Svolik, 2013; Francois et al., 2017).[10] In these theories, the main interest of the autocrat is regime survival. We shift the focus of interest from regime survival to policy implementation.[11] A related paper by Myerson (2015) highlights the commitment difficulties that autocratic regimes face at the time of introducing sub-national elections. In common with our paper, moral hazard of local officials is the main problem to be institutionally solved, but the trade-off we emphasize is not present there. Despite differences in the details of the models, our framework and conclusions are reminiscent of the delegation literature originated by Aghion and Tirole (1997) in the context of organizations. In particular, this literature highlights that information and delegation are closely linked, and that preference divergence is the crucial statistic determining optimal institution design.

We also add to the growing body of empirical studies on the role of local governance in developing countries, including China.[12] To the best of our knowledge, we are the first to examine

[10] Gehlback et al. (2016) provide a recent review of this literature.

[11] In democratic countries the central seat of power must also run an extensive bureaucracy to reach, control and provide services to the population at large and the extensive literature on bureaucracy shows this is not an easy task Wilson (1989). In autocratic countries, however, the control of these local officials is further complicated by the weakness of established channels to receive feedback from citizens, such as an independent press or the freedom of association to protest against abuses (see Besley and Burgess; 2002). In addition, the degree of preference divergence between government and citizens, which our model highlights as determinant, should be larger in autocracies. For these reasons our analysis is mostly relevant for the political economy of autocracies, although some insights could be relevant to the fiscal federalism literature.

[12] In particular, we build on the increasing number of empirical studies on re-election incentives (e.g., Besley and Case, 1995; **?**, 2008; de Janvry et al., 2010; Ferraz and Finan, 2011) and on the effect of information on electoral accountability (e.g., Besley and Burgess, 2002; Ferraz and Finan, 2008; Bobonis et al., 2010; and Banerjee et al., 2010). The implication that villagers are better than upper levels of government at monitoring village leaders is similar to the findings of Björkman

the trade-offs of local elections for the autocrat. Furthermore, existing studies have not examined the effect of elections on central policies that are unpopular with citizens. A closely related study is Suarez Serrato et al. (2017) which demonstrates the limits of vertical bureaucratic control, but it does not examine institutional variation such as the introduction of elections. Our study is also related to the recent works by Jia and Nie (2013) and Lorentzen (2013), which focus on different ways in which the central government tries to gather information on local government performance, and more generally to Meng et al. (2015) and Stromberg et al. (2017) who study other means of information gathering by the autocrat.[13]. Oi et al. (2012) and He and Wang (Forthcoming) provide evidence regarding the different policies of effective recentralization pursued by China over the last decade.[14] Earlier studies of local elections in China have found that they improve public goods provision (Zhang et al., 2004). Our study uses a larger dataset than earlier work and examines a wider set of outcomes motivated by the model.

Finally, this paper complements two companion papers using the same VDS data that attempt to understand the extent to which social capital and heterogeneity help or hurt the ability of elections to improve accountability (Martinez-Bravo et al., 2017, 2012). These papers focus exclusively on the initial introduction of elections, examine only public goods as an outcome and do not consider the autocrat's problem.

The rest of this paper is organized as follows. Section 2 summarizes the political discourse and implementation of local elections in China. Section 3 presents the model and derives empirical predictions. Section 4 tests the main predictions with the data. The final section offers conclusions.

and Svensson (2009). For examples of studies of Chinese local elections, see Gan et al. (2007), Luo et al. (2010), Shen and Yao (2008), Zhang et al. (2004).

[13]Jia and Nie (2013) studies the effect of political decentralization on coal mining accidents, and Lorentzen (2013) studies the role of local protests. Meng et al. (2015)argues that rigid inflexible grain procurement during the 1950s and 60s were a response to underlying information frictions. Stromberg et al. (2017) argue that media is used by the Chinese government as a monitoring device.

[14]Oi et al. (2012) argues that village councils, the locally elected bodies, have lost most de facto autonomy due to the compounded centralizing effect of gradual reforms that started in the mid 2000s. He and Wang (Forthcoming) document that the central government sends "loyal" college graduates to help elected rural officials enforce central policies.

2 Background

2.1 Motivation of Local Elections

China is a large and heterogeneous country. At the beginning of the reform era (1978-), there were over 700,000 villages that contained around one billion people over a land mass roughly the size of the United States. Regions differed in ethnicity, culture, religion, language and level of economic development. For the autocratic central government in Beijing or its satellites in provincial capitals and urban areas, local governance was always an enormous challenge. It was very difficult for the central government to know the conditions of each locality: what was needed to enforce central policies locally, what the citizens required in order to be satisfied with the regime, who was best to lead in each locality. Meng et al. (2015) document that the founders of modern China were well aware of these difficulties from as early as the 1940s. And the inability of the autocrat to address these difficulties contributed to tens of millions of deaths during the Great Famine, 1959-61.

Part of the difficulty in autocratic rule was due to the lack of communication infrastructure and low bureaucratic capacity, as China was a very poor developing economy at the beginning of the reform era. In 1978, there were very few highways, railroads did not reach most rural areas and most villages did not have telephones. Communication between the central government and local officials took time and was often transmitted through many intermediaries.

The central government in the early reform era was fully aware of the fundamental information difficulties they faced, and that these rendered local officials unaccountable. They were also aware that poor local governance could cause political unrest, as many were already voicing dissatisfaction with the regime. There were two prominent causes of discontent. The first was the extremely low provision of local public goods. As the reform-era moved towards fiscal decentralization, villages were mostly left to provide their own public goods. The consequence was that most villages did not have any public goods, since provision required significant effort from the local leaders to determine the object of investment and raise funds for it from villagers.[15] The second point of discontent was corruption. The first waves of economic reforms caused significant growth in rural areas, which also

[15] For example, see Luo et al. (2010), 2007, 2010.

led to increased inequality. It was widely believed that the growth unfairly benefitted local officials and their cronies.[16]

2.2 Debate over Village Elections

The comparative literature has studied the debate surrounding the introduction of village elections.[17] It transpires from this work that the difficulties in controlling local officials were paramount in the discussions leading to the introduction of elections. For instance, Peng Zhen, vice-chairman of the NPC Standing Committee, stated at the chairmanship meeting of the Standing Committee of the Sixth NPC (April 6, 1987) that they were unable to control the local officials, saying "Who supervises rural cadres [local officials]? Can we supervise them? No, not even if we had 48 hours a day...." (cited in O'Brien and Li;1999). In further work, O'Brien and Li (2000) writes that "Peng went on to lament how relations between cadres and villagers had deteriorated over the years, noting that some rural cadres 'resorted to coercion and commandism' while not a few had become corrupt and high-handed 'local emperors' (tu huangdi)."

The main argument that proponents of electoral reforms put forward was precisely that local elections would improve governance because citizens had better information with which to monitor performance and select the leader. Again, O'Brien and Li (2000) writes that "As the chief justification for self-government, supporters of the Law argued that passing the bill would help curb arbitrary and predatory behavior by rural cadres", noting further that "In this context, the self-government programme is best seen as an effort to rejuvenate village leadership by cleaning out incompetent, corrupt and high-handed cadres, all for the purpose of consolidating the current regime."

At the same time, those against the reform worried that democratic elections would undermine the power of the central government, especially since many of the central policies were very unpopular with rural citizens. O'Brien and Li (2000) captures these concerns: "Speaking as long-time administrators [in the countryside], many deputies openly doubted whether township guidance of [local officials] would be enough to guarantee state interests in the countryside." For example, the One Child Policy (and its many variants of family planning policies) was extremely unpopular. Sim-

[16] For example, seeShen and Yao (2008), 2008.

[17] White (1992), Kelliher (1997) and O'Brien and Li (2000) provide rich summaries of the main issues in the policy debate as well as descriptions of the implementation process of elections.

ilarly, economic growth and the development of urban areas and transportation infrastructure often required the permanent expropriation of rural land. The execution of such eminent domain laws was also extremely unpopular. Other unpopular policies included tax collection (part of the taxes that rural residents pay was in the form of grain). In fact, O'Brien and Li (2000) directly points to the trade-off we highlight in our theory: "[reform opponents] believed that without tight control over [local officials] and an ability to issue direct commands, village cadres would be tempted to ignore state interests and disregard township instructions. Elected [local officials] might, in a word, be inclined to take their cues from below rather than above. This could interfere with tax collection, grain procurement and enforcing the birth control policy, and might ultimately cripple township authority."

A heated debate emerged at the highest level of government, which White (1992) summarizes: "Advocates argued that the best way to stabilize the situation at the grass roots was to create institutions that would hold cadres directly accountable to the peasantry for their behavior in office... opponents saw the proposed bodies as threats to the leading role of the Party, and feared that cadres held accountable to fellow villages would be loathe to carry out unpopular directives."

2.3 The Compromise

To understand the reform, it is important to keep in mind the status quo ex ante. Village governments were first organized by the communist government during the early 1950s, with two groups of leaders in each village. First, there was the village committee, which typically consisted of three to five members and was led by the village chairman, henceforth VC. Second, there was the Chinese Communist Party branch in the village. It was similar in size to the village committee and was led by the village Party Secretary, henceforth PS. Before elections were introduced, all of these positions were filled by appointment by the county government with input from the village Party branch.

The result of the debate over village elections was a compromised policy: local villages would elect half of their government, the village committee, which would continue to co-govern the village with the village Communist Party branch. The Party branch was not subject to elections, and could in principle have input in the choice of candidates for the village committee, as long as there were

more candidates than open seats. The law did not clarify the power relationship between the village committee and the Party Branch, which remained ambiguous.[18] Anecdotal evidence suggests that the power arrangements between these two bodies were very heterogeneous across villages. For this reason, we refer to *village officials,* which comprise both bodies, as the subject of village decision-making.[19] Rather than wholesale democratization, this reform is better understood as a marginal change intended to make the local government more accountable to villagers. Ultimately, the main change of the reform was to give villagers the power to select and to vote unsatisfactory VCs out of office.

Innovative provincial governments began experimenting with elections in the early 1980s and elections were formally codified by the central government in the *Organizational Law on Village Committees* (OLVC) in 1987. From this point onwards, all provinces were pushed to introduce elections in all rural areas. A revision of the OLVC in 1998 required candidate nominations to be open to all villagers. The decision to introduce elections at the province-level was the result of political pressure and bargaining between the central government and the provincial leaders. However, implementation within provinces was mainly imposed top-down by bureaucratic fiat. Each level of government would pilot the reform in a few select villages, and the reform would be widely implemented once the procedures and logistics were tested (O'Brien and Li, 1999).

In these elections, there are no political parties and no slates of candidates with common platforms. Candidates are drawn from the village and are thus typically well-known by the villagers. As a consequence, candidates typically run on well-understood issues and are probably selected for qualities that have been long observed by their fellow villagers.[20] It is also important to keep in mind that these are not official positions in the state bureaucracy, so they are not stepping stones for higher positions in the administration.

[18] For more information, please see the discussion in Kelliher (1997).

[19] Later in the paper, we will provide some evidence that *de facto* power, as measured by signature rights, seems to have shifted in favor of the Village Committee as elections were introduced.

[20] There are very few accounts of actual electoral campaigning. In many cases, elections were set up with only a few days' notice (Unger, 2002: p. 221).

3 The Model

Consider a model with three relevant actors: a government g, a village official o, and the villagers v.[21] There is a policy that the village official is responsible for implementing. The probability of success ($S = 1$) in this policy is:

$$P(S = 1) = \mu e.$$

The probability of success depends linearly on effort, $e \in [0, 1]$. Expending effort e costs the official $c(e)$, which is increasing and convex and satisfies $c(0) = c'(0) = 0$. The effect of effort on the probability of success depends also on the competence of the village official, captured by $\mu \in \{0, 1\}$. The effort of an incompetent official (with $\mu = 0$) is therefore useless.

There are two types of policy to be implemented. The policy can be congruent ($C = 1$). In this case, there is agreement between the government and the villagers and both want the policy to be successful. For instance, both the government and the villagers want the official to efficiently provide public goods. Otherwise, the policy is incongruent ($C = 0$). In this case, government and villagers disagree. For instance, the villagers want to circumvent the One Child Policy instituted by the government. The type of the policy is congruent with probability $\alpha \in (0, 1)$.[22]

The preferences of the players are as follows:

$$U_v = S(-\theta)^{1-C}$$

$$U_g = S(\theta)^{1-C}$$

$$U_o = R - c(e).$$

$\theta > 0$ captures the relative weight that players give to success in incongruent policies relative to successes in congruent policies. If $\theta > 1$ preferences over incongruent policies are stronger than preferences over congruent policies. R are the rents that the official enjoys when retaining his posi-

[21] The focus of this model is the conflict of interest that exists between the upper government and the village official. For this reason we abstract from possible conflicts between sets of villagers and treat villagers as a unitary actor. We also focus on the tension between village officials and the rest of the government (which is itself multilayered).

[22] A natural alternative interpretation of this setup is that there is a portfolio of tasks the official is supposed to perform. Then $\alpha \in (0, 1)$ would be the share of congruent policies if each policy has an equal probability of being drawn.

tion. This formulation captures in a simple fashion that the government wants a success regardless of the type of policy, while villagers want a success if $C = 1$, and strictly prefer a failure if $C = 0$.

We move now to the information structure of the game. Villagers know the competency type of all candidates to the position of village official. Village officials know their own type. The government, however, has less information on types and can only find a competent official (with $\mu = 1$) with probability $\pi > 0$. Both villagers and village officials perfectly observe the outcome of the policy in the village. In contrast, the government obtains a signal I that is informative about the success of the policy in the village: with probability λ, $I = 1$ and the government observes fully the performance of the village official. With probability $1 - \lambda$, $I = 0$ and the government does neither observe the outcome nor the type of the policy.

In this model, both λ and π capture the information-gathering capacity of the government regarding governance in the village. A natural interpretation of these parameters is the notion of bureaucratic capacity of the government. A high capacity government should be able to collect frequent and accurate information about what happens in the village, which maps into higher λ and π. Higher bureaucratic capacity requires higher numbers and quality of bureaucrats, as well as the deployment of appropriate organizational capital.

