Accountability and Growth:
The Costs of Village Democracy in China[*]

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Abstract

This study uses a unique survey to study the impact of electoral reforms on income growth in rural China during the past two decades. Electoral reforms shifted the accountability of village leaders from higher levels of government towards villagers. We provide a simple model to illustrate how such a shift in accountability can affect leaders' incentives. The empirical findings show that this shift in accountability had mixed effects. On the one hand, it significantly reduced income growth for all households. On the other hand, it reduced income inequality and relaxed the enforcement of unpopular policies. Additional results suggest that village leaders, who were not empowered to imposes taxes, reduced income inequality through redistributing assets from village enterprises to households.

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1 Introduction

The relationship between democracy and economic growth is a question of central interest to economists and political scientists.[1] A key difference between democracy and autocracy is the degree and the method of holding politicians accountable to citizens. This paper studies the effect of the largest scaled reform of leader accountability in history. During the 1980s, village level elections were introduced in rural China, affecting over one billion people. These elections shifted the accountability of the village leader from the Chinese Communist Party (CCP) towards villagers. Our study aims to document these elections and evaluate the impact they had on economic performance.

The existing empirical evidence on the impact of electoral institutions and accountability is problematic. Most of the existing evidence comes from cross-country comparisons which suffer from obvious omitted variables bias. Moreover, institutions are often bundled together such that it is difficult to identify the impact of particular elements such as the importance of leadership accountability.

The nature of the reforms in China offers an unprecedented opportunity in allowing us to address many of these problems. The electoral reforms were controlled in that other institutions were largely held constant as leadership accountability shifted. The staggered timing of these reforms allows us to use a fixed effects strategy which controls for time-invariant differences between regions and secular changes over time.

Village elections were first introduced in rural China during 1980s. The central government in Beijing encouraged them to solve information problems in governing the large, heterogeneous and rapidly changing Chinese economy. The reform was implemented in two phases. In the first phase, villagers were able to elect their village chief among a set of candidates nominated by the local branch of the CCP. This shifted accountability of the elected officials from being only accountable to the CCP, to both the CCP and villagers. The second phase of the reform, called *haixuan* which literally means "an ocean of choices", opened nominations to voters. This further shifted the accountability of the elected officials so that they responded directly to the villagers.

The first contribution of our study is to systematically document these elections. For this aim, we conducted a survey on the history and nature of electoral reforms in a national representative sample of 266 villages. In particular, we surveyed all current and past village officials on the timing of the reforms and the powers of the village committee (which was the object of the reforms), the Communist Party branch in the villages (which was not affected by the reforms), and characteristics of the leaders during 1980-2005. We then match our survey data to a village-level panel on economic outcomes that was collected contemporaneously. The matched panel covers 266 villages over 1987-2005.

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[1] For example, see Besley and Kudamatsu (2007) for a documentation of the differences in electoral regimes and economic performance.

The second and main contribution of our study is to examine the impact of elections on economic performance and social outcomes. To illustrate the channels through which a shift in accountability can affect these outcomes, we develop a simple theoretical framework in which we compare the differences between an appointment and an election system for the selection of local politicians. In the appointment system, the local politician is held accountable by an upper level of government: the appointed local politician will only be reappointed for a second term if he is able to achieve a certain income growth target for his village. This specification is motivated by the Chinese case in which village leaders were at risk of being dismissed if they failed to achieve certain production targets.[2] In this context, the local politician finds it optimal to devote most of his efforts towards income generating activities. In contrast, in an election system the local politician is held accountable by villagers who decide to re-elect the village leader as long as he is able to deliver a given level of utility to villagers. Since villagers not only care about income but also about other outcomes, such as income equality or the availability of public goods, the local politician finds it optimal to transfer some effort from income generating activities to the provision of public goods. This leads to a decrease in productivity and generates a slowdown in economic growth. Moreover, if villagers' utility functions are subject to random shocks, the total level of effort that the local politician exerts in all tasks decreases upon the introduction of elections. The intuition for this result is that villagers have a noisy measure of the local politician's performance and this decreases the power of his incentives to exert effort. The more noisy are these random shocks, the smaller the increase in effort devoted to public good provision.

Our empirical strategy examines the effect of initializing elections while controlling for whether there are also open nominations, village and calendar year fixed effects. This is similar in spirit to a differences-in-differences strategy where village fixed effects control for all time invariant differences across villages and year fixed effects control for all changes over time that affect villages similarly. Our main empirical difficulty relies on the fact that elections were not randomly assigned. The introduction of elections was determined at times in a top-down fashion (provincial leaders had the mandate of introducing elections after the Organic Law of Village Committees was passed on 1987), and some other times by request of villagers. Our data show that the main driver of election timing is the income level of the poorest within a village, and thereby controlled for with village fixed effects. That said, the identification is far from an ideal experiment. We use fixed effects because it is the most transparent method and thereby easiest to use for thinking through the potential biases. Later in the paper, we discuss potential identification issues in detail and provide robustness checks for them.

The empirical results show that elected village leaders were more likely to be from a rich family background and less educated than appointed leaders. These results are only present for the head of the village committee, but are absent for the party secretary. The results on economic performance

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[2]See Rozelle (1994).

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are provocative. We find that elections reduce income and income growth for households on *all* parts of the income distribution. Household incomes in villages with elections grow at half of the rate as households in villages without. Interestingly, elections also decrease inequality as the largest reductions in income and growth are experienced by households at the top of the village income distribution. We find no effect on taxation or fees paid by villagers, which is consistent with the fact that the village government has extremely limited abilities to impose taxes and fees. Instead, the adoption of elections seems to have led to a redistribution of assets from village enterprises towards households. This could explain by itself the reductions in income and inequality if there were economies of scale in productive assets and richer households benefitted more from village enterprises.

The most obvious explanation for these results is that villagers value equality and are therefore willing to sacrifice some amount of income for equality. To further investigate the hypothesis that these effects are due to the elected village leader shifting his efforts towards implementing policies that are favored by the median voter, we investigate the effects on public goods and the enforcement of unpopular policies, such as the One Child Policy. We find that elections increase the probability of having a public primary school by 3.4% and the probability of allowing couples to have two children by 13%. Elections also reduced the number of administrators in the village government, whose salary is paid from village revenues.

These empirical findings are consistent with the predictions of the model since we estimate a clear slowdown in economic growth but an improvement in other outcomes valued by villagers, such as increase in public goods, decrease in within village inequality and relaxation of the enforcement of unpopular laws. The lower level of effort devoted to making assets productive could explain why the median household income does not increase despite controlling a higher proportion of assets. The slowdown in economic growth is stronger for the richest households because elections lead to a reduction of assets controlled by firms, which profits are mostly captured by the richest households.