The timing of the game is as follows.

1. A village official is chosen.
2. The character of the policy $C \in \{0, 1\}$ is revealed to villagers and village official.
3. The village official chooses effort $e \in [0, 1]$.
4. Success or failure of the policy is realized.
5. With probability λ, the government observes C and performance; with prob. $1 - \lambda$, the government observes nothing.
6. The official is retained or not.

3.1 Analysis: Centralizations versus Decentralization

We explore the predictions of this model under three different institutional environments. The first two institutional environments we consider are the two polar arrangements which we call appointments and pure elections. Under appointments, the government has total control: it chooses the village official at stage 1 of the game and decides whether to retain him or not at stage 6 of the game. In direct contrast, under pure elections, the villagers both choose the village official and decide whether to retain him. Note that appointment is conceptually very similar to a centralized structure in which the central government holds all the power. Pure elections is a decentralized structure where such authority is delegated to the villagers. We assume that government and villagers can commit to a retention decision as a function of observables.

In an autocracy, full delegation of powers to villagers is difficult to implement as it requires the autocrat to commit to abide by election results. Hence, given our substantive area of interest, we consider a third institutional arrangement which we call elections with oversight. In this situation, villagers have the ability to select and retain officials, but the government cannot commit to the full delegation of power and hence it can refuse to implement the villagers' will.

Appointment

We begin by analyzing the decision of the government under appointment. Due to lack of information on officials' types, the government picks one at random. Hence the appointed official is competent with probability π. The retention decision is immediate: independently of C, keep the official if the policy is a success ($S = 1$) and the government observes it.[23]

Under this policy, the competent official chooses his effort according to $max_e P^A R - c(e)$, where $P^A(e) = \lambda e + 1 - \lambda$ is the probability that the government keeps the village official. The effort level induced under appointment is thus implicitly defined by $c'(e^A) = \lambda R$ if the official is competent and 0 otherwise. The expected probability of success under appointment is therefore πe^A and the

[23]This yields the strongest incentives to the village official since, conditional on receiving a signal, this policy maximizes the difference in payoffs between success and failure. If the government does not observe the outcome, its decision is irrelevant for incentives. Hence, without loss of generality, we assume that the official is retained in this case. In a dynamic version of the model, retention in case of no information would be strictly optimal as it magnifies future positive payoffs.

expected utility of the government under this arrangement is

$$U_A^G = \pi e^A(\alpha + (1-\alpha)\theta). \tag{1}$$

Pure Elections

Now consider the case in which authority over the official is transferred to the villagers through the introduction of local elections. Assume for now that villagers will pick a competent official if one is available and, for simplicity, let us assume that there is always at least one competent candidate available.[24]

The retention decision is simple. To induce the effort that villagers' desire from the local official, villagers retain the official if he obtains a success in a congruent policy or if he obtains a failure in an incongruent policy. Under this retention strategy, the official chooses effort according to $c'(e^E) = R$ if $C = 1$. If $C = 0$, the official exerts 0 effort.

Under this arrangement, the expected probability of success if $C = 1$ is e^E, and if $C = 0$, the probability of success is 0. It follows that the expected utility of the government under pure elections is simply $U_E^G = \alpha e^E$.

Note that the expected utility of villagers under a competent official, αe^E, is higher than the utility obtained under an incompetent official, which is 0 as no success is possible when $\mu = 0$. Hence villagers always select a competent official, as conjectured above.

Elections with Oversight

Finally, we consider a case in which the delegation of authority to the villagers is not complete. This case is important in the context of autocracy as full delegation might not be desirable from the point of view of the autocrat, and it may not even be possible as it requires the autocrat to refrain from intervening when results are undesirable from his point of view. To capture this reality we assume that the government can impose its desired retention decision when it disagrees with the villagers, either by manipulating the conduct of elections so as to obtain its desired outcome or by completely

[24] If there are N candidates and π captures the share of competent candidates, the probability that there is at least one competent candidate is $1-(1-\pi)^N$, which rapidly converges to 1 as N increases.

disregarding the result of elections. It is important to note that for the government to disagree with the villagers, the government must be able to observe the type and outcome of the policy. Recall that this information is only available to the government with probability λ.

Applying backwards induction, we first examine the retention decision. First note that government and villagers are in agreement when $C = 1$. Villagers always observe the outcome and hence when $C = 1$ the official will only be retained if he obtains a success. Therefore the village official exerts effort e^E if $C = 1$, as in the case of pure elections.

However, when $C = 0$, the government wants to retain the official if there is a success, but villagers only want to retain him if there is a failure. The disagreement in retention is complete. Therefore, if $C = 0$, retention will depend on whether the government obtains information on what happens in the village. With probability λ the government observes the outcome and retains the official in case of a success. With probability $1-\lambda$ the villagers are free to retain the official only if he obtains a failure. The objective function of the official is thus

$$max_{e^O} \{\lambda e^O + (1-\lambda)(1-e^O)\}R - c(e^O),$$

subject to $e^O \in [0,1]$. This program yields

$$c'(e^O) = max\{0, (2\lambda - 1)R\}, \tag{2}$$

where e^O is the effort exerted by the local official under elections with oversight when $C = 0$. Expression (2) implies that the ability of the government to know what happens in the village is important when imperfect elections are introduced. If $\lambda \leq \frac{1}{2}$, the official exerts no effort ($e^O = 0$) as the villagers decide on his retention most of the time, and they want a failure. In contrast, if the ability of the government to examine what is happening in the village is good enough (in particular, $\lambda > \frac{1}{2}$), they can obtain positive effort, as the official understands that the government can keep him in place with high enough probability that it is worth risking the chance of incurring the villagers' wrath.

This discussion suggests the following empirical prediction that will be tested in Section 4.

Prediction 1 Under elections with oversight, local officials who provide better outcomes in congruent policies have a higher retention rate. Those who better implement incongruent policies only have a higher retention rate if bureaucratic capacity is high.

In the discussion so far, we have assumed that the villagers select a competent official, as in the case with pure elections. However, this is not universally the case when elections can be ignored. In particular, because when λ is high enough e^O is positive, villagers run the risk of picking a competent official that will be working against villagers' interest if $C = 0$. To see this tension, note that if villagers pick a competent official their expected welfare is

$$U^V_{\mu=1} = \alpha e^E - (1-\alpha)\theta e^O,$$

while the expected welfare if they pick an incompetent official is simply $U^V_{\mu=0} = 0$. Noting that e^O is increasing in λ and converges to e^E as λ converges to 1, we have the following proposition.

Proposition 1. *Define* $\Phi \equiv \frac{(1-\alpha)\theta}{\alpha}$. *If* $\Phi > 1$, *there is a* $\Lambda(\Phi) \in (\frac{1}{2}, 1)$ *such that for all* $\lambda > \Lambda(\Phi)$, *villagers select incompetent village officials under elections with oversight.* $\Lambda(\Phi)$ *is a decreasing function with* $\Lambda(1) = 1$.

The proposition says that when disagreement is strong and bureaucratic capacity is high, villagers select incompetent officials. The potential for negative selection is important, as it eliminates all possible benefits of elections from the point of view of the government. To understand this result, note that when bureaucratic capacity is high, the government observes often what happens in the village. As a consequence, the local official exerts positive effort to implement incongruent policies. In effect, high bureaucratic capacity makes the official more accountable to the government than to villagers. Given this, if villagers care enough about avoiding incongruent policies, they pick an incompetent official in order to ensure failure.

Note that this intuition requires villagers to care more about incongruent policies than they do about congruent policies, since choosing an incompetent official sabotages both types of policies. This trade-off is captured by $\Phi \equiv \frac{(1-\alpha)\theta}{\alpha}$, the degree of expected disagreement between villagers and government. When $\Phi > 1$, in expectation incongruent policies matter more than congruent policies

– therefore this condition in necessary for negative selection. The stronger the disagreement, the harder it is for villagers to accept the risk of successful incongruent policies. Hence, $\Lambda(\Phi)$ is decreasing and the stronger the disagreement, the lower the level of bureaucratic capacity at which negative selection occurs.

3.2 The Effects of Introducing Elections

We now proceed to compare the performance of local officials under these institutional arrangements. Since we do this exercise to guide the subsequent empirical analysis, and because we show in the next subsection that pure elections are never optimal from the point of view of the government, we limit the comparison to appointment versus elections with oversight. The following proposition compares success rates for congruent and incongruent policies.

Proposition 2. *If $\lambda < \Lambda(\Phi)$, starting from a situation of appointment, the introduction of elections with oversight*

i. Increases success rates for congruent policies;

ii. Decreases success rates for incongruent policies if $\lambda \leq \frac{1}{2}$; If $\lambda > \frac{1}{2}$, there is a $\bar{\pi} \in (0,1)$ such that the success rate for incongruent policies decreases if $\pi > \bar{\pi}$;

iii. Increases the competence of local officials relative to under appointments.

This proposition captures the main trade-off that the government faces when deciding whether to introduce elections. Point (i) and (iii) capture the benefits of introducing elections. Elections delegate both choice and accountability of local officials to villagers, who have better information. Both margins contribute to making elections attractive: under elections local officials are expected to be more competent (as long as $\pi < 1$) and to work harder at the implementation of congruent policies.

The drawback from the point of view of the autocrat is that this is not the case for incongruent policies. When government and villagers disagree ($C = 0$), if $\lambda \leq \frac{1}{2}$, the government cannot overrule the will of the villagers often enough to obtain positive effort from the village official, who will cease to exert any effort. Even when $\lambda > \frac{1}{2}$ and thus some positive effort can be extracted, it is always below the effort the local official would exert under appointment (and thus under direct

accountability to the government).[25]

Therefore, the model predicts that the autocrat faces a very clear trade-off between performance and authority. On the one hand, officials accountable to villagers work harder and are better selected. This is a clear benefit when the preferences of villagers and the government are aligned. On the other hand, when government and villagers disagree, village officials under elections will exert little effort towards implementing the aims of the government. Hence, increased performance comes at the cost of an important loss of vertical control.

This proposition generates two additional empirical predictions that we bring to the data in Section 4.

Prediction 2 When elections are introduced, effort towards congruent policies increases, while effort towards incongruent policies decreases.

Prediction 3 Local elected officials are more competent than their appointed counterparts.

3.3 Choosing Institutions

We can now explore the preferences of the government regarding village governance institutions. We characterize the hierarchy of institutional arrangements as a function of bureaucratic capacity (which as noted we capture with λ and π) and the degree of disagreement between government and villagers (captured by $\Phi = \frac{(1-\alpha)\theta}{\alpha}$).

We start with a simple point.

Lemma 1. *If $\lambda \leq \Lambda(\Phi)$, pure elections are always dominated by elections with oversight from the point of view of the government.*

The intuition behind this lemma is clear. For congruent policies, elections with oversight are as effective as pure elections. However, for incongruent policies, elections with oversight perform weakly better, as the ability of the government to influence local elections can motivate the local official to exert some effort in implementing them. Hence, an autocratic government does not implement clean local elections.

[25]The only option for elections to obtain more effort than appointment for $C = 0$ is when λ is high but $\pi < \bar{\pi}$. This situation is not empirically plausible: λ and π should co-move as they capture similar dimensions of the government's bureaucratic capacity.

We can now proceed to compare the appointment system and elections with oversight from the point of view of the government.

Proposition 3. *Denote by U_A^G the expected utility of the government under appointment and by U_O^G the expected utility of the government under elections with oversight. We have that*

i. For all $\lambda \in [0,1)$, $\pi \in [0,1)$, there is a $\widetilde{\Phi}$ such that for all $\Phi < \widetilde{\Phi}$, $U_O^G > U_A^G$;

ii. For all $\lambda > \Lambda(\Phi)$, and for all $\pi \in (0,1)$, $U_O^G < U_A^G$;

iii. For each $\Phi > 1$, there is a non-empty set $E \subset (0,\Lambda) \times (0,1)$ such that if $(\lambda,\pi) \in E$, then $U_O^G \geq U_A^G$;

iv. For each $(\lambda,\pi) \in E$, there is a (λ',π') with $\lambda \leq \lambda'$ and $\pi \leq \pi'$ such that $U_O^G(\lambda',\pi') < U_A^G(\lambda',\pi')$.

This proposition confirms that the optimal institutional structure from the point of view of the government depends on the degree of disagreement between villagers and government and on the bureaucratic capacity of the government. Point (i) states that when the degree of disagreement is small, elections with oversight dominate appointments. This result is reminiscent of the delegation literature.[26] To put it in terms of this literature, the government is more likely to delegate control of the official to the villagers if preferences between villagers and government are aligned. If the degree of expected disagreement, Φ, is small, the benefits of the informational advantage of villagers, which accrue when $C = 1$ in the form of higher success rates, are larger than the costs associated with $C = 0$ and therefore elections are preferred.

Point (ii) of the proposition is a direct consequence of Proposition 1. If bureaucratic capacity is so high that villagers negatively select local officials, then all benefits of elections disappear. In this case, it is clear that appointment is better than elections with oversight, and this is reinforced by the fact that performance under appointment is increasing in bureaucratic capacity. Note that this can only happen for $\Phi > 1$: as discussed in the context of Proposition 1, negative selection only occurs in the context of substantial disagreement.

Point (iii) states that even with strong disagreement, there are configurations of bureaucratic capacity where elections with oversight dominate appointments. The reason for this is that perfor-

[26] See for example Aghion and Tirole (1997) and Alonso et al. (2008).

mance under appointments is extremely poor when the government has little bureaucratic capacity. In this case, delegation to villagers in the form of elections is optimal. Point (iv), however, states that an increase in bureaucratic capacity can lead to appointments dominating elections. This is due to one of two reasons. First, the increase in bureaucratic capacity can lead to $\lambda > \Lambda(\Phi)$, in which case elections become completely useless (see Point ii). Second, with sufficient disagreement, obtaining successes for incongruent policies becomes very valuable for the government and appointments where the official exerts only a small amount of effort can dominate elections where the official exerts no effort (when $C = 0$).

Figure 1 shows an example of the optimal configuration of local governance as a function of bureaucratic capacity and the degree of disagreement. This Figure 1 is created by assuming $c(e) = \frac{1}{2}e^2$ and subsuming $\lambda = \pi$ into a single dimension of bureaucratic capacity that ranges between 0 and 1. As it is clear in the figure, when disagreement is low ($\Phi < 1$), elections with oversight are the optimal arrangement as interests between villagers and the government are aligned. For moderate disagreement ($1 < \Phi < 3$), an increase in bureaucratic capacity can lead to a change from elections to appointment as the line plotting $\Lambda(\Phi)$ may be crossed. Finally, when disagreement is very strong ($\Phi > 3$), appointment becomes optimal at much lower bureaucratic capacity since successes in incongruent policies become extremely valuable to the government.

Figure 1 also illustrates the results in Proposition 3. Keeping bureaucratic capacity constant, a reduction in disagreement must ultimately lead to elections. Similarly, keeping disagreement constant (at $\Phi > 1$), an increase in bureaucratic capacity must eventually lead to an area where appointment is optimal. Also note that for all Φ, it is possible to find configurations of bureaucratic capacity that rationalize implementing elections with oversight.

Lemma 1 and Proposition 3 inform the following two empirical predictions.

Prediction 4 The authoritarian government implements local elections that can be easily influenced.

Prediction 5 From a status quo with local elections, a large increase in bureaucratic capacity can lead to the return of appointment as a method of local governance.

4 Empirical Evidence

In this section, we investigate whether the predictions of our model are borne out by the data. We first examine Predictions 1 to 3, for which we provide quantitative evidence from village-level electoral and policy data. We then move on to Predictions 4 and 5, for which we provide suggestive qualitative evidence.

4.1 The Effects of Elections

4.1.1 Data

The primary data on elections and policies come from the *Village Democracy Survey* (VDS), a village-level survey conducted by the authors of this paper. The first wave of data collection, conducted in 2006, records the history of electoral reforms, *de facto* leader power, public goods expenditures, the sources of funds for public goods expenditures, and the enforcement of central government policies. For public goods, the accounting methods, the categories for expenditure, and the sources of financing are all determined by the Ministry of Agriculture. This ensures that the data are easily comparable across villages.[27] The second wave, conducted in 2011, records the names and characteristics of all village leaders since 1982. To ensure accuracy of the historical data, the VDS relies on administrative records for each village when possible. When village records are not available, we rely on survey respondents, which include all current and former living village leaders and elders (e.g., teachers) in each village. This applies to very few of our variables and we will note them when relevant. The VDS forms a balanced panel of 217 villages for the years 1982-2005. However, villages only began to record public goods data in 1986. Hence, the sample used in this study effectively covers the period 1986-2005.[28]

The villages we cover in the VDS are the same villages surveyed by the *National Fixed-Point Survey* (NFS). The NFS is a detailed village- and household-level economic survey collected and

[27] This also means that the quality of the data are unlikely to change as a function of the introduction of elections.

[28] There are 31 provinces in China at the end of our sample period. The two excluded provinces are Tibet and Chongqing. Tibet is excluded because it is subject to different political and economic policies. Chongqing is a city-municipality that is excluded because it did not achieve provincial status until 1997. The three other city-municipalities with provincial status (Beijing, Shanghai and Tianjin) are included in our data. Each contain a substantial rural population (30% or higher). We control for whether a village is a suburb of a city later in the robustness checks in the Online Appendix Section B.1 and show that our results are not influenced by their inclusion.

maintained by a research center of the Ministry of Agriculture of China. It is collected each year beginning in 1986, with the exception of 1992 and 1994 due to administrative issues.[29] The NFS villages were chosen in 1986 to be nationally representative for rural China. It follows that the VDS is also representative.

To the best of our knowledge, the VDS is the longest and most comprehensive panel on village-level reforms and policies that has ever been constructed for China. The data cover a period starting in 1982, when modern villages were defined after the Household Responsibility Reforms. In addition to recording the history of electoral reforms, they also record the timing of other major rural reforms, the occurrence of village mergers, and numerous other village-level characteristics. This allows us to control for heterogeneity across villages more comprehensively than past studies, which is particularly important given the underlying diversity across regions in China. The richness of the data also allows us to provide a detailed analysis of the effect of elections on a range of outcomes, a necessity in order to test the hypotheses generated by our model. Descriptive statistics are provided in Appendix Table A.1.

4.1.2 Empirical Strategy

To estimate the effect of elections, we run a simple *difference-in-differences* specification, controlling for village and year fixed effects. This compares the evolution of outcomes in villages that have had their first election to villages that have not yet implemented their first election.[30] Village fixed effects control for all time-invariant or slow-moving differences between villages, such as geographic characteristics (e.g., hilliness or distance from a city) or culture. Year fixed effects control for changes over time that affect all villages similarly (e.g., national policy changes, macroeconomic growth). In addition, we add province-time trends, which control for the widening differences across regions brought about by unequal economic growth during the long time horizon of our study. The baseline specification also controls for the second wave of reforms that opened the nomination of candidates to villagers. This allows us to control for potential heterogeneity in the effect of elec-

[29] Within each village, approximately 25% of households were randomly selected in 1986 and followed over time; new households were introduced over time to maintain representativeness. According to the Ministry of Agriculture, there is very little attrition and households and villages are mainly added to adjust for gradual demographic changes.

[30] See Appendix Table A.2 for the timing of the rollout of elections and Appendix Section B for a detailed discussion.

tions.[31]

The baseline equation that estimates the effect of elections is

$$Y_{vpt} = \beta E_{vpt} + \lambda O_{vpt} + \gamma_p t + \delta_v + \rho_t + \varepsilon_{vpt}, \tag{3}$$

where the policy outcome of village v in province p during calendar year t, Y_{vpt}, is a function of: a dummy variable, E_{vpt}, that takes the value of one after the first election in village v has taken place; a dummy variable, O_{vpt}, that takes the value of one after the first open nomination in village v has taken place; province-year trends, $\gamma_p t$; village fixed effects, δ_v; and calendar-year fixed effects, ρ_t. Since the timing of elections was largely decided at the province level, we cluster the standard errors at the province-level. As we only have 29 provinces, we address the possibility of small sample bias in the clustered standard errors by also presenting p-values derived from wild bootstraps as recommended by Cameron et al. (2008).[32] The main coefficient of interest is β.

Interpreting β as the causal effect of introducing elections does not require us to assume that election timing within provinces was random. Instead, it requires the much weaker assumption that conditional on the baseline controls, the introduction of elections is not correlated with time-varying village characteristics that affect the outcomes of interest through channels other than elections. In the Online Appendix, we discuss in detail the timing of the introduction of elections across villages and provide several pieces of evidence supporting this assumption. In particular we show that the introduction of elections occurs in waves at the province level and that it is not correlated with any of the pre-existing village-level policy, economic, geographic and demographic observables. This suggests that the timing of elections is quasi-random within provinces but endogenously determined at the province level. The province trends in (3) thus have the additional advantage of capturing a significant amount of the cross-province variation. In addition, the Online Appendix contains a large number of additional robustness and sensitivity checks which demonstrate that results are

[31] This improves the precision of our estimates, but does not affect the magnitude of estimated effects of the introduction of elections. For brevity, we only report results where we control for the introduction of open nominations. Results without these controls are very similar and are available upon request. Note that we do not control for other procedural differences in elections because they are only observed after the introduction of elections and more likely to be endogenous.

[32] The bootstraps are estimated using 500 repetitions.

very unlikely to be driven by factors other than the introduction of elections.

4.1.3 Effects on Congruent and Incongruent Policies

The main prediction of the model (Prediction 2) is that village elections present a trade-off for the government: congruent policies improve with the introduction of elections but incongruent policies become less well implemented. Since the preferences of voters and the autocrat are unobserved, we rely on well-known examples of the two types of policies.

Congruent Policies The first policy we examine is local public goods provision. As we discussed earlier, it was the responsibility of local officials to coordinate villagers, determine the object of investment, and raise the funds from villagers. The most important public goods to the villages are irrigation, schools, electricity, roads (within the village), sanitation and the environment. The level of public good provision in the early reform era was extremely low everywhere and a cause for vocal dissatisfaction from villagers. Hence, both the government and villagers wanted better performance from local officials. The VDS collected data on public goods expenditures from each village and year, as well as how the expenditure was financed. Our first measure of a congruent policy is total annual village expenditure on public goods that is financed by village sources (e.g. those sources of finance under the purview of the local official).

The second dimension of local official behavior over which villagers and government agree is corruption. Specifically, central government and villagers both prefer to reduce rent-seeking behavior of local elites. Since corruption is unobservable, we proxy for it with the amount of land that is rented out to enterprises that are managed by the village government – i.e., village enterprises. In the post-reform era, local officials are responsible for the use and allocation of collectively owned means of production. The most important such asset is arable land, all of which is publicly owned in China. Most land is allocated to households for farming in long-term contracts.[33] However, a fraction of land, no more than fifteen percent according to national law, may be retained under the direct control of the village government so that it can make small adjustments to household

[33] Rural households cannot sell their land rights in China and, during the period of our study, were also prohibited from renting out their land. In most cases rural households were also restricted from hiring laborers because households that did not farm their own land would lose land rights. See Jacoby et al. (2002) for a related study about tenure security in rural China.

allocations without implementing a large-scale reallocation for the entire village. During the 1980s and 1990s, land retained by the village government was often leased to village enterprises, which were very profitable. In principle, the profits from these enterprises were supposed to be equally distributed amongst villagers since they collectively "own" the land. However, in practice, they were widely believed to be captured by elites – in practice, the village leadership and its cronies. Indeed, village leaders decided on employment (and hence on who obtained wage income from enterprises) and investment (that is, how much of the profits were retained by the village government to be reinvested). For example, in our data, we observe that only 25% of households in villages receive any income from village enterprises on average. The inequality induced by the enterprises caused much discontent amongst villagers.[34]

Data for the use of village land is reported in the NFS. The villages in our sample use approximately 96% of arable land (approximately 51% of total village land) for household farming. Approximately 75% of the remaining arable land is leased out to "enterprises", a term which we use for firms run by collectives or villagers. Land leased out to enterprises is therefore our second measure of a congruent policy. Since elections can only reduce the amount of land leased out to firms if such land existed prior to the first election, for this outcome we restrict our analysis to villages that ever used any arable land for non-household farming prior to the introduction of the first election. This reduces the sample to 108 villages from 28 provinces.

Incongruent Policies The two most prominent and uncontroversial examples of policies over which the villagers and the government strongly disagree, and which require the effort of the village government are the One Child Policy and land expropriation. The One Child Policy, which restricted households to one child was introduced to rural China in 1980. It was extremely unpopular with citizens and enforcement was always problematic. To control fertility, birth quotas were assigned top-down from the central government all the way down to local governments. The ultimate enforcer of this policy was the village government. Village officials monitored pregnancies, led women to abortion clinics and imposed fines and social pressure on parents who violated the

[34]Consistent with this view, in a cross-sectional study Brandt and Turner (2007) find that redistributing collective land to the direct control of villagers is positively correlated with re-election probabilities.

policy. Village officials were also allowed to give out exemptions. The most common exemption permitted was for households that had a daughter as a first child. The central government approved this possibility in 1984 in response to the rise in female infanticide amongst parents who strongly desired a son. The national law was vague about which parents were eligible (amongst those who had a female first child). In principle, the exemptions were only to be given in case the village official suspected female infanticide would take place if the exemption was not granted (Qian, 2017). Since village officials decided which household this risk applied to, they had significant discretion in the allocation of exemptions. At the same time, these exemptions were costly to grant, as upper levels of government put strong pressure in order to comply with the mandated fertility quotas.[35] These exemptions are recorded in village government records and therefore in the VDS. We interpret more exemptions as a policy shift towards the preferences of the villagers.

Land expropriation in this paper refers to the permanent expropriation of village land for uses such as highway expansion, the construction of an airport, etc. This is extremely unpopular with villagers since it is a permanent loss of land with compensation that is rarely equal to the net present value of the future stream of production. Village officials are supposed to help implement these expropriations by promoting and advertising the benefits of the new status (e.g., proximity to infrastructure) as well as ensuring a smooth removal of families and redistributing the village land that is left. Thus, even though the village government has no direct authority over land expropriation, which is decided by higher levels of government, their effort can affect the policy on the margin. In practice, political scientists have observed that village officials and the villagers can stop or postpone land expropriation by protesting in the township or county seat, or by submitting petitions (O'Brien, 1994).

Instances of land expropriation are captured in the NFS. The data confirm that permanent expropriations are unpopular and rare events. In our sample, they only occur once every fifty village-year observations. We interpret more expropriations as village officials better implementing centrally

[35] We note that decades later, these exemptions were given out much more freely. In 2016, the Chinese government announced the end of the One Child Policy for parents who are both only children themselves. There are also other exemptions such as to workers in dangerous occupations, minority groups, etc. We mention these additional features of family planning in China to be comprehensive. However, they are less relevant in our context and thus not discussed further in the study.

mandated policies.

Placebo Policies The focus of our model is on policies that are under the purview of the village official. In particular, elections should only change the political economy (and therefore policies) at the village-level. The introduction of elections should have no effect on policies that are not under the direct control of the local village leaders. We test this approach by identifying two policies that are autonomously decided and implemented at upper levels of government. The first is special aid in the form of direct transfers to households beneath the poverty line, or other specially targeted households mandated by the central government. The second policy is the transfer of funds from the upper government in order to finance public goods expenditure (e.g., the upper government usually pays for the construction of schools, whereas variable costs such as teacher salary are financed with funds raised from villagers).