This paper contributes to a number of different literatures. First, it relates to the literature on the relationship of political institutions and economic outcomes. Most of these studies have focused on the comparison of countries with different clusters of institutions.[3] There are very few within-country studies that directly analyze the effects of electoral accountability on economic outcomes and policies. Besley and Case (1995) and Daniel and Lott (1997) gauged the effect of accountability by comparing elected officials who face term limits with those who do not, while Olken (2007) compares the effect of bottom-up versus top-down accountability on corruption in Indonesia. Our paper is also compliments a recent study by Dal Bo and Rossi (2008) which studies the effect of reduced term lengths in Argentina and find that the reduction in term lengths causes elected leaders to reduce their efforts. Second, our paper contributes to the growing number of

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[3]See for instance Mauro, 1995; Hall and Jones, 1999; Acemoglu et. al., 2001; Person and Tabellini, 2003.

studies that examine the effects of the village electoral reforms in China.[4] Our study improves upon past studies in having much more breadth and depth of data which allows us to estimate the effects of village elections on a nationally representative sample for a larger range of economic and social outcomes. In addition to sample size, this increased scope in data allows us to investigate the mechanisms which drive the reduced form results. We also differ from previous studies in that we do not bundle elections with open nominations, which occurred several years after the fact. Finally, our paper contributes to studies of the differences in incentives and performance of appointed versus elected officials such as Besley and Coate (2003), Maskin and Tirole (2004), Alesina and Tabellini (2007, 2008), and Martínez-Bravo (2010).

The rest of the paper is organized as follows. Section two provides some background information on the Chinese rural economy and a brief overview of the nature of the electoral reforms. Section three presents a simple model that explores the consequences of the alternative accountability systems for the village chief. Section four describes the data. In section five we discuss our empirical strategies. Section six presents our main empirical results. And finally, Section seven offers the conclusions.

2 Village Organization and Electoral Reforms

In this section, we provide some background information and historical context of the Chinese countryside during the time frame when the electoral reforms were introduced. We first describe the governance structure of the Chinese villages and the decision making process. Next, we discuss the degree of involvement of the village leadership in economic affairs. As we discuss, village leaders play a crucial role in most economic activities, which makes the Chinese case especially suited to analyze the effects of increased accountability on economic performance. Finally, we provide a brief history of the electoral reforms and discuss the reasons of their introduction.

2.1 Village Governance Structure

The village government consists of two groups of leaders: the village committee and the Communist Party committee. The village committee comprises the village chief, the vice-chief and two to five other members. The electoral reforms described in this paper affected the method of selection and

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[4]Zhang et. al. (2004) uses a panel of 60 villages from two provinces and finds that elections have little effects on village government revenues but shift the distribution of taxation from individuals to enterprises; and that elections and power sharing are conducive to improve the allocation of public expenditures. In a different sample of 48 villages Wang and Yao (2007) finds that elections increase the share of public expenditures in the village budget, but reduce the shares of administrative costs and income handed to the township government. Shen and Yao (2008) finds that elections reduce the Gini coefficient by 0.04, or 14.3% of the sample average. Li, Xu and Yao (2006) finds that the introduction of elections makes villages more likely to establish a health care plan and household less likely to borrow by 16.7% when one of its working adults is seriously sick.

the accountability mechanisms of the village committee. The second group of leaders comprises of the village party members (cadres) which are led by the village party secretary, who is appointed by the county level party.

There is not a clear outline in the Chinese laws of what is the relative distribution of power between the village committee and party cadres.[5] In contrast, decisions are usually reached by consensus and both the village chief and the party secretary have decision rights over the most important issues. In Table 1 we provide some summary statistics of the distribution of signature rights between the village chief and the party secretary for the villages in our sample. As we can see, both leaders seem to have rights over the most salient issues such as land reallocation and the decision to engage in large public investments. In contrast, the village chief is usually the only one with reimbursement rights, which suggests that he is more involved with the daily executive tasks of the village government. We do not find statistical evidence that these *de jure* decision rights were affected by the introduction of elections for the village committee.[6] However, it is very likely that an elected leader will have, *de facto*, a higher weight in the decision making process and therefore a sizeable impact on certain policy outcomes, as our empirical findings suggest.

Villages are not considered an official level of government. They are not fiscal accounting units either, and villagers pay taxes directly to upper-levels of government. Villages receive in return very few transfers from upper levels of government. According to our data, only 3.2% of total village revenue comes from upper levels of government. Village governments obtain their resources from collectively owned property and enterprises and from ad hoc fees known as *tiliu*. Village public goods and village officials' salaries must be financed from these funds.[7,8]

The village government coordinates public projects such as the construction of schools or roads. Sometimes upper-levels of government will contribute with some construction materials, but villagers need to provide the rest of the funding and the necessary labor.[9] The village government is responsible for raising the necessary resources and distributing the burden among villagers. The village leadership also play an important role in the resolution of disputes and are the only source of law enforcement in the village: they have the mandate of enforcing unpopular laws such as grain procurement, collection of taxes and One Child Policy.

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[5] See Oi and Rozelle (2000) for a detailed discussion.

[6] Since the results are not statistically significant even at the 10% level, we do not report them in the sake of brevity.

[7] See Oi (1999) for a more detailed description of the fiscal structure of villages.

[8] Notice that this implies that villages are fiscally autonomous. Therefore, there are no fiscal spillovers that could confound the analysis of the relationship between changes in fees and the provision of public goods.

[9] Villagers are required to provide a number of obligated working days per year that are devoted to the construction of this type of public projects.

2.2 Village Economic Structure

Chinese villages exhibit some heterogeneity in their portfolio of economic activities and on the relative importance of each one. However, most villages are characterized by a high degree of involvement of village leaders in economic activities. This crucial role in the production process has been recognized by several scholars which have referred to them as "economic managers of a small, multi-dimensional business" (Rozelle, 1994).

In agriculture, village leaders control the distribution of land and productive assets, such as agricultural machinery. Land is collectively owned by the village and farmers are given lease rights for 15-years land contracts. However, in some villages land is regularly re-allocated among households, sometimes to transfer more land to those households that are more productive.[10] Likewise, rental arrangements between farmers need to be approved by the village chief. The village chief is also actively involved in planting and in technology adoption decisions, although the degree of involvement varies widely across villages. In some cases, village leaders determine the entire village's cropping pattern while in others they only provide incentives for the cultivation of some specific crop, such as hybrid rice. Some agricultural machinery is collectively owned by the village and their use, acquisition and distribution is decided by village leaders. (Oi and Rozelle, 2000; Rozelle, 1994).

Village leaders also act as entrepreneurs, establishing and managing village enterprises. Oftentimes they are highly involved in all aspects of their functioning and village enterprises have become an important source of power for village leaders and venue for their personal enrichment. Some other times the management of the firm is delegated to a holding corporation or other type of organization which decide about the allocation of jobs and distribution of profits.

Finally, village leaders also have the possibility of obtaining outside-village opportunities that provide off-farm employment to villagers, such as jobs in township factories, contracts to perform mining, fishing, forestry and construction among other activities.