Results Table 1 presents the regression results of implementing specification (3) on the six policies highlighted above. Column (1) shows that results for public goods expenditure financed by the villagers, measured in 10,000 constant RMB.[36] The estimates show that the introduction of elections increased the expenditures by 160,800 RMB. To assess the magnitude, consider the normalized beta coefficients presented beneath. It shows that an increase in the probability of the first election by one standard deviation causes a 0.05 standard deviation increase in public goods expenditure. Thus, the effect is notable, but plausibly moderate in magnitude. We present standard errors that are clustered at the province level, and wild-bootstrapped clustered errors to address the concern of small sample bias with only 29 clusters. Both estimates show that the result is statistically significant at the 5% level.

Column (2) shows that the introduction of elections reduced the amount of land leased to enterprises by 62 mu on average.[37] Again, the normalized beta coefficient shows that the effect is significant, but plausibly moderate in magnitude. The estimate is statistically significant at the 5% level.

These results support prediction 2 of the model: with the introduction of elections congruent

[36] During the period of our study, China had a fixed exchange rate and 1 RMB was roughly equation to 1/7 USD.

[37] 1 mu is 1/15th of a hectare. We keep the indigenous unit of measurement because average household land size is very small.

policies experience better performance. In this case, both public goods provision determined by the village official as well as our proxy for corruption move in a favorable direction.

Moving on to incongruent policies, column (3) of Table 1 examines the number of One Child Policy exemptions as the dependent variable. It shows that on average, elections increased the number of exemptions by about one per every ten observations. This is notable since the sample mean is approximately one per every two observations. The estimate is statistically significant at the 10% level (the bootstrapped p-value is only slightly above 5%). Column (4) examines a dummy variable indicating that some land was permanently expropriated from a village during a given year. The estimate is negative and significant at the 10% levels. Again, these results are consistent with prediction 2 of the model: incongruent policies are more often circumvented after elections are implemented in those villages.

Finally, Columns (5) and (6) of Table 1 look at placebo policies. Neither of the two upper government transfers are affected by the introduction of elections. The coefficients (and the normalized beta coefficients) are small in magnitude and statistically insignificant. The results are particularly striking if one compares column (6) – public goods financed by upper government transfers -- and column (1) – public goods financed by the village. The latter reacts strongly to the introduction of elections, while the former does not.[38] These placebo results are consistent with our interpreting the earlier results as reflecting an increase in accountability towards villagers.

In summary, the results are consistent with the central tenet of the model. Introducing elections presents the autocratic government with a clear trade-off. Congruent policies become better implemented while incongruent policies move in the opposite direction. Meanwhile, policies that are outside of the discretion of the village official are unaffected by the introduction of elections.

As we mentioned in Section 4.1.2, the key assumption for the causal interpretation of our difference-in-differences estimates is the parallel trends assumption. To provide support for this assumption, we estimate an equation similar to equation (3), except that we replace the post-first-election dummy variable with dummies for every year since the first election. The coefficients are

[38]Note that the sample mean at the top of column (6) is half of the mean at the top of column (1), which means that approximately one-thirds of local public goods are financed by the upper government. Therefore, the lack of finding an effect in column (6) is not the result of these transfers being marginal.

plotted in Figure 2. They and their standard errors are presented in Appendix Table A.3. Note that we can only conduct this exercise for public goods investment financed by villagers, public goods investment financed by the upper levels of government and One Child Policy exemptions, because the other outcomes are too infrequent to be cut so finely. Nevertheless, the results are reassuring. Figure 2 shows that there is no pre-trend for any of the policies, and that the effect for public goods investment financed by villagers and One Child Policy exemptions begin after elections are introduced. These results support the parallel trends assumption. In the Appendix, we conduct further robustness exercises. See Appendix Section B.1.[39]

4.1.4 Re-election Rates

Prediction 1 of the model contends that implementing the policies that villagers desire should improve re-election probabilities when such policies are congruent. At the same time, implementing policies that are incongruent should decrease re-election rates if bureaucratic capacity is low (that is, if what is reflected in retention rates is the will of villagers rather than the interests of the government). To investigate this prediction, we examine the probability that the incumbent village chairman remains in office as a function of the policies in the previous term. The sample size is now much smaller since observations are at the village-term level (as opposed to village-year) and we restrict our attention to after the introduction of the first election.

Table 2 presents the results for the same six policies examined in the previous sub-section. The dependent variable is a dummy for the incumbent remaining in office. The explanatory variable is the average measure of the policy during the previous term (which is usually three years). The results show that re-election probability statistically significantly increases with more public goods expenditure and with more One Child Policy exemptions. The standardized beta coefficients show that the magnitude of the effects are notable, especially for One Child Policy exemptions. A one standard deviation increase in exemptions increases re-election probability by 0.17 standard devia-

[39]For example, we show that the timing of election is uncorrelated with observable characteristics, and that the results on congruent and incongruent policies are quantitatively similar when controlling for the introduction of the first election in the same province, province-year fixed effects, province-level income and growth, base year measures of the outcome variables interacted with year fixed effects, being near an urban area interacted with year fixed effects, social capital interacted with year fixed effects and the introduction of the *Tax and Fee Reform*. Similarly, the estimate are robust in magnitude if we exclude early and late introducers of elections, or villages that experienced mergers with other villages during our sample period. See the Appendix for details.

tion.

The signs for the estimates for land leased out to enterprises and land expropriation are also consistent with our prediction. However, those estimates are imprecise, most likely due to the small sample size.[40]

Reassuringly, we find no relationship between the implementation of the policies outside of the village official's discretion (columns 5 and 6) and re-election probabilities. The estimates are small in magnitude and statistically insignificant.

The results on the relationship between policies and re-election probabilities are consistent with the prediction of the model. Villages will re-elect officials who better implement congruent policies and punish those who implement incongruent policies. Meanwhile, voting will not respond to policies outside the discretion of the village official.

4.1.5 The Effect on the Quality of Officials

According to Prediction 3 of the model, villagers select officials that are more often competent. Since competence is unobservable, we look at age and education, the characteristics that are most commonly used in the literature to proxy for quality.[41] To examine the effect of elections on these characteristics, we again estimate equation (3) using age and education of the village chairman as dependent variables. Table 3 presents the results. Panel A shows that elections reduced the average age of village chairmen by three years and increased their average educational attainment by more than one-half of a year. Both estimates are statistically significant at the 5% level and economically relevant. To the extent that youth and education are correlated with competence in our context, these results are consistent with prediction 3 of the model.

It is also interesting to examine whether village chairmen are more or less likely to be Party members (upon entering office) after elections are introduced. Ex ante, the effects are ambiguous. On the one hand, a Party member may be less likely chosen by elections relative to by appointment. On the other hand, the Party, by and large, attempts to recruit able individuals. Thus, if villagers choose higher quality officials, elections may increase the probability of a Party member being in

[40] Note that using a large cross-section of villages, Brandt and Turner (2007) find that reducing land leased out increases re-election rates.

[41] See Martinez-Bravo (2017) and Besley et al. (2011) among other examples.

office. The coefficient in column (3), which captures the net effect of the two opposing forces, is statistically zero.

As a placebo exercise, we also examine the effect of elections on the age and education of the village Party Secretary, who is not directly affected by elections and continued to be appointed throughout. Panel B shows that indeed, elections had no effect on the age and education of the party secretary. Note that we do not examine Party membership for the secretary since all secretaries are Party members.

4.2 Elections with Oversight

According to Prediction 4, the autocrat introduces local elections that are easy to manipulate so that they can influence the procedures and outcomes over pure elections. Several pieces of qualitative and descriptive evidence support the prediction. First, recall that the Chinese government maintained some direct control over the village by leaving the Communist Party branch untouched to co-govern with the elected village committee. In fact, the central government allowed the Party to choose candidates until 1998, when it asked all villages to allow open nominations. However, the VDS shows that as late as 2005, only around half of the villages in our sample (139 out of 217) had actually implemented open elections (see Appendix Table A.2).

In addition, there were few restrictions imposed on electoral procedures, which allowed some degree of electoral manipulation. In the VDS, we collected data on the conduct of elections. We find widespread evidence of practices that facilitate manipulation. For instance, in our sample of elections, 60% had roving ballot boxes, 67% did not have anonymous ballots, and 67% allowed voting by proxies. Figure 3 plots the percentage of villages with elections that have any of the aforementioned procedural aberrations over time. It shows that while there are changes over time in the types of aberrations, there is no systematic sign of improvement. For example, the prevalence of non-anonymous voting declines over time, but the prevalence of voting by proxy increases over time. Moreover, all villages have at least one aberration for the entire period. This is consistent with the central government allowing (desiring) a certain degree of control over elections.

At the same time, we note that the few specified rules were mostly followed – the Chairman

typically received more than 50% of votes and elections largely occurred every three years. Indeed, the model shows it is in the interest of the government that elections are meaningful, since they are introduced to solve a local governance problem. Results in Table 1 and 3 show that elections were not pure exercises in window-dressing and that the village political economy changed. We also provide evidence that elections seemed to have changed the *de facto* balance of power between the village chairman and the party secretary, as the Chairman is more often the signatory of village executive decision after elections are introduced.[42] Table 4 presents the effect of the introduction of elections on signature rights on important village policy issues: public goods investment (Panel A), reimbursement from village funds (Panel B) and land reallocation (Panel C). The estimates in column (1) shows that elections increased the probability that the VC was the sole signatory for these policies. The individual estimates vary in precision. Panel D examines the joint significance of all three estimates. They are statistically significantly different from zero at the 10% level. Similarly, the estimate in Panel D column (3) show that elections reduced the probability that the party secretary was the sole signatory of all three policies.

Finally, we note that there was a 38% VC turnover rate for the first election, which is more than twice as high as the average turnover rate in the sample (17%). This is also consistent with real change in local governance.

In summary, the evidence presented in this section is consistent with the model, which says that the autocrat prefers elections that can be manipulated, but are still meaningful.

4.3 Central Bureaucratic Capacity and the Demise of Elections

Prediction 5 of the model states that elections might cease to be useful for the government if there is a large increase in bureaucratic capacity. Here, we discuss how after the introduction of elections, there was an increase in government revenues, which was accompanied by an increase in bureaucratic capacity in rural China that eventually led to the systematic undermining of elections. For this discussion, it is important to recognize that elections were not removed in name, perhaps because such a move would have been very controversial. Instead, they were undermined by making elected

[42] To document that the elected village chairman had de facto authority, we collected data on signature rights from each village. See Appendix Section B.2 for a more detailed discussion.

officials unimportant.

To illustrate the increase in bureaucratic capacity, we focus on statistics which make the following points. First, government revenues increased dramatically, and specifically, the increases were driven by revenue sources that did not rely on the effectiveness of village leaders. This is important, because if government revenues relied on the effort of village leaders, then making the latter unnecessary would curtail government revenues. Second, the government invested in increasing bureaucratic capacity. Specifically, it enlarged central government administration and infrastructure that lowered the costs of monitoring.

From 1980 to 2015, per capita GDP in China increased by 989.86%, from 740.28 dollars to 8,068.04 dollars (all measured in constant 2015 USD). Government revenues also increased dramatically during this period. Total tax revenues increased by 2,117.91% from 90.43 billion dollars in 1980 to 2005.69 billion dollars in 2015 (all measured in constant 2015 USD).[43] This increase was mostly driven by sources outside of rural regions. The most important source has been Value Added Taxes, VAT, which was created in 1994 and now accounts for 24.9% of total tax revenues. During 2000-2015, VAT revenues increased by 583.25%.[44] The increase in tax revenues from non-rural sources is an outcome of intentional government policy. Fan et al. (2017) documents that a large part of the increase in VAT is due to the computerization of invoices. Similarly, Piketty and Qian (2009) show that individual income tax, which only applies to urban workers in China, was established in the 1990s in such as way as to rapidly grow the tax base and increase tax revenues.

The government spent much of its new revenues on improving bureaucratic capacity. Expenditure on the government bureaucracy increased by 291% from 10.56 billion dollars to 301.68 billion dollars (all measured in constant 2015 USD) during 1980-2015.[45] As a share of GDP, it increased from 1.46% to 2.73%.[46] Central government personnel (civil servants) increased from approxi-

[43]NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01 and BLS https://www.bls.gov/cpi/cpid1512.pdf

[44]NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01

[45]NBS (National Bureau of Statistics of the People's Republic of China) Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01 and BLS (Bureau of Labor Statistics) https://www.bls.gov/cpi/cpid1512.pdf. *China Statistical Yearbook* 1981(pp. 397), Ministry of Finance of the People's Republic of China http://yss.mof.gov.cn/2015js/201607/t20160720_2365732.html, NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01 and BLS https://www.bls.gov/cpi/cpid1512.pdf

[46]NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01

mately one million in the mid-1980s to 7,167,000 in 2015, the growth of which far out-paced population growth during this period.[47] Consistent with the idea that the government wanted to increase its ability to collect taxes without relying on the village government, this includes a 64% increase in central tax personel in just fourteen years, from 528,368 in 1991 to 868,496 in 2015.[48]

Similarly, the cost of communication and transportation from the central government to rural areas decreased dramatically. National telephone (including mobile phone penetration) increased from only 0.43% of the population in 1980 to 109.3% in 2015, the length of railways increased by 127.02%, the length of highways increased by 41,067%, the number of civil airports increased by 164.1% and the length of paved roads increased by 415.29%.[49] Notably, the fraction of rural counties with a highway increased from 0% to 99.87% during this period.[50]

In other words, when rural elections were introduced in the mid 1980s and early 1990s, it was extremely difficult for the central government to monitor villages, and they could not afford a large expansion in the capacity of the local bureaucracy. Indeed, O'Brien (1994) notes that saving on costs was one of the arguments from introducing local elections: "Advocates of more thorough democratization argued the opposite. Though equally committed to improved grass-roots governance, they pointed out that the government could not afford to subsidize village cadres from its own coffers". Similarly, White (1992) contends that costs were another incentive behind the introduction of elections: "Economic pressure to streamline administration, reduce personnel, and increase cadre accountability led to political reforms as well".

[47] Data for government personell was released for the first time in 2015 by the Ministry of Human Resources and Social Security of the People's Republic of China http://www.mohrss.gov.cn/SYrlzyhshbzb/dongtaixinwen/buneiyaowen/201605/t20160530_240967.html. The number of personell for the mid 1980s is an approximation provided by a central government official interviewed by the authors.

[48] *China Finance Yearbook* (1992). *China Taxation Yearbook* (2016).

[49] Popularization Rate of Telephone (Include Mobile Telephone)(set/person) data are from the NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01, Penetration can exceed 100% because some households have both mobile and landline phones. Data on railways and highways are from the NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C0, *China Statistical Yearbook* (1980, pp, 367) and *China Statistical Yearbook* (1981, pp. 320). Data on airports are reported by the NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C0 and *China Statistical Yearbook* (1980, pp, 329). Length of paved roads are reported by NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01.

[50] In 1980, there were only few highways in urban areas. See the *China Statistical Yearbook* (1980, 1981). 2015 data are from the Ministry of Transport of the People's Republic of China http://zizhan.mot.gov.cn/zfxxgk/bnssj/zhghs/201605/t20160506_2024006.html

Besides the lack of manpower, the central government also had to grapple with the reality of difficult communication. Almost no one in the village had a phone (often not even the village government) and villages were essentially inaccessible from railways or major roads. In contrast, two decades later, almost every rural household had access to a telephone and almost every village could be reached by a major highway.

According to our theory, such a large increase in bureaucratic monitoring capacity would reduce the usefulness of elections for the government. The central government has not explicitly changed or altered village elections, which were widely popular amongst citizens, but it has taken a series of decision which undermine the position of village officials to the point of irrelevance.[51]

A review of central-government policies since 2000 paints a consistent picture of the central government removing *de facto* power from the elected village government. The village government's ability to raise funds for public goods was severely curbed by the *Tax and Fee Reform*, which banned local taxation and was introduced in 2003.[52] The central government compensated this cut in revenue by increasing central transfers to rural areas for public goods projects such as schools and roads. For example, the amount of central expenditure for rural schools increased by 685% in just a decade, from 14.38 billion dollars to 110.16 billion dollars during 1999-2011.[53] For transportation infrastructure, it increased by 32%, from 6.51 billion dollars to 8.58 billion dollars during 1999-2011 for transportation infrastructure. For agricultural infrastructure, it increased by 166%, from 12.39 billion dollars to 31.63 billion dollars during 1999-2011 (all measured in constant 2015 USD).[54] However, it is crucial to note that these transfers are not managed or implemented by

[51]This makes it difficult to measure the "end" of elections with survey data. We do not observe measures that would reflect a change in power from the VDS survey.

[52]Note that one of the robustness checks shown in the appendix demonstrates that the empirical results shown earlier are not confounded by this policy, which occurs toward the end of our sample period.

[53]Our survey, the VDS, does not observe a statistically significant increase in government funding of public goods because most of the increase occurred after the end of our sample (2005).

[54]Data on central expenditure on rural schools are reported by the NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01, BLS https://www.bls.gov/cpi/cpid1512.pdf, https://www.bls.gov/news.release/history/cpi_01142000.txt, https://www.bls.gov/cpi/cpid11av.pdf and the *China Educational Finance Statistical Yearbook* (2000, pp. 4-5; 2012, pp. 26-27). Data on transportation expenditure are reported by NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01, BLS https://www.bls.gov/cpi/cpid1512.pdf, https://www.bls.gov/news.release/history/cpi_01142000.txt, https://www.bls.gov/cpi/cpid11av.pdf and the *China Rural Statistical Yearbook* (2000, pp. 81; 2012, pp. 83). Data on expenditure on agriculture is reported by the NBS Yearbook http://data.stats.gov.cn/easyquery.htm?cn=C01, BLS https://www.bls.gov/cpi/cpid1512.pdf, https://www.bls.gov/news.release/history/cpi_01142000.txt, https://www.bls.gov/cpi/cpid11av.pdf and the *China Rural*

the village-level official, but by upper levels in the rural bureaucracy.

Thus, the central government simultaneously removed the ability of the village government to raise money for public goods, therefore curtailing their autonomy, and increased the amount of transfers from the central government to rural areas for these public goods so as to not increase citizen dissatisfaction. In line with this, the abolition of agricultural taxes in 2005 as well as the complete relaxation of the One Child Policy has removed the need for the government to obtain significant effort from local officials.

Consistent with this, Oi et al. (2011) provide evidence from a detailed review of recent fiscal policies and data on transfers across the different levels of government to argue that the central government has been centralizing fiscal and political control since the late 1990s. In fact, they show that village officials have in effect lost control over village budgets and in some counties they need explicit permission from upper levels of government to access funds.

The government has also resorted to other practices of direct control: a recent study by He and Wang (Forthcoming) examines a new practice of introducing urban college graduates to villages for three-year terms after graduation. The explicit purpose of the program is to ensure that village leaders obey and properly implement central commands – i.e., in the context of our model, to ensure incongruent policies are followed. Good performance and loyalty to the central government from the college graduates are incentivized with the promise of urban jobs and Party membership after their service in rural areas.

5 Conclusion

This paper combines theory and empirical evidence to uncover the trade-offs that autocrats face when deciding to introduce local elections. Specifically, we examine whether local elections, as an instrument for improving local governance, are costly in terms of losses in control for the autocrat. To this end, we develop a simple model which shows that while local elections can improve the selection and monitoring of local bureaucrats, it can also undermine central government objectives for policies over which the central government and citizens disagree.

Statistical Yearbook (2000, pp. 81; 2012, pp. 83).

The empirical results in the context of village elections in China support the multiple predictions of the model. Using a dataset that the authors of this paper collected, we show that elections made local officials effectively accountable to the villagers, which means that the trade-off between performance and control suggested by our model was real in this context. While congruent policies improve dramatically with the implementation of elections, incongruent policies weaken. In addition, we uncover evidence that villagers reward officials who perform according to their preferences and also that there are changes in the characteristics of officials elected, which suggests that there is a selection margin at play behind our results.

An interesting implication of the trade-off posed by the model and confirmed by the descriptive and qualitative evidence is that the autocrat's decision to implement local elections depends on the bureaucratic capacity of the central government. From the point of view of the central government, the main benefit of elections is that villagers use their superior information in selection and incentive-provision to local officials. The cost is that centrally mandated unpopular policies are poorly implemented. Therefore local elections dominate central control if the quality of information at the centre is poor, since with poor information neither kind of policy is well-implemented under central control. However, the model shows that as the quality of information of the upper government improves, central control might become the preferred institutional arrangement, since it does not suffer from lack of control over unpopular policies. Thus, when the autocrat has little resources, he is more likely to choose local elections as a means to govern, whereas when he has more resources, he is more likely to eschew elections and build bureaucratic capacity to directly monitor the bureaucrat – i.e., centralize power.

The model thus suggests that there were two alternative solutions to fixing local governance in China in the early 1980s (i) the introduction of elections or (ii) a large investment in the vertical system of bureaucratic control in order to improve the quality of information flowing to the central government. In the mid 1980s, the latter was not feasible since it required a costly buildup of the bureaucracy, with a large increase in personnel, which was simply not affordable for the then-poor country. However, after two decades of rapid growth, China was a much richer country. At that point, recentralization was possible and became the dominant strategy. A review of the aggregate

statistics and the central policies undertaken since the early 2000s are consistent with this view.

Our study provides important generalizable insights for other contexts. Governments typically have several policy priorities that they want implemented, and the bureaucratic structure they choose can be determined by the issues they face bringing their agenda to fruition. In this paper, we show that the introduction of local elections in autocracies can be rationalized via a fundamental trade-off between vertical control of officials and their performance. This is novel to the literature on the political economy of autocracies that has focussed on regime survival rather than the regime's capacity to follow its policy agenda.

There are several interesting avenues for future study. For example, the introduction of elections may allow citizens to learn about elections and thus increase the demand for elections or more democracy from the autocrat. This is an additional cost for the autocrat which we have not included in our model, and likely to be important in the long-run.

More generally, stepping away from the strict dichotomy of autocracies and democracies and consider the role that quasi-democratic mechanisms can play within larger autocratic regimes is a promising agenda for future research. As we discussed in the beginning of the introduction of the paper, China is one of many autocracies that have introduced local elections. It is also interesting to note that the *a priori* puzzling pattern of introducing elections and then re-centralizing control, despite the fact that the elections have been found to be successful in improving local governance and were popular amongst citizens, can be seen in Vietnam as well as China.[55]

[55] See Malesky and Schuler (2013) for a study of Vietnam.

References

Acemoglu, Daron, Georgy Egorov, and Konstantin Sonin, "Coalition Formation in non-democracies," *Review of Economic Studies*, 2008, *75* (4), 987–1009.

Aghion, Philippe and Jean Tirole, "Formal and Real Authority in Organizations," *Journal of Political Economy*, 1997, *105* (1), 1–29.

Alonso, Ricardo, Wouter Dessein, and Niko Matouschek, "When does Coordination Require Centralization?," *American Economic Review*, 2008, *98* (1), 145–79.

Banerjee, Abhijit V., Selvan Kumar, Rohini Pande, and Felix Su, "Do Informed Voters Make Better Choices? Experimental Evidence from Urban India," Working Paper, MIT Working Paper 2010.

Besley, Timothy and Anne Case, "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits," *Quarterly Journal of Economics*, 1995, *110* (3), 769–798.

_ **and Robin Burgess**, "The Political Economy of Government Responsiveness: Theory and Evidence from India," *Quarterly Journal of Economics*, 2002, *117* (4), 1415–1451.

_ **, Jose Montalvo, and Marta Reynal-Querol**, "Do Educated Leaders Matter?," *Economic Journal*, 2011, *121*, 205–227.

Bidner, Chris, Patrick Francois, and Francesco Trebbi, "A Theory of Minimalist Democracy," 2015. Working Paper.

Birney, Mayling, "Can local elections contribute to democratic progress in authoritarian regimes?" PhD dissertation, Yale University 2007.

Björkman, Martina and Jakob Svensson, "Power to the People: Evidence from a Randomized Field Experiment on Community-Based Monitoring in Uganda," *Quarterly Journal of Economics*, 2009.

Bobonis, Gustavo, Luis R. Camara Fuentes, and Rainer Schwabe, "Does Exposing Corrupt Politicians Reduce Corruption?," Working Paper, University of Toronto 2010.

Boix, Carles and Milan Svolik, "The foundations of limited authoritarian government: institutions and power-sharing in dictatorships," *Journal of Politics*, 2013, *75* (2), 300–16.

Brandt, Loren and Matthew A. Turner, "The usefulness of imperfect elections: The case of village elections in rural China," *Economics & Politics*, 2007, *19* (3), 453–480.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller, "Bootstrap-Based Improvements for Inference with Clustered Errors," *The Review of Economics and Statistics*, August 2008, *90* (3), 414–427.

de Janvry, Alain, Frederico Finan, and Elisabeth Sadoulet, "Local Electoral Incentives and Decentralized Program Performance," Working Paper 16635, NBER 2010.

Egorov, Georgy and Konstantin Sonin, "Dcitators and their Viziers: endogenizing the loyalty-competence trade-off," *Journal of the European Economic Association*, 2011, *9* (5), 903–30.

Fan, Haichao, Yu Liu, Nancy Qian, and Jaya Wen, "The Effect of Computerization on VAT in China," Working Paper, Northwestern 2017.

Ferraz, Claudio and Frederico Finan, "Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes," *Quarterly Journal of Economics*, 2008, *123* (2), 703–745.

_ **and** _ , "Electoral Accountability and Corruption: Evidence from the Audits of Local Governments," *American Economic Review*, 2011, *101(4)*, 1274–1311.

Francois, Patrick, Francesco Trebbi, and Kairong Xiao, "Factions in Nondemocracies: Theory and Evidence from the Chinese Communist Party," *UBC working paper*, 2017.

Gan, Li, Lixin Colin Xu, and Yang Yao, "Local Elections and Consumption Insurance: Evidence from Chinese Villages," *World Bank Policy Research Working Paper 4205*, 2007, pp. 1–28.

Gandhi, Jennifer and A. Przeworski, "Cooperation, Cooptation, and rebellion under dictatorships," *Economics and Politics*, 2006, *18* (1), 1–26.

_ **and Ellen Lust-Okar**, "Elections Under Authoritarianism," *Annual Review of Political Science*, 2009, *12* (1), 403–422.

Geddes, Barbara, "Why Parties and Elections in Authoritarian Regimes?," *APSA Annual Meeting*, 2005.

Gehlback, Scott, Konstantin Sonin, and Milan Svolik, "Formal Models of Non-Democratic Politics," *Annual Review of Political Science*, 2016, *19*, 565–84.

He, Guojun and Shaoda Wang, "Do College Graduates Serving as Village Officials Help Rural China?," *American Economic Journal: Applied*, Forthcoming.

Jacoby, Hanan G., Guo Li, and Scott Rozelle, "Hazards of Expropriation: Tenure Insecurity and Investment in Rural China," *American Economic Review*, 2002, *93* (5), 1420–1447.

Jia, Ruixue and Hua Nie, "Decentralization, Collusion and Coalmine Deaths," Working Paper, University of California at San Diego 2013.

Kelliher, Daniel, "The Chinese debate over village self-government," *The China Journal*, 1997, pp. 63–86.

Li, Han, "The Single Party as Source of Legitimacy: Theory and Evidence on Political Mobilization," Working Paper, University of Science and Technology 2009.

Lorentzen, P.L., "Regularizing Rioting: Permitting Public Protest in an Authoritarian Regime," *Quartely Journal of Political Science*, 2013, *8(2)*, 127–158.

Luo, Renfu, Linxiu Zhang, Jikun Huang, and Scott Rozelle, "Village Elections, Public Goods Investments and Pork Barrel Politics, Chinese-style," *Journal of Development Studies*, 2010, *46* (4), 662–684.

Magaloni, Beatriz, "Credible power-sharing and the longevity of Authoritarian rule," *Comparative Political Studies*, 2008, *41* (4/5), 715–41.

Malesky, Edmund and Paul Schuler, "Star Search: Do Elections Help Nondemocratic Regimes Identify New Leaders?," *Journal of East Asian Studies*, 2013, *13(1)*, 35–68.