Overall, village leaders seem to have substantial power to affect the income generating process of villages and to determine some crucial aspects such as the capital intensity of the different activities and the distribution of rents within the village. This makes the Chinese case an especially suited context to study the economic effects of changes in leaders accountability.

2.3 History of Electoral Reforms

The need of political reforms in the Chinese countryside was first debated by national CCP leaders in the mid 1980's, in response to the growing concern about the rapidly eroding relationship between villagers and local party cadres. In the old commune system, village leaders distributed

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[10]This is usually in exchange of higher production quotas, i.e. household's commitment to achieve a higher production level (Rozelle, 1994).

the production outcome of the collectives after cutting off the state part. Since villagers depended on them for their most basic needs, village leaders became very powerful figures in the village. De-collectivization brought a radical shift in the distribution of power: households became autonomous production units which substantially reduced cadres' leverage over households. However, cadres still had the mandate of enforcing unpopular laws, such as grain procurement, collection of taxes and fees, and one-child policy. Oftentimes village leaders resorted to coercion, threats and violence in order to enforce these laws, and villagers responded with revenge acts, contributing to the escalating tension between villagers and party cadres. Fearing the spark of protests and generalized unrest, some national leaders started advocating for comprehensive reforms in rural political institutions, in particular for the introduction of elections for the village committee.

Proponents of the reforms used a variety of arguments. They claimed that village elections would lead to a higher compliance with unpopular policies. Elected leaders would have more legitimacy to enforce these laws and would be more sensitive to villager's demands to distribute the burdens of these policies more fairly among villagers (O'Brien 1994, Kelliher 1997, Li and O'Brien 1999). They also argued that the shift in accountability to villagers would impose checks on cadres, which was necessary because top-down supervision was insufficient.[11] Proponents also claimed that reforms would contribute to the selection of better village leadership, since villagers would vote for competent candidates and unseat corrupt incumbents (Kelliher 1997).[12,13]

The *Organic Law on Village Committees* (OLVC) was finally approved in 1987 and established the democratically elected village committee as the governing body of the village. The entire adult population obtained the right to vote for the village committee and unlike the previous Maoist period the number of candidates was required to exceed the number of seats. During the first part of the reform candidates were typically nominated by the village, county and township level party branches. The next phase of the reform occurred in 1998, when the OLVC was revised and reinforced to specifically address the importance of open nominations, commonly called *haixuan* which literally means "an ocean of choices". The revised law required that villagers were able to nominate candidates for the election.

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[11] Peng Zhen, chairman of the NPC Standing Committee, and a strong supporter of granting democratic rights to villagers, said "Who supervises rural cadres? Can we supervise them? No, not even if we had 48 hours a day." (Peng Zhen's speech at the chairmanship meeting of the Standing Committee of the Sixth NPC, April 6, 1987. Cited in Li and O'Brien 1999).

[12] Kelliher also argues that, as an afterthought, some CCP leaders advocated for the electoral reforms because they made a "superb propaganda abroad". The Ministry of Home Affairs arranged several visits for foreigners to show them the advances of self-government in rural areas with the objective of improving the international public opinion of China and the legitimacy of the CCP government.

[13] There was also opposition to the law both at the national level and especially among township and county officials who fear losing control over village leaders. However, the support of certain national leaders such as Peng Zhen and Bo Yibo and the villagers' demand for village elections were decessive for the implementation of the electoral reforms. See Li and O'Brien (1999).

Despite the OLVC was passed in 1987, several villages held competitive elections before that date. As our data shows, elections occurred as early as 1983. Similar to other Post-Mao reforms, elections spread slowly across China. Provincial governments were given a large window of time to ensure that their villages complied. By 1998, the Ministry of Civil Affairs (MoCA) reported that over half of the villages had conducted competitive elections with more candidates than posts, and more than 70% had at least some kind of elections.

3 Model

In this section we develop a model to explore through which mechanism the introduction of village elections can lead to a slowdown in economic growth. As an starting point, we take as given the focus in economic growth by the CCP as the main way to evaluate the performance of village leaders prior to the implementation of the electoral reforms. Then, we analyze how the optimal allocation of effort of village leaders is affected by the change in accountability produced by the introduction of village elections.

3.1 Set-Up

Consider an economy populated by a continuum of identical villagers of mass one. In this economy there is also a local leader that takes certain decisions that affect the level of productivity and the provision of public goods. Both types of actors live for two periods and have quasilinear preferences over income y and public goods g. Utility functions of villagers and the leader are defined as follows

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\begin{aligned}
U^V(y,g) &= y + f(g) + \varepsilon \\
U^L(y,g) &= \alpha y + f(g) + \varepsilon
\end{aligned}
$$

where the subscript V stands for villagers and L for leader, and $\alpha \geq 1$ is a parameter that captures the preference of the leader for village income. Since village leaders pay their salaries out of agricultural output and village enterprises,[14] it is likely that they had a stronger preference for income.[15] ε is a normal random variable with mean 0 and variance σ_ε^2, which captures all the other issues that affect villagers' level of utility and that are not under the leader's control. Let us denote by R, the value of being in office for a second period and for simplicity we assume it is the same under the appointment and election regimes.

The local leader can affect the level of income generated in the village and the level of public goods by exerting costly effort. Let us denote by e_y the effort exerted to generate income and by e_g

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[14]See Oi and Rozelle, 1999 and Boisvert, 1992.

[15]Alternatively, we can also interpret the leader's utility function as a weighted sum of the village's income (capturing leader's salary) and the level of utility of villagers, i.e. $U^L(y,g) = (\alpha - 1)\, y + U^V(y,g)$.

the effort for public goods. The following expressions capture the production functions of income and public goods

$$y = e_y + \epsilon \tag{1}$$

$$g = e_g \tag{2}$$

where ϵ is a normal random variable with mean 0, and variance σ_ϵ^2 and cumulative density function $\Phi(\cdot)$. ϵ represents all unforeseen economic shocks that affect the village. The specification that village leaders can affect the level of income is highly plausible for the Chinese context. As we discussed in the previous section, one of the legacies from the collectivization period is the active involvement of village leaders in several aspects of the production process. Through the management of land and productive assets, village leaders had several ways to affect the overall level of productivity in the village economy. We assume that leader's effort is costly, with total cost captured by the cost function $C(e_y + e_g)$ where $C(\cdot)$ is increasing and convex, and satisfies $C'(0) = 0$.

The leader will be able to remain in office for a second term as long as he provides enough utility to the group that holds him accountable. In the appointment regime, the CCP has decision rights over his continuity as village leader and only reappoints him if he achieves a target income level. This specification is motivated by the Chinese case in which village leaders needed to attain certain village production target in order to keep their positions (Rozelle, 1994).[16] In the electoral regime, the leader gets re-elected if he is able to provide a certain level of utility to villagers.[17] We now turn to analyze the optimal allocation of effort in each type of regime.