Manion, Melanie, "Democracy, Community, Trust: The Impact of Elections in Rural China," *Comparative Political Studies*, 2006, *39* (3), 301–24.

Martinez-Bravo, Monica, "The Local Political Economy Effects of School Constuction in Indonesia," *American Economic Journal: Applied Economics*, April 2017, *9* (2), 256–289.

_ **, Gerard Padro i Miquel, Nancy Qian, and Yang Yao**, "Social Fragmentation, Public Goods and Elections: Evidence from China," Working Paper 18633, National Bureau of Economic Research December 2012.

_ **, Gerard Padró i Miquel, Nancy Qian, Yiqing Xu, and Yang Yao**, "Making Democracy Work: The Effect of Social Capital on Elections in China," Northwestern Working Paper 2017.

Meng, Xin, Nancy Qian, and Pierre Yared, "The Institutional Causes of China's Great Famine, 1959-61," *The Review of Economic Studies*, 2015, *82* (4), 1568–1611.

Miller, MK, "Elections, Information, and Policy Responsiveness in Autocratic Regimes," *Comparative Political Studies*, 2015, *48* (6), 691–727.

Myerson, Roger, "The autocrat's credibility problem and foundations of the constitutional state," *American Political Science Review*, 2008, *102* (1), 125–39.

_ , "Local Agency Costs of Political Centralization," 2015. University of Chicago Working Paper.

O'Brien, Kevin J., "Implementing Political Reform in China's Villages," *Australian Journal of Chinese Affairs*, 1994, (32), 33 – 59.

_ **and Lianjiang Li**, "The Struggle over Village Elections," in Merle Goldman and Roderick MacFarquhar, eds., *The paradox of China's post-Mao reforms*, Cambridge, MA: Harvard University Press, 1999.

_ **and** _ , "Accommodating "Democracy" in a One-Party State: Introducing Village Elections in China," *The China Quarterly*, 2000, (126), 465–489.

Oi, Jean and Scott Rozelle, "Elections and power: The locus of decision-making in Chinese villages," *The China Quarterly*, 2000, *162*, 513–539.

Oi, Jean C., Kim S. Babiarz, Linxiu Zhang, Renfu Luo, and Scott Rozelle, "Shifting Fiscal Control to Limit Cadre Power in China's Townships and Villages," *The China Quarterly*, 2012, *211*, 649–675.

Oi, Jean, Kim Singer Babiarz, Linxiu Zhang, Renfu Luo, and Scott Rozelle, "Shifting Fiscal Control to Limit Cadre Power in China's Townships and Villages," *The China Quarterly*, September 2011, *211*, 649–675.

Padró i Miquel, Gerard, "The Control of Politicians in Divided Societies: The Politics of Fear," *Review of Economic Studies*, 2007, *74* (4), 1259–74.

Piketty, Thomas and Nancy Qian, "Income Inequality and Progressive Income Taxation in China and India, 1986-2015," *American Economic Journal: Applied Economics*, April 2009, *1* (2), 53–63.

Qian, Nancy, "Quantity Quality and the One Child Advantage in China," Working Paper, UNU 2017.

Shen, Yan and Yang Yao, "Does grassroots democracy reduce income inequality in China?," *Journal of Public Economics*, 2008, *92(10-11)* (10-11), 2182–2198.

Stromberg, David, Bei Qin, and Yanhui Wu, "Why does China allow freer social media? PProtest versus Surveillance and Propaganda," *Journal of Economic Perspectives*, 2017, *31* (1), 117–140.

Suarez Serrato, Juan Carlos, Xiao Yu Wang, and Shuang Zhang, "The Limits of Meritocracy: Screening Bureaucrats Under Imperfect Verifiability," *Duke Working Paper*, 2017.

Tsai, Lily Lee, *Accountability without Democracy: Solidary Groups and Public Goods Provision in Rural China*, New York, NY: Cambridge University Press, 2007.

Unger, Jonathan, *The transformation of rural China* Asia and the Pacific, Cambridge, MA: M.E. Sharpe, 2002.

United Cities and Local Governments, "Decentralization and Local Democracy in the World," Global Report 2007.

White, Tyrene, "Reforing the Countryside," *Current History*, 1992, *91* (566), 273–277.

Wilson, James Q., *Bureaucracy*, Basic Books, 1989.

Zhang, Xiaobo, Shenggen Fan, Linxiu Zhang, and Jikun Huang, "Local governance and public goods provision in rural China," *Journal of Public Economics*, 2004, *88(12)*, 2857–2871.

Figure 1: Optimal Local Governance

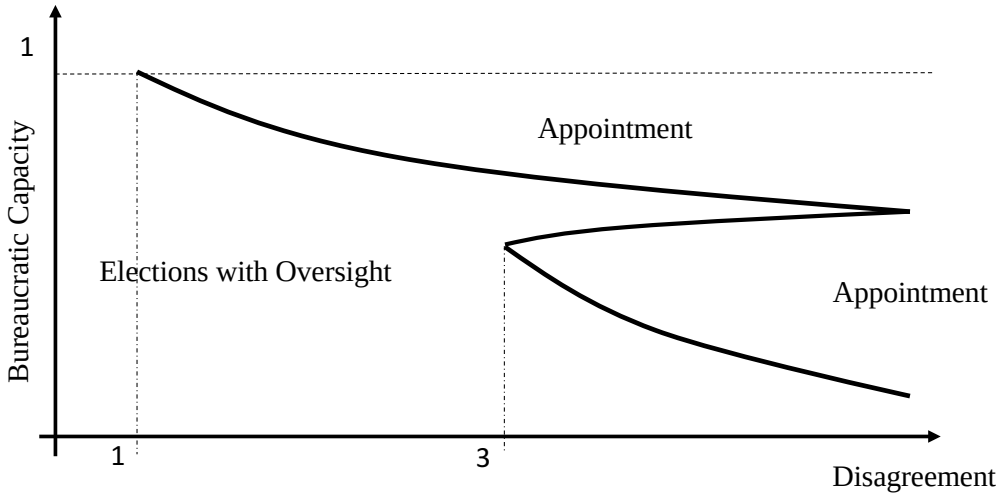
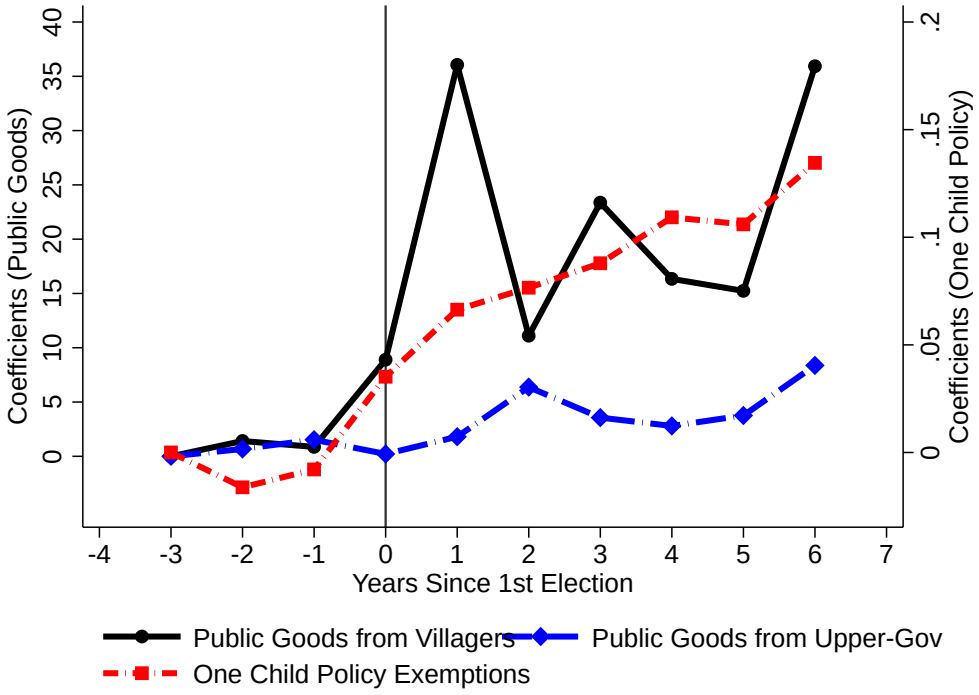
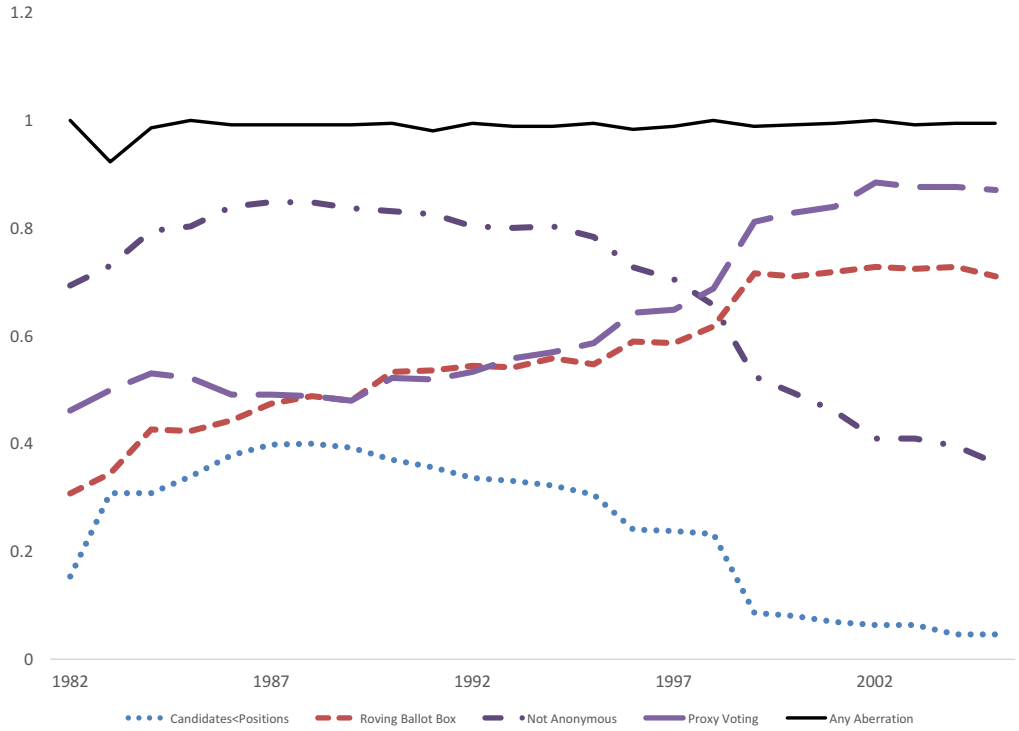


Figure 2: The Effect of Elections on Congruent and Incongruent Policies Over Time



Notes: The y-axis plots the coefficient for the indicator variable for the number of year since the first election. Source: Authors' estimation results. See Appendix Table A.3 for the coefficients and standard errors.

Figure 3: Procedural Aberrations over Time



Notes: The y-axis plots the fraction of villages within which aberrations occur. The x-axis plots the calendar year. Source: Authors' calculations, VDS.

Table 1: The Effect of Elections on Congruent and Incongruent Policies

	Dependent Variables					
	A. Concordant Policies		B. Discordant Policies		C. Placebo Policies	
	Public Good Expenditures (Villagers, 10,000 RMB)	Village Land Leased to Enterprises	One Child Policy Exemptions	Dummy for Expropriation of Village Land	Upper-Government Special Aid (10,000 RMB)	Public Good Exp from Upper-Gov
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. Means	*9.46*	*111.01*	*0.55*	*0.02*	*1.49*	*4.28*
Post 1st Election	16.080	-62.21	0.101	-0.013	-0.650	-0.672
	(7.717)	(33.842)	(0.056)	(0.006)	(0.915)	(1.525)
Beta Coefficient	0.051	-0.052	0.076	-0.034	-0.005	-0.004
Wild Bootstrap p-value	[0.044]	[0.048]	[0.052]	[0.072]	[0.527]	[0.818]
Observations	4,340	1,957	4,340	4,340	4,340	4,340
R^2	0.103	0.559	0.792	0.094	0.059	0.073
Number of Clusters	29	27	29	29	29	29

Notes: All regressions control for the introduction of open nominations, province trends, and village and year fixed effects. Standard errors, clustered at the province level, are reported in parentheses. Wild bootstrap p-values are presented in square brackets. 1 mu =1/15 hectare. The sample is a balanced village-level panel of 217 villages for the years 1986-2005. Column (2) has fewer observations because data on land leased is missing in some years, and also because we restrict the sample to 109 villages that ever leased land to enterprises.

Table 2: The Effect of Congruent and Incongruent Policies on Re-election Probabilities

	Dependent Variables: Dummy for VC re-election					
	A. Concordant Policies		B. Discordant Policies		C. Placebo Policies	
	Public Good Expenditures (Villagers, 10,000 RMB)	Village Land Leased to Enterprises	One Child Policy Exemptions	Dummy for Expropriation of Village Land	Upper-Government Special Aid (10,000 RMB)	Public Good Exp from Upper-Gov
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. Means	*0.479*	*0.477*	*0.452*	*0.452*	*0.480*	*0.479*
Ind. Var. (Policy) Mean*	*8.124*	*122.8*	*0.527*	*0.0154*	*0.138*	*3.340*
Policy (see column heading)*	0.00068	0.00005	0.17517	-0.08090	-0.00721	-0.00064
	(0.00016)	(0.00009)	(0.06261)	(0.24599)	(0.01121)	(0.00061)
Beta Coefficient	0.080	0.047	0.172	-0.012	-0.023	-0.039
Wild Bootstrap p-value	[0.020]	[0.599]	[0.016]	[0.727]	[0.567]	[0.471]
Observations	1,173	566	1,293	1,293	1,171	1,173
R^2	0.281	0.329	0.288	0.283	0.280	0.279
Number of Clusters	29	28	29	29	29	29

Notes: All regressions control for the introduction of open nominations, province trends, and village and year fixed effects. Standard errors, clustered at the province level, are reported in parentheses. Wild bootstrap p-values are presented in square brackets. The unit of observation is a village and year in which an election for village committee was held. *The independent variables are defined as the average value of the corresponding policy in the term before the election. Column (2) has fewer observations because data on land leased is missing in some years, and also because we restrict the sample to 109 villages that ever leased land to enterprises.

Table 3: The Effect of Elections on the Quality of Local Officials

	Dependent Variable		
	Age	Years of Education	Party Member
	(1)	(2)	(3)
	A. Village Chairman (VC)		
Dependent Variable Mean	*42.10*	*7.85*	*0.80*
Post 1st Election	-3.042	0.694	-0.029
	(1.121)	(0.213)	(0.047)
Wild Bootstrap p-value	[0.012]	[0.004]	[0.563]
Obs	3,264	3,264	3,384
R^2	0.409	0.612	0.507
Number of Clusters	136	136	141
	B. Party Secretary (PS)		
Dependent Variable Mean	*43.48*	*8.28*	*1*
Post 1st Election	-1.084	-0.048	
	(0.792)	(0.167)	
Wild Bootstrap p-value	[0.168]	[0.874]	
Obs	2,496	4,176	
R^2	0.459	0.570	
Number of Clusters	104	174	

Notes: All regressions control for the introduction of open nominations, province trends, and village and year fixed effects. Standard errors, clustered at the province level, are reported in parentheses. Wild bootstrap p-values are presented in square brackets. The sample is a panel of village-year observations for the years 1982-2005. The number of observations varies across columns due to missing values in the outcome variables.

Table 4: The Effect of Elections on Signature Rights

	Dependent Variable: Dummy Variable for Signature Right		
	VC	VC & PS	PS
	(1)	(2)	(3)
	Panel A. Signature Right for Public Goods Investment		
Dependent Variable Mean	*0.18*	*0.67*	*0.16*
Post 1st Election	0.045	-0.027	-0.018
	(0.022)	(0.027)	(0.028)
Wild Bootstrap p-value	[0.048]	[0.355]	[0.555]
Observations	4,296	4,296	4,296
R-squared	0.773	0.805	0.772
Clusters	27	27	27
	Panel B. Signature Right to be Reimbursed		
Dependent Variable Mean	*0.54*	*0.18*	*0.26*
Post 1st Election	0.052	0.012	-0.064
	(0.036)	(0.028)	(0.029)
Wild Bootstrap p-value	[0.220]	[0.615]	[0.016]
Observations	4,296	4,296	4,296
R-squared	0.765	0.688	0.821
Clusters	27	27	27
	Panel C. Signature Right to Reallocate Land		
Dependent Variable Mean	*0.33*	*0.53*	*0.14*
Post 1st Election	0.049	-0.015	-0.035
	(0.039)	(0.038)	(0.030)
Wild Bootstrap p-value	[0.216]	[0.695]	[0.248]
Observations	3,768	3,768	3,768
R-squared	0.793	0.803	0.804
Clusters	27	27	27
	Panel D. SUR Joint Significance for Panels A, B and C		
Chi 2	6.863	3.279	8.364
p value	0.0764	0.351	0.0391

Notes: All regressions control for the introduction of open nominations, province trends, and village and year fixed effects. Standard errors, clustered at the province level, are reported in parentheses. Wild bootstrap p-values are presented in square brackets. The samples in Panels A and B are balanced panel of 179 villages for1982-2005; the sample in Panel C is a balanced panel of 157 villages for 1982-2005. There are fewer villages than the full sample (217) because of missing values for village leaders. Panel D reports the joint significance of the estimates in Panels A, B and C for each column.

Online Appendix

A Proofs

Proposition. *(1) Denote by* $\Phi \equiv \frac{(1-\alpha)\theta}{\alpha}$. *If* $\Phi > 1$, *there is a* $\Lambda(\Phi) \in (\frac{1}{2}, 1)$ *such that for all* $\lambda > \Lambda(\Phi)$, *villagers select incompetent village officials under elections with oversight.* $\Lambda(\Phi)$ *is a decreasing function.*

Proof. $U^V_{\mu=1} - U^V_{\mu=0} = \alpha e^E - (1-\alpha)\theta e^O = \frac{1}{\alpha}(e^E - \Phi e^O)$. This expression is strictly decreasing in λ as $e^O$is strictly increasing and $e^O = e^E$ when $\lambda = 1$. So we have that $e^E - \Phi e^O(\Lambda) = 0$ defines the threshold implicitly and this condition can only be true if $\Phi > 1$ and it must be that $\Lambda > \frac{1}{2}$ because this can only be true if $e^O > 0$. □

Proposition. *(2) If* $\lambda < \Lambda(\Phi)$, *starting from a situation of appointment, the introduction of elections with oversight*

i. Increases success rates for congruent policies

ii. Decreases success rates for incongruent policies if $\lambda \leq \frac{1}{2}$. *If* $\lambda > \frac{1}{2}$, *there is a* $\bar{\pi} \in (0,1)$ *such that the success rate for incongruent policies decreases (increases) if* $\pi > (<)\bar{\pi}$

iii. Local officials are more competent under elections with oversight than under appointment

Proof. Because $\lambda < \Lambda(\Phi)$, the level of effort under elections with oversight is e^E when $C = 1$ and it is defined by equation (2) when $C = 0$. The first point is obvious from the fact that $e^E > e^A$. So it must be that $e^E > \pi e^A$. The second point follows from the fact that $c'(e^O) = max\{0, (2\lambda - 1)R\}$ and hence$e^O = 0$ when $\lambda \leq \frac{1}{2}$. When $\lambda > \frac{1}{2}$, we have that $e^A > e^O > 0$. The proposition then follows from noting that there is always a $\pi \in \bar{(}0,1)$such that $e^{DO} = \bar{\pi} e^A$. Point iii is true because when $\lambda < \Lambda(\Phi)$ villagers pick competent officials with probability 1 under elections, while the government only picks competent officials with probability π. □

Lemma. *Pure elections are always dominated by elections with oversight from the point of view of the government if* $\lambda \leq \Lambda(\Phi)$.

Proof. When $C = 1$ both arrangements obtain the same effort, e^E. When $C = 0$, pure elections obtain 0 effort while elections with oversight obtain $e^O \geq 0$. Therefore in all circumstances elections with oversight obtain weakly greater expected payoff as long as $\lambda \leq \Lambda$. □

Proposition. *(3) Denote by U_A^G the expected utility of the government under appointment and by U_O^G the expected utility of the government under elections with oversight. We have that*

i. For all $\lambda \in [0,1)$, $\pi \in [0,1)$, there is a $\widetilde{\Phi}$ such that for all $\Phi < \widetilde{\Phi}$, $U_O^G > U_A^G$

ii. For all $\lambda > \Lambda(\Phi)$, and for all $\pi \in (0,1)$, $U_O^G < U_A^G$

iii. For each $\Phi > 1$, there is a non-empty set $E \subset (0,\Lambda) \times (0,1)$ such that if $(\lambda,\pi) \in E$, then $U_O^G \geq U_A^G$

iv. For each $(\lambda,\pi) \in E$, there is a (λ',π') with $\lambda \leq \lambda'$ and $\pi \leq \pi'$ such that $U_O^G(\lambda',\pi') < U_A^G(\lambda',\pi')$

Proof. From the proof of Proposition 1 we have that $\Lambda(\Phi)$ is defined implicitly by$e^E - \Phi e^O(\Lambda) = 0$. It follows that $\Phi(1) = 1$. Hence, for all $\Phi < 1$, $\lambda < \Lambda(\Phi)$. In this case, we can denote by $\Delta U_{OA}^G = U_O^G - U_A^G = \alpha(e^E - \pi e^A) + (1-\alpha)\theta(e^{DO} - \pi e^A)$. Note that the first term in this expression is always positive. For point i. note that we can rewrite $\Delta U_{OA}^G = \alpha(e^E - \pi e^A + \Phi(e^O - \pi e^A))$. If $\Phi < 1$ and small enough this is the relevant expression and it is clearly positive. For point ii. note that villagers elect incompetent officials when $\lambda > \Lambda(\Phi)$. It follows that $U_O^G(\lambda > \Lambda) = 0 < U_A^G$. For point iii. note that for $\lambda < \Lambda(\Phi)$ we can write ΔU_{OA}^G as above. As noted, the first term $e^E - \pi e^A$ is always positive. The second term can be arbitrarily close to 0 since $e^O \to 0$ as $\lambda \to \frac{1}{2}$ and πcan be as small as needed. Hence there are always combinations of $\lambda$and π such that $\Delta U_{OA}^G > 0$.

Finally, point iv follows from ii and iii. Any $\lambda' > \Lambda$ combined with any $\pi' > \pi$ will generate a situation that complies with ii. □

B Endogenous Timing of Elections

According to the descriptive literature, innovative provincial governments began experimenting with elections in the early 1980s. Elections were formally codified by the central government in the *Organizational Law on Village Committees* (OLVC) in 1987. From this point onwards, all provinces

were pushed to introduce elections in all rural areas. A revision of the OLVC in 1998 required candidate nominations to be open to all villagers.

The decision to introduce elections at the province-level was the result of political pressure and bargaining between the central government and the provincial leaders. However, implementation within provinces was mainly imposed top-down by bureaucratic fiat. Each level of government would pilot the reform in a few select villages, and the reform would be widely implemented once the procedures and logistics were tested (O'Brien and Li, 1999).

To understand the process, timing and details of the reform, we conducted a large number of interviews with county- and province-level officials and conducted focus groups with village officials and prominent citizens in over a dozen villages in four provinces during the summers of 2006 and 2007. These discussions suggest the roll-out was mostly orthogonal to village characteristics. In particular, villages had no discretion over the timing of introduction of elections, which is characteristic of reforms in rural China.[56] This is consistent with the speed of roll-out within provinces.

This being said, the anecdotal evidence collected by us as well as that from qualitative studies only point to two potential exceptions to this orthogonality. First, the pilot villages used to test electoral procedures were obviously selected to introduce elections earlier. Second, there are a few accounts of elections being delayed in "problematic" villages that had a history of non-compliance with unpopular central government policies (e.g., One Child Policy or the permanent expropriation of village land by the upper-levels of government) or had a large kinship clan that could dominate other villagers in a majoritarian regime.[57] These examples of "endogenous" timing are important to keep in mind, and we show in the robustness checks below that they do not drive our findings.

Appendix Table A.2 shows the timing of the introduction of elections in the VDS villages. The VDS data are consistent with the descriptive literature on the timing of electoral reforms. First, the timing of the rollout is consistent with rapid top-down implementation within provinces and coun-

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

[57] The role of kinship groups in elections has also been discussed by Li (2009) and Oi and Rozelle (2000).

ties. Our data indicate that 16% of villages held their first elections prior to the official introduction of elections by the county government, 66% held their first elections the year that the county introduced elections, and 18% held their first election afterwards.[58] Table A.1 shows that the average village implemented its first election within the same year as the official introduction of elections in its county and five years after the first election in the same province. Since the 29 provinces of our sample include approximately 2,885 counties and 623,669 rural villages (as defined by the number of village governments, *cunming weiyuanhui*), these statistics imply that the average county was able to introduce elections in 143 villages within one year.[59]

Second, the fact that a small number of villages implemented elections before and after the official introduction in each county is consistent with the anecdotal evidence that each administrative division typically piloted the reform before officially introducing it and also delayed elections in a few villages. Hence, given our identification assumption, it is important to check that our baseline estimates are not driven by the early movers or the stragglers.

Third, we can provide direct evidence that the timing of the first election is uncorrelated to most pre-reform village characteristics once province fixed effects are partialed out. We estimate bivariate regressions of the residualized election timing on each of a large number of residualized village characteristics such as village size, proximity to an urban area, proxies for social and economic structure, measures of the pre-existing level of public goods provision and other outcomes of interest. We measure all these village characteristics in the first year that data are available.[60] The sample for this estimation is therefore a cross section of villages. For brevity, we present the results for village demographic and physical characteristics, and the main outcome variables of our

[58] Note that the timing of the official introduction of elections in each county is based on respondent recall. To maximize accuracy, our surveyors only record a date if all respondents surveyed in a given village agree. If there is no consensus, this variable is recorded as missing. Since provinces are large and respondents could not confidently recall the year of the first election within a province, the date of province-level introduction is inferred as the year of the first election in each province according to our survey.

[59] While the presence of province waves is prominent in the data, we do have substantial within-province variation in the timing of the first election in each village. In a village-level cross-sectional regression, when we regress the year of the first election on province fixed effects we find that the R-squared is 0.33. Thus, approximately two-thirds of the variation in the timing of elections is within province.

[60] Most variables reported by the NFS are available starting in 1986. Land variables are available starting in 1987. Measures of the One Child Policy and upper-government land expropriation from the VDS are available starting in 1982. The results are similar if we measure the latter two variables in 1986. The results are also similar if we measure all variables as the average of the first two years for which they are available. These alternative results are available upon request.

regression analysis. Since it is difficult to compare magnitudes across different regressors, Table A.4 presents the standardized coefficients for each regression. This table shows clearly that there is no correlation between village characteristics and the timing of elections.

B.1 Robustness

There are three main concerns for the difference-in-differences estimates for the core-tradeoff predicted by the model. The first concern is that despite controlling for province time trends, our baseline results are partly driven by cross-province variation in timing, which is determined by provincial leaders for potentially endogenous reasons. We address this issue in three ways. First, to control for the province-level timing of the decision to introduce village elections, we add a dummy variable that indicates whether any village in a given province has introduced elections (Table A.5 column (2)). The results are similar to the baseline estimates, which are displayed in column (1) for ease of comparison. Hence, our results are not an outcome of province-level variation in the timing of the introduction of the reform, which is the main source of endogeneity concerns. A second way of accounting for province-level factors is to introduce province-year fixed effects instead of province-year trends. This allows the influence of province characteristics to vary flexibly over time. Column (3) shows that this stringent set of controls reduces the precision of our estimates, which is natural given the presence of province-waves in the data. However, what is important is the fact that the coefficient is nearly identical in magnitude as the baseline specification. Finally, we control for province-level variables such as per capita GDP, per capita agricultural GDP, and per capita government expenditure in public goods.[61] In column (4), the coefficients with these controls are also similar to our baseline.