3.2 Appointment System

Given the setting above, the appointed village leader chooses effort levels to maximize his expected utility:

$$\max_{e_y, e_g} E\{U^L(y, g)\} + \Pr[y_1 > \bar{y}]R - C(e_y + e_g)$$

By using production function functions (1) and (2), and the probability distribution of the random shock, the above expression can be rewritten as

$$\max_{e_y, e_g} E\{\alpha(e_y + \epsilon) + f(e_g) + \varepsilon\} + [1 - \Phi(\bar{y} - e_y)]R - C(e_y + e_g)$$

which yields the following first order conditions

$$\alpha + \phi(\bar{y} - e_y)R = C'(e_y + e_g)$$

$$f'(e_g) = C'(e_y + e_g)$$

[16]In particular, Rozelle describes how failing to meet targets in agricultural production was the only way in which village leaders could lose their job.

[17]Therefore we model the electoral competition as a retrospective voting model as Barro (1973), or Ferejohn (1986).

Notice that in order to extract the maximum effort, the CCP would set up the reappointment threshold to be $\bar{y} = e_y^{ap}$, where e_y^{ap} is the equilibrium level of effort in economic activities under the appointment regime. Incorporating this rule in the first order conditions we obtain the following two expressions which implicitly define the optimal levels of effort in economic activities, e_y^{ap}, and public goods, e_g^{ap}.

$$\alpha + \frac{R}{\sigma_\epsilon \sqrt{2\pi}} = C'(e_y^{ap} + e_g^{ap}) \tag{3}$$

$$f'(e_g^{ap}) = C'(e_y^{ap} + e_g^{ap}) \tag{4}$$

3.3 Election System

Similarly, the elected village leader chooses effort levels to maximize his expected utility:

$$\max_{e_y, e_g} E\{U^L(y, g)\} + \Pr[U^V(y, g) > \bar{U}]R - C(e_y + e_g)$$

Denote by $\Gamma(\cdot)$ the cumulative density function and by $\gamma(\cdot)$ the probability density function of a normal distribution with mean 0 and variance $\sigma_\epsilon^2 + \sigma_\varepsilon^2$. By using this distribution and the production functions (1) and (2), the above expression can be rewritten as

$$\max_{e_y, e_g} E\{\alpha(e_y + \epsilon) + f(e_g) + \varepsilon\} + [1 - \Gamma(\bar{U} - e_y - f(e_g))]R - C(e_y + e_g)$$

The first order conditions are

$$\alpha + \gamma(\bar{U} - e_y - f(e_g))R = C'(e_y + e_g)$$

$$f'(e_g) + f'(e_g)\gamma(\bar{U} - e_y - f(e_g))R = C'(e_y + e_g)$$

In order to extract the maximum effort from the leader, citizens set the reelection threshold to be $\bar{U} = e_y^{el} + f(e_g^{el})$, where e_y^{el} and e_g^{el} are the equilibrium levels of effort in economic activities and public goods, respectively, under the elections regime. Incorporating this rule in the first order conditions, we obtain the following two expressions which implicitly define the optimal levels of effort e_y^{el} and e_g^{el}.

$$\alpha + \frac{R}{\sqrt{\sigma_\epsilon^2 + \sigma_\varepsilon^2}\sqrt{2\pi}} = C'(e_y^{el} + e_g^{el}) \tag{5}$$

$$f'(e_g^{el}) + f'(e_g^{el})\frac{R}{\sqrt{\sigma_\epsilon^2 + \sigma_\varepsilon^2}\sqrt{2\pi}} = C'(e_y^{el} + e_g^{el}) \tag{6}$$

3.4 Comparison Election vs. Appointment System

By comparing the equilibrium effort levels in each type of regime we obtain the following results.

Proposition 1 (Effort Transfer) *If $\sigma_\varepsilon^2 = 0$, we have that*

1. $e_y^{el} + e_g^{el} = e_y^{ap} + e_g^{ap}$

2. $e_g^{el} > e_g^{ap}$

3. $e_y^{el} < e_y^{ap}$

Proof. Point 1 follows from comparing (3) with (5), and point 2 follows from comparing (4) with (6). Point 3 is an immediate corollary of the previous two points.

Proposition 1 indicates that in the absence of noise in villagers' preferences, the total level of effort exerted by the village leader is the same under both regimes. However, the effort devoted to public good, is higher in the election system than in the appointment system while the effort devoted to income growth is lower. In other words, the introduction of elections leads to a transfer of effort from income generating activities to public good provision, which is a consequence of the changes in the preferences of the groups that holds accountable the village leader.

Notice that these results are independent of α. However, if we rewrite (3) and (4) and we get

$$f'(e_g^{ap}) = \alpha + \frac{R}{\sigma_\epsilon \sqrt{2\pi}} \tag{7}$$

which shows that the level of effort in public goods, e_g^{ap}, is decreasing in α and R, and increasing in σ_ϵ.

Let us now examine the case in which villagers' preferences are subject to random shocks.

Proposition 2 (Effort Reduction) *If $\sigma_\varepsilon^2 > 0$, we have that*

1. $e_y^{el} + e_g^{el} < e_y^{ap} + e_g^{ap}$

2. $e_y^{el} < e_y^{ap}$

3. $e_g^{el} > e_g^{ap}$

4. e_g^{el} *is decreasing in* σ_ε^2 *if* $\alpha > 1$ *and independent of* σ_ε^2 *if* $\alpha = 1$

Proof. Again, point 1 follows from comparing (3) with (5). Points 3 and 4 follow from rewriting (5) and (6) into

$$f'(e_g^{el}) = \frac{\alpha + \frac{R}{\sqrt{\sigma_\epsilon^2 + \sigma_\varepsilon^2}\sqrt{2\pi}}}{1 + \frac{R}{\sqrt{\sigma_\epsilon^2 + \sigma_\varepsilon^2}\sqrt{2\pi}}} \tag{8}$$

and comparing expression (7) to (8). Point 2 is an immediate corollary of the other three.

Proposition 2 leads to some additional results. First, whenever villagers' preferences are subject to random shocks the total amount of effort that the village leader exerts is lower in the election regime than in the appointment regime. Since village leaders are evaluated on the basis of the

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utility they are able to deliver to villagers, the higher the variance of the shocks, the more noisy is their evaluation, which leads to a decrease in their incentives to exert effort. Similarly, notice that the effort devoted to public good provision is also decreasing in the variance of the noise and decreasing in the α (because current income becomes more important for the village leader).

3.5 Summary of Empirical Predictions

To sum up, this model leads to the following empirical predictions regarding the change in accountability from an appointment system to an elected system.

1. Effort devoted to income generating activities decreases.

2. Effort devoted to public good provision increases.

   (a) This increase will be small the higher is the variance in random shocks of villagers preferences, σ^2_ε, and the smaller is the village leader preference for income, α.[18]

In Section 5 of this paper, we discuss our empirical results and explain how they are to a great extent consistent with these empirical predictions.

4 Data

4.1 Data Sources

This study uses data from two sources. The first one is a unique retrospective survey of the political reform histories of 266 villages from 1980-2005 collected by the authors. The survey was conducted in the following way: present and former village leaders met in a local school room and together filled out a questionnaire on a variety of questions. They were asked about the years when elections and *haixuan* were first implemented in the village, the years when subsequent elections were held, the number of candidates for each election, personal characteristics of each village leaders and the powers of each office.[19] Most villages were able to retrieve village records for documentation, but in general recalling this data was not a problem since these were major events in the village context. Throughout the survey professional surveyors were present to help village leaders and to verify the

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[18]To see the latter effect this compare (7) to (8).

[19]For personal characteristics of the village chief, the village party secretary and the village accountant, we asked for age, sex, level of education, whether he/she belonged to a family that owned land before the communist land reforms in the early 1950s, whether that individual was persecuted during the Cultural Revolution, *pidou*. For powers, we asked them to check a box indicating if the village chief, secretary or accountant's signature was necessary for employing village personnel, or spending money from village funds. We also ask the villagers to recall the method of the election (e.g. anonymous ballot). Additional documentation for this data can be found at http://www.econ.brown.edu/fac/Nancy_Qian/Papers/Village%20Democracy.htm

accuracy of their answers. The sample of villages was chosen to match our second source of data: the National Fixed-Point Survey (NFS).

The NFS is collected and maintained by the Research Center for Rural Economy (RCRE), a research division of the Ministry of Agriculture. It is a longitudinal survey of about 320 villages and 24,000 households distributed across all continental Chinese provinces. The NFS began in the mid-1980s and villages were chosen to be nationally representative at that time.[20,21] Figure 1 maps the counties for which we have NFS data. For this study, we use about 30% of the variables from their village-level data[22] for 26 provinces for all of the available years, 1987-2005. We do not use data for earlier years of the survey because changes in survey techniques made the data difficult to compare over time. Within the 26 provinces, we use all 266 villages in the NFS.[23]

There are several key advantages of this data. First, the RCRE panel data is reported contemporaneously. This avoids measurement error that would emerge if we were to collect recall data of high frequency variables, such as income or inequality measures. Second, the panel structure of the survey allows us to include village fixed effects in our econometric specification, which control for all time invariant unobserved characteristics of the village. Third, the long time horizon allows us to examine long run outcomes. Finally, the richness of the RCRE data enables us to explore the mechanisms that underlie our reduced form effects.

We merge our survey data to the NFS data at the village and year level. Forty-nine villages are dropped because of data entry mistakes. Our final sample comprise of 217 villages. The political data spans 1980-2005 and the economic and social data from the NFS span 1987-2005, except for 1992 and 1994 when the NFS was not conducted. In addition to the village level data, we obtained yearly household level data on gross and net incomes. We use this to calculate mean income and Gini coefficients, as well as the incomes on different parts of the village income distribution. Comparisons of the net and gross incomes also allow us to compute the overall tax burden of households.

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[20]The survey used a stratified sampling approach. For each province, it first randomly selects a number of counties, and then randomly selects a number of villages within each county. 7 to 90 households are then randomly selected from each village. According to the RCRE, there has been no attrition except in the cases of administrative mergers at the village level and deaths at the household level.

[21]Therefore, by 2005, they may no longer be nationally representative. This should be taken into account when interpreting our results.

[22]The RCRE village-level survey contains eight sections: 1) population, households, and local organizations; 2) the labor force; 3) land; 4) fixed-capital assets; 5) agricultural production and sales; 6) total income and expenses; 7) village fiscal revenues and expenditures; and 8) other social indicators (e.g., crime, religious participation, etc.).

[23]Samples from four provinces of the NFS have been used in studies by Benjamin et al. (2005), de Brauw and Giles (2006), Giles (2005), Giles and Yoo (2006) and Shen and Yao (2008).

4.2 Descriptive Statistics

Figure 2 summarizes the timing of the implementation of the electoral reforms by showing the number of villages that adopt elections or *haixuan* each year. As we can see, most villages implemented elections during the late 1980s and the first *haixuan* during the early 2000s. By 2005, all 217 villages in our sample had implemented elections and 132 of the villages had held election with open nominations. On average, the first haixuan follows the first election by approximately nine years.

In Table 2 we provide the descriptive statistics. Panel A shows the demographic composition of the villages. On average, there are 420 households per village. Each household has approximately one young child and two working age adults (laborers). Approximately 20% of villagers are high school graduates and 85% of them have primary education. 50% of households are engaged exclusively in agriculture, indicating that industry and other non-agricultural activities are an important component of households income.

Panel B displays the summary of income and inequality measures. Gross income, as reported by NFS, includes earnings from all sources including remittance payments from household members that have migrated away. Net income is net of taxes and fees paid out as well as of production costs. On average, mean village income is growing at an annual rate of 13%.[24] The average household at the 10th percentile of the income distribution in each village is making approximately 3,044 RMB. This represents approximately 45% of the median income (6,853 RMB). The median income is approximately 53% of the top 90th percentile income (14,157 RMB). We calculate total taxes paid by households as the difference between gross and net incomes divided by gross income. This includes taxes paid to the central government (collected by the village government) and fees paid to the village government for village expenditures. Households on average pay 36% of their gross income as taxes.

Panel C shows some village level characteristics. Approximately 88% of villages have a primary school and 15% of them have a middle school. 68% of the productive assets in the village are owned by households, 28% are owned by collectives or cooperatives and 4% are owned by firms. The village committee has on average five members (including the village chief), and the party committee has four members (including the party secretary). The village chief is on average 42 years of age, has nine years of education (equivalent to a middle school graduate), and is in office for seven years. Approximately 20% of village chiefs belong to families that owned land before the 1950's land reforms.

Table A2 in the Appendix contains additional information about the sources of village government revenue and the allocation of expenditures.[25] Similarly, Table A3 provides information about

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[24]Inflation is extremely low during this period in China so we report all income in nominal terms.

[25]On average, village governments have revenues of approximately 490,677 RMB. The majority of revenues, approximately 55%, come from collective production, and approximately 21% of this comes from households. A similar

composition of village assets, disaggregated by type of ownership.

5 Empirical Strategy

In this section we discuss the empirical strategies we use to evaluate the effects of the introduction of village elections.

Our main empirical specification consists in a differences-in-differences analysis in which all differences between villages that do not change over time are controlled for by the between-village comparison, and all changes over time that do not differ across villages are controlled for by the across-year comparison. In particular, we estimate the following regression

$$Y_{vt} = \beta post\_election_{vt} + \theta post\_haix_{vt} + \gamma_v + \rho_t + \varepsilon_{vt} \tag{9}$$

where Y_{vt} is our outcome of interest in village v year t, $post\_election_{vt}$ is a dummy that takes value one for all the years after village v implemented its first election, $post\_haix_{vt}$ takes value one for all the years after village v implemented its first *haixuan*, and γ_v and ρ_t are village and year fixed effects, respectively. The main coefficients of interest is β which captures the effect of elections. Coefficient θ is the additional effect of haixuan had over elections, since $post\_haix_{vt}$ is the interaction of having elections and *haixuan*.