The second main concern is that our estimate could be driven by pilot or straggler villages in the reform implementation which may have been chosen endogenously, as discussed earlier. In column (5), we repeat our estimate on a restricted sample where we drop pilot and straggler villages.[62] The estimate is similar to the baseline.

[61] These data are reported by *China Statistical Yearbooks.*

[62] A pilot village is defined as a village that implemented elections more than two standard deviations before the average timing of villages in the same province. A straggler village is defined as one that implemented elections more than two standard deviations after the average timing of villages in the same province. If all of the villages in a province implement elections in the same year, then that province will have no pilot or straggler villages.

The final concern is that there may be village-specific and time-varying determinants of the introduction of elections that are not controlled for by the baseline controls and that affect the outcomes of interest through channels other than elections. The strongest evidence against this concern is in Table A.4 which shows that the timing of the introduction of elections is uncorrelated with observable features of the village. Nevertheless, one may still be concerned that the timing of the introduction of elections is correlated with pre-conditions that affect our outcomes of interest through channels other than elections. Given the anecdotal evidence on the delay of elections for villages with a history of non-compliance to unpopular central government policies, we directly controlling for the interaction term of village-level pre-determined policy outcomes – upper government land expropriation, One Child Policy– and the full vector of year fixed effects.[63] The interaction with year fixed effects controls for the influence of these variables over time in a fully flexible manner, and it also controls for the influences of all of its correlates over time. Column (6) of Table A.5 shows that the coefficient with these additional controls is very similar to our main estimates.

We also consider the possibility that several other village-level factors could potentially confound the effect of elections on our outcomes of interest. These factors include whether a village is a suburb of a city (a dummy variable for being in a suburb interacted with year fixed effects), whether the *Tax and Fee Reform* had been implemented (a dummy variable which takes the value of one if the reform has been introduced), and the level of village social capital (a proxy for social capital interacted with year fixed effects). To proxy for the latter we follow Tsai's (2007) work in using the presence of a lineage group (i.e., an ancestral hall, family tree), village temple, or a large kinship group to proxy for social capital.[64] To maximize the statistical precision of our estimates, we use the principal component of these three measures as our social capital proxy. Column (7) shows that the resulting coefficient is similar to the baseline.

In column (8), we re-estimate the baseline on a sample restricted to villages that never experienced an administrative merger with another village since 1982. This addresses the possibility that our main results are somehow confounded because the probability of having experienced a merger

[63]These characteristics are measured in the first year that data are available (1982). If we measure these policies in 1986, we obtain similar results. These alternative estimates are available upon request.

[64]To measure the size of the kinship groups, the VDS recorded names from the village roster.

is correlated with the timing of the electoral reform, and whether a village experiences a merger is correlated with some factor that can affect our outcomes of interest. The coefficient is also similar to the baseline.

Additional Sensitivity Checks We conduct many additional sensitivity checks that are not presented here for brevity.[65] For example, we check that our estimates are not driven by selection within counties by instrumenting for the introduction of elections at the village level with the introduction at the county level or with the introduction at the province level. We also control for public goods expenditures in 1986 (the first year that data are available) interacted with year fixed effects to control for the fact that villages with different levels of public goods in the base year may evolve differently over time; or the average annual increase in public goods expenditures between 1986 and 1988 for each village interacted with year fixed effects to control for the fact that villages with different trends in public goods in the base years can evolve differently over time. All of these robustness exercises produce estimates that are similar in magnitude to our baseline results.

B.2 Power of Village Chairmen and Party Secretaries

To document that the elected village chairman had de facto authority, we collected data on signature rights from each village. Signatures of village leaders are required to keep a record of village policies. The person who signs is the responsible person (e.g., if there are questions from upper levels of government or villagers). Villages differ in who signs. Thus, for important policies that are recorded in the village administrative records, we examine the effect of elections on whether only the chairman signs, both the chairman and secretary sign, or if only the secretary signs. Table 4 in the main text of the paper shows some evidence that elections increased the frequency of unilateral signatures by the chairman and decreased the frequency of unilateral signatures by the secretary. These results suggest that the initial introduction of elections did shift to some extent real power to village chairmen.

[65] They are available upon request.

Table A.1: Descriptive Statistics from the VDS

Variable	Source	Obs	Mean	Std. Dev.
# of HH in Village	NFS	4,340	416.15	276.17
Near City	NFS	5,208	0.30	0.46
Total Public Goods Expenditure (10,000 Constant RMB)	VDS	4,340	13.81	133.23
Irrigation	VDS	4,340	3.31	63.69
Schooling	VDS	4,340	0.02	0.34
Roads & Sanitation	VDS	4,340	4.98	88.25
Electricity	VDS	4,340	0.71	7.75
Environment	VDS	4,340	0.31	12.41
Other	VDS	4,340	2.58	48.04
Total Village Land	NFS	3,612	9,245	14,719
Arable Land (Mu)	NFS	3,612	2,295	2,329
Share of Village Land that is Arable	NFS	3,612	0.51	0.32
Used for HH Farming (Mu)	NFS	3,612	2,215	2,312
Not Used for HH Farming (Mu)	NFS	3,612	79.72	367.26
Leased Out to Enterprises (Mu)	NFS	3,612	60.46	347.61
Median HH Annual Gross Income Growth	NFS	3,084	0.08	0.19
The Number of Village Committee Members	NFS	2,287	4.36	2.36
The Number of Village Party Cadres	NFS	2,295	6.70	3.82
Party Secretary Tenure	VDS	5,208	10.03	8.13
Village Chief: Tenure	VDS	5,208	6.69	6.24
Has Election	VDS	5,208	0.73	0.44
Has Open Nomination	VDS	5,208	0.20	0.40
Years between Election Introductions in Village and Province	VDS	217	5.02	5.07
Years between Election Introductions in County and Province**	VDS	217	4.28	4.67
Years between Election Introductions in Village and County**	VDS	217	0.74	2.28
Years since last election	VDS	1,084	3.16	1.02
VC different from previous term*	VDS	4,312	0.16	0.36
1st Election Changed VC*	VDS	182	0.38	0.49

Notes: Each observation is at the village-year level. VDS indicates that the variable is reported by the *Village Democracy Survey* . NFS indicates that the variables are reported by the *National Fixed Point Survey* . *Not all villages retained records of VC's names from prior to the first election. **The year of the first election in a county is based on respondent recall.

Table A.2: Timing of Elections from the VDS

	First Election		First Open Nominations (Haixuan)	
Year	Number of Villages Introducing (1)	Cumulative % of Villages (2)	Number of Villages Introducing (3)	Cumulative % of Villages (4)
1982	13	5.99	1	0.72
1983	13	11.98	1	1.44
1984	42	31.34	7	6.47
1985	3	32.72	0	6.47
1986	35	48.85	4	9.35
1987	12	54.38	1	10.07
1988	7	57.6	1	10.79
1989	15	64.52	1	11.51
1990	25	76.04	1	12.23
1991	1	76.5	0	12.23
1992	3	77.88	1	12.95
1993	6	80.65	3	15.11
1994	2	81.57	3	17.27
1995	9	85.71	3	19.42
1996	4	87.56	18	32.37
1997	3	88.94	0	32.37
1998	6	91.71	6	36.69
1999	9	95.85	42	66.91
2000	7	99.08	12	75.54
2001	2	100	12	84.17
2002	0	100	11	92.09
2003	0	100	3	94.24
2004	0	100	1	94.96
2005	0	100	7	100
Total	217		139	

Table A.3: The Effect of Elections on Congruent and Incongruent Policies for Each Year Since the First Election

	Dependent Variables		
	(1)	(2)	(3)
Dummy Var for X Years Since the 1st Election, X=	Public Good Expenditures (Villagers, 10,000 RMB)	Public Good Exp from Upper-Gov	One Child Policy Exemptions
-3	1.409	0.679	-0.0162
	(2.137)	(1.327)	(0.0181)
-2	0.865	1.529	-0.00791
	(4.922)	(1.271)	(0.0465)
-1	8.896	0.214	0.0352
	(5.282)	(1.283)	(0.0538)
0	36.05	1.807	0.0663
	(30.64)	(1.631)	(0.0558)
1	11.11	6.372	0.0766
	(7.363)	(2.931)	(0.0649)
2	23.36	3.564	0.0879
	(13.86)	(2.202)	(0.0818)
3	16.34	2.798	0.109
	(9.250)	(2.312)	(0.0897)
4	15.24	3.758	0.106
	(11.17)	(3.005)	(0.0902)
5	35.93	8.372	0.135
	(16.76)	(4.878)	(0.0983)
Observations	3919	3919	3919
R-squared	0.130	0.081	0.812

Notes: All regressions control for the introduction of open nominations, province trends, and village and year fixed effects. Standard errors, clustered at the province level, are reported in parentheses. The sample is a village-level panel balanced across election years (years since the first election).

Table A.4: Correlation between Village Characteristics and Election Timing

Dependent Variable: Year of 1st Election	(1) Coef.	(2) Obs	(3) R-Square
Near City	-0.004	217	0.000
Total Number of Households	0.062	217	0.004
Median Household Income	0.070	217	0.005
Median Household Income Growth	0.105	217	0.011
Total Village Arable Land	0.024	216	0.001
Land used for Household Farming	0.005	217	0.000
Total Public Goods Exp (10,000 RMB)	-0.122	217	0.015
of which, from Village Sources	-0.071	216	0.037
of which, from non-Village Sources	0.004	216	0.001
Land Leased Out to Enterprises (Mu=1/15 Hectare)	0.028	109	0.001
One Child Policy Exemptions	-0.042	217	0.001
Upper-Government Special Aid	0.044	217	0.001

Notes: Standardized coefficients are presented in column (1). Each row corresponds to a different bivariate regression estimated in a cross section of villages. The dependent variable is the year of the 1st election while the regressor of interest is defined by each row. The regressors of interest are measured in the base year (defined as the first year that data are available for each variable). Measures of total public goods by source drop one outlier observation. All variables are demeaned by province fixed effects. *, **, and *** indicates statistical significance at the 10%, 5% and 1% levels, respectively.

Table A.5: The Effect of Elections on Congruent and Incongruent Policies – Robustness to Controls

	Dependent Variables							
	Baseline	Control for Province Introduction of 1st Election	Control for Prov-Year FE	Control for Prov Per Capita GDP and Growth	Omit Early and Late Introducers	Control for Year FE x Base Year Vars **	Control for Year FE x Near City, Social Capital, Post Tax & Fee	Omit if Ever Merged with Another Village
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A. Dependent Variable: Public Goods Expenditure from Villagers (10,000 Constant RMB)							
Post 1st Election	16.080	14.190	13.626	18.077	14.338	15.535	16.692	16.734
	(7.717)	(6.620)	(9.509)	(8.509)	(8.012)	(8.219)	(7.740)	(8.459)
Wild Bootstrap p-value	[0.044]	[0.028]	[0.196]	[0.060]	[0.044]	[0.120]	[0.004]	[0.096]
Observations	4,340	4,340	4,340	4,018	4,100	4,280	4,340	3,500
R-squared	0.103	0.105	0.221	0.119	0.119	0.122	0.114	0.105
Clusters	29	29	29	29	29	29	29	29
	Panel B. Dependent Variable: Village Land Leased to Enterprises							
Post 1st Election	-62.202	-59.926	-52.219	-57.878	-61.756	-51.584	-60.021	-57.932
	(33.842)	(34.316)	(32.520)	(32.030)	(35.176)	(37.693)	(33.231)	(39.238)
Wild Bootstrap p-value	[0.048]	[0.076]	[0.136]	[0.104]	[0.056]	[0.148]	[0.068]	[0.176]
Observations	1,957	1,957	1,957	1,842	1,862	1,957	1,957	1,672
R-squared	0.560	0.560	0.747	0.593	0.560	0.670	0.580	0.614
Clusters	27	27	27	27	27	27	27	26
	Panel C. One Child Policy Exemptions							
Post 1st Election	0.101	0.102	0.093	0.104	0.107	0.108	0.103	0.124
	(0.056)	(0.056)	(0.062)	(0.051)	(0.060)	(0.054)	(0.055)	(0.058)
Wild Bootstrap p-value	[0.052]	[0.080]	[0.136]	[0.056]	[0.080]	[0.040]	[0.072]	[0.040]
Observations	4,340	4,340	4,340	4,018	4,100	4,280	4,340	3,500
R-squared	0.792	0.792	0.813	0.797	0.795	0.798	0.794	0.790
Clusters	29	29	29	29	29	29	29	29
	Panel D. Dummy for Expropriation of Village Land							
Post 1st Election	-0.013	-0.013	-0.007	-0.014	-0.014	-0.013	-0.011	-0.011
	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Wild Bootstrap p-value	[0.072]	[0.072]	[0.407]	[0.068]	[0.044]	[0.092]	[0.116]	[0.136]
Observations	4,340	4,340	4,340	4,018	4,100	4,280	4,340	3,500
R-squared	0.094	0.094	0.199	0.105	0.095	0.103	0.103	0.095
Clusters	29	29	29	29	29	29	29	29

Notes: All regressions control for the introduction of open nominations, province trends, village and year fixed effects, and the additional controls stated in the column headings. Standard errors, clustered at the province level, are presented in parentheses. Wild bootstrap p-values are presented in square brackets. The number of clusters is stated at the bottom of each panel. The samples of panels A, C and D are balanced village-level panels of 217 villages for the years 1986-2005. Panel B has fewer observations because data on land leased is missing in some years, and also because we restrict the sample to 109 villages that ever leased land to enterprises. ** In column (6), we control for the interaction of base year measures of the PCA of pub goods, OCP, land expropriation, land leased out, each interacted with all of the year fixed effects.