The main caveat for interpreting the estimates as causal is that the timing of the reforms is potentially endogenous to unobserved characteristics that are correlated with the outcomes of interest. For example, if villages that experience high income growth implement elections earlier, a simple fixed effects estimation will overestimate the negative effect of elections on income growth. In order to address these concerns, we undertake a number of robustness checks.

First, we investigate what are the determinants of the adoption of elections. In particular, in a cross section of the villages in our sample, we regress the year in which the first election was held against several village characteristics, such as village population, Gini coefficient, growth rate of the Gini coefficient, level of income of the 10th, 50th and 90th percentiles, and their corresponding growth rates.[26] The results are displayed in Table 3. As we can see, most regressors are not statistically significant and only the level of income of the 50th and 90th percentiles seems significantly correlated to the timing of the election. However, these characteristics are controlled for in our main regression specification by the village fixed effects.

Second, we incorporate *province × year* fixed effects in order to further control for time varying factors that affect in the same way all villages in a given province. Our results are largely unaffected

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proportion come from other sources. Expenditures are on average 470,056 RMB. The biggest expenditure is on collective production. Approximately 10% is delivered to upper levels of government in the form of levies and taxes. And 7% is spent on village administrative expenditures. This mostly comprises of salaries to the government personnel (e.g. administrative and party committees and accountant).

[26]The regressors are the average of the mentioned variables for all the years previous to the introduction of elections.

by the inclusion of these additional controls and, in the sake of brevity, we do not report them in this paper.

Finally, we conduct a similar analysis than the differences-in-differences specification but letting the coefficients for the effects of the reform to vary for years since the election. In particular, we estimate the following regression

$$Y_{vt} = \sum_{\tau=-3}^{T} \beta_\tau yrs\_to\_reform_{v\tau} + \gamma_v + \rho_t + \varepsilon_{vt} \tag{10}$$

where Y_{vt} is the outcome in village v in year t, $yrs\_to\_reform_{v\tau}$ is a dummy variable that takes value 1 in the τ-th year since elections were introduced in village v, and γ_v and ρ_t are village and year fixed effects, respectively. The reference group comprises of observations for four or more years before the first reform. T is the maximum number of years after the first election for any village in our sample. To control for serial correlation of the residuals within villages, we cluster the standard errors at the village level. β_τ is the effect if the reform τ years since the reform. If the reform had an effect, then β_τ should be constant prior to the reform, $\tau < 0$, and then different from zero after the reform, $\tau \geq 0$. The identification relies on a break in the trend of outcomes for villages on average at the time when elections are introduced. Another advantage of this method is that it allows us to verify that there were no pre-trends of our dependent variable prior to the reforms.

6   Results

In this section we provide a summary of the main results of the effects of the introduction of election and *haixuan* for different outcomes.

6.1   The Effects of Elections on Leadership Characteristics

In order to assess whether the electoral reforms were successfully implemented, we first explore their impact on village leadership characteristics by estimating equation (9). The results are displayed in Table 4. Two different leadership characteristics are examined, leader's family background of the leader (defined as taking value 1 if the leader belongs to a middle-rich family which owned land prior to the 1950s land reforms) and the leader's years of education. As we can see, the introduction of elections led to changes in the type of leaders in the village chief position but did not affect the party secretary position. This suggests that elections had a real impact in the village governance since they led to changes in the composition of the village committee, which was the object of the reforms, but not in the party committee.

6.2 The Effects of Elections on Income and Economic Growth

We next explore the effect of the introduction of elections and *haixuan* in income levels and economic growth. Table 5 displays the main results. Columns (1) and (2) indicate that elections led to a decrease gross income of 9.3% and of net income of 8.7%.[27] Columns (3) and (4) explore the effects on the annual growth rate of gross and net income, respectively. These regressions also include income levels lagged one and two periods as regressors. The results indicate that economic growth is approximately 5 percentage points lower once elections are introduced (both in terms of gross and net income).

These results are consistent with the predictions of the model described above which relates this slowdown in economic growth to a change in the incentives that the village chief faced. The introduction of elections shifted the accountability from upper levels of government towards villagers. The village chief was no longer evaluated only based on economic performance, but on the basis of multiple objectives that villagers valued. This led to a translation of village chief's effort from income generating activities to the provision of public goods and other outcomes valued by villagers. As a result, the level of productivity decreased, generating a slowdown in economic growth.

6.3 The Effects on Social Outcomes and Inequality

The model also predicts that there will be an increase in effort devoted to the provision of public goods and other social outcomes valued by villagers. In order to investigate this, we estimate the effect of the introduction of village elections on public goods and other outcomes that villagers value. The main results are displayed in Table 6.

Column (1) shows that elections increase the probability of having a primary school by 3.4%. This result is not surprising since schools are one of the public goods provided by the village that villagers value the most. As we discussed above, the village chief plays a crucial role in coordinating villagers efforts and revenue raising for large public investment projects. Column (2) shows that elections decreased the number of village administratives from around five to four people per village. This substantial decrease in the number of employed personnel suggest that villagers had a preference for reducing the number of bureaucrats in order to reallocate the costs of their salaries to alternative uses. Columns (3) and (4) examine the effects on enforcement of unpopular policies and suggest that elections lead to a relaxation of the One Child Policy. Elections increased the probability that households are allowed to have a second child by 7%. This result is particularly strong if the first child was a girl, in which case households are 13% more likely to be allowed to

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[27] Notice that this decrease in income is by comparison of villages that hold elections relative that those that do not. During the relevant period nominal incomes are growing at a 13% annual rate, so we should interpret our results as a slowdown in economic growth once elections are adopted, but incomes continue to raise throughout this period.

have a second child once elections are introduced. This result is significant at the 1% level.

Finally, the introduction of elections seem to have led to a reduction in within village inequality. Columns (5) and (6) show that elections reduced the Gini coefficient by approximately 0.01 points, both in terms of gross and net incomes. Notice that, the magnitude of the reduction is similar for gross and net incomes. This suggests that income redistribution through taxation and transfers is insufficient to explain this decrease in inequality. As we discuss in the next subsection, we find evidence that this is indeed the case. In Panel B, columns (8) and (10) show that in RMB terms, elections reduced the gross income distance between the 10th and 90th percentiles by 5,845 RMB, and between the 50th and 90th percentiles by 5,053 RMB. In terms of ratios, columns (7) and (9) show that elections increased the ratio of 10th to 90th percentile incomes by 1.5 percentage points and the ratio of 50th to 90th percentile incomes by 2.2 percentage points.[28] These estimates are statistically significant at the 5% and 10% levels. The estimates for *haixuan* are smaller in magnitude and typically not statistically significant, which suggests that open nominations did not have additional effects to elections.

We also estimate the yearly effect of elections on the difference in income between the 10th and top 90th percentile households; and between the median and 90th percentile households. The regression results for the latter outcome are reported in the Appendix Table A1. The estimated coefficients for the vector of $\hat{\beta}s$ from equation (10) are plotted in Figures 3A and 3B. The figures show that there is a clear trend break at the time of the first election and no evidence of a pre-trend. Notice that the positive coefficients for the years after the first election mean that elections reduce the gap between the two percentiles of the income distribution. The finding that the magnitude of the coefficients increase over time suggests that successive elections further reduced inequality (at least for the first two or three elections).

In Panel C we explore whether this reduction in within village inequality is related to the general slowdown in economic growth that we find in Table 5. In particular, we estimate the effects of the electoral reforms on income levels of different deciles of the village income distribution. Columns (13) to (18) reveal that all income deciles suffer reductions in income levels, both in net and gross terms. However, this effect is larger for richer households with those in the 50th and 90th percentiles experiencing reductions in gross income by 4.3% and 10%, respectively. These estimates are statistically significant at the 10% and 1% level. Households in the 90th percentile also experienced a decline of net income of 6.9%, (significant at the 10% level).

Overall, these results suggest that the introduction of village elections led to an improvement of several outcomes that villagers valued, such as the number of primary schools, relaxation of unpopular policies and reduction in within village inequality. This is findings are consistent with the model which predicts that the change in accountability leads to an increase the village leader's

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[28]The results on net incomes are similar and, in the sake of brevity, we only display in columns (11) and (12), the results on the ratio of the 10th and the 50th to the 90th percentiles of net income distribution.

effort in the provision of public goods and other outcomes that villagers value.

6.4 The Effects on Taxation and Asset Redistribution

In this subsection we explore what are the mechanisms that could lead to a decrease in within village inequality and income. *A priory*, we do not expect that the reduction of within village inequality is driven by income redistribution trough taxation and transfers, for mainly to reasons. On the one hand, our results point out that the reduction of inequality was not only in terms of net income, but also in gross income, which suggests that elections led to changes in the production side. On the other hand, village leaders have very limited power to affect the taxation burden of households. Villagers pay taxes directly to upper levels of government. Although village leaders are involved in their collection, they have no power whatsoever to establish tax rates. Typically, the village government raised some revenue from ad-hoc fees (known as *tiliu*). However, this was made illegal by the *Tax and Fee Reform* in 2003.[29] In order to verify this, we investigate in Table 7, Panel A, the effects of elections on the sources of revenue of the village government. None of the results is statistically significant at the 10% level, which suggest that there were not major changes in the way the village government raised its revenue.

In addition to this, we study whether the overall taxation burden of households, computed by the difference between gross and net income as a fraction of total gross income, was affected by the introduction of elections. This measure has the benefit that does not rely on accurate reporting of taxes and fees paid (which could potentially be systematically under-reported after fees are nominally abolished). For this exercise, we estimate the effect of elections for the village mean, and the mean for households with gross incomes below the 25th percentile of the village income distribution, between the 25th and the 50th, the 50th and 75th, and above the 75th. The results are shown in the Appendix Table A4. There is no evidence that elections affected the overall tax burden of households. The estimates are all small in magnitude and statistically insignificant. Therefore, we conclude that the reduction in inequality is not due to redistributive tax policies.

We next explore whether there have been changes in the distribution of productive assets. As we discussed in Section 2.2, village leaders are actively involved in the acquisition and distribution of productive assets such as agricultural machinery and other capital goods. Therefore, it is plausible that newly elected village leaders have affected the income generating process of the village by altering the asset distribution. As we can see from Panel B this seems to be the case. In particular, we observe from columns (8) and (11) that the introduction of elections led to an increase of 20% in the value of assets owned by households which represented an increase of 4 percentage points of the share of assets owned by household in the village. This was at the expense of collectives and firms which experienced a decrease in the level and the proportion of assets under their control.

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[29] Nevertheless, anecdotal evidence suggests that their collection was continued in practice, in some parts of China.

The findings on asset redistribution can explain both the reductions in income and inequality. Elected village leaders might have been pressured by their constituents to redistribute assets in order to ensure a more equitable distribution of their profits. This redistribution might have decreased the overall output if there were economies of scale that required asset concentration to achieve its maximum marginal product. Alternatively, the lower level of effort that an elected village head devotes to making assets productive could explain why the median household income does not increase despite controlling a higher proportion of assets.

The lack of ability of village heads to redistribute income through taxation and transfers, can explain why this inefficient form of redistribution emerges. Similarly, it is very likely that villagers do not have the ability to establish compensating transfers because once the ownership of an asset is established, the owner lacks commitment to redistribute ex-post his or her gains.

6.5   Robustness Checks

One concern over the interpretation of the results on income and within village inequality is that households under-report income proportional to income level (i.e., the more they earn, the more they under-report).[30] If this is the case, then we will not be able to distinguish whether elections decreased inequality or if elections simply increased proportional under-reporting. To address this possibility, we investigate whether elections decreased consumption proportional to the decrease in reported income. If elections have no effect on consumption, then it would be hard to believe that the decrease in income is completely genuine. However, if consumption also decreases, and decreases more for richer households, then the possibility that elections lead to changes in the propensity to under-report income would be unlikely. Appendix Table A5 shows the effect of elections on income and consumption across the income distribution for a subsample of 48 villages.[31] As we can see, consumption decreases by more than income for households in all parts of the income distribution. In fact, the relative effect for households in the top quartile to households in the second quartiles is the same for the two outcomes. On average, elections reduced the incomes and consumption expenditures of the average households in the top quartile of the village income distribution by twice as much as the household in the second quartile. These results are very suggestive that the reduction income from elections is not likely to be driven by under-reporting.

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[30]For instance, this could be the case if households feared that elections would lead to progressive taxation. Although we have see village leaders had very limited ability to affect taxes, we still find necessary to verify that there was not under-reporting of income.

[31]We only have data on consumption at the household level, for a subsample of 48 villages.

7 Conclusion

The introduction of elections in rural China is constitutes an unprecedented opportunity to evaluate the impact of increased accountability on economic performance. The controlled nature of these reforms (in the sense that many other institutions were held constant) and the high degree of involvement of village leaders in economic affairs, makes the Chinese case especially suited to study the subject.

The results of this study are provocative. We find that elections decreased income and income growth for households in *all* sections of the income distribution. At the same time election decreased within village income inequality, increased public goods provision, and relaxed the enforcement of unpopular policies. Interestingly, our findings suggest that the inability to redistribute through taxation causes the village government to resort to a redistribution of assets. In particular, assets were redistributed away from firms and collectives and towards households.

The fact that income growth is halved by elections suggest that villagers place great value on public goods and reduction of inequality they receive in return. Future work will include a more in-depth analysis of the trade-offs of asset redistribution as a way to reduce inequality versus taxation. It is very likely that the large reduction in growth would not be necessary if leaders were allowed to impose progressive form of taxation.

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Figure 1: Map of the Counties where NFS Villages are Located.
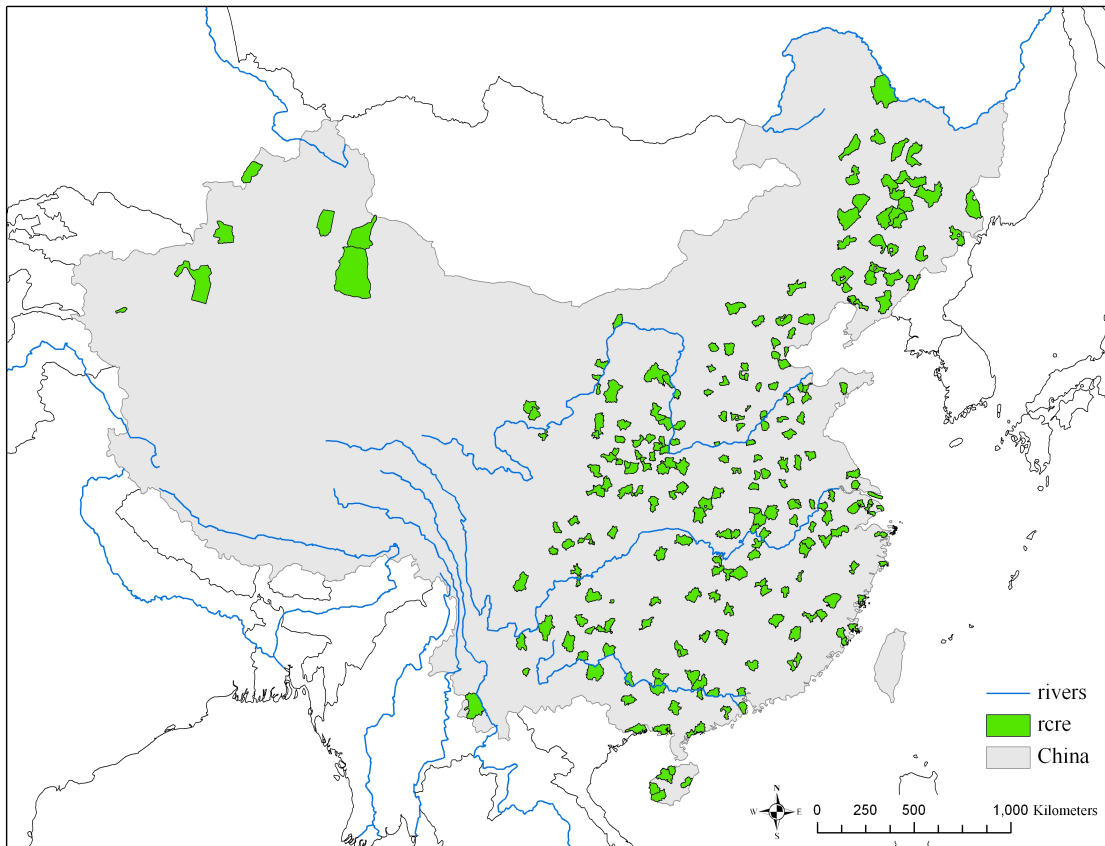
Figure 2. Timing of Electoral Reforms
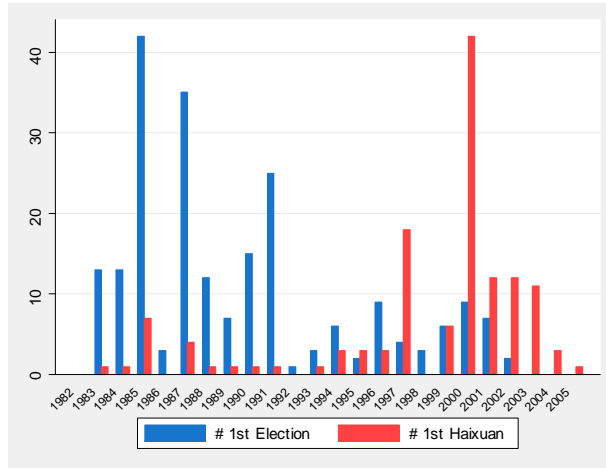
This figure displays the number of villages in our sample
which held their first election or haixuan in each year.

Figure 3. Effects of Elections on Inequality

Panel A

income 10th percentile - income 90th percentile
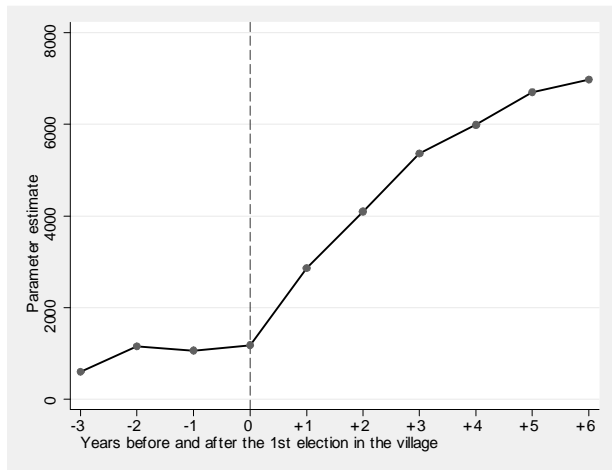
Panel B

income 50th percentile - income 90th percentile
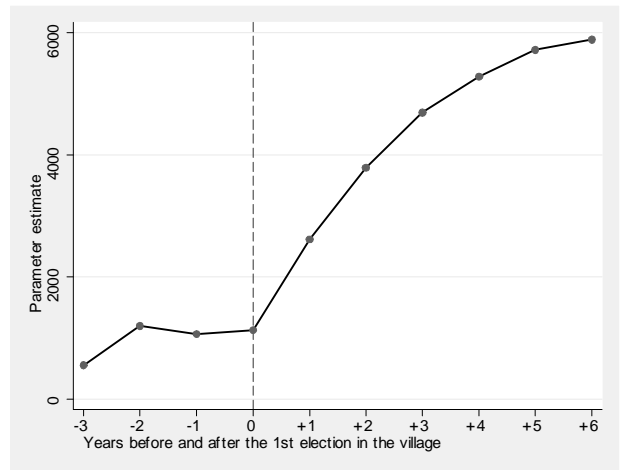
Coefficients of the dummy variables for the number of years before and after the first election in the village,
controlling for village and calendar year fixed effects.

Table 1. Distribution of Powers in the Village

Signature Rights	Mean	Standard Deviation
Appoint managers of village enterprises:		
Village Chief	0.3225	0.4675
Party Secretary	0.3073	0.4614
Village Chief & Party Secretary	0.3684	0.4824
Employ village government public employees:		
Village Chief	0.2661	0.4420
Party Secretary	0.2944	0.4558
Village Chief & Party Secretary	0.4392	0.4963
Reimbursement:		
Village Chief	0.5582	0.4966
Party Secretary	0.2485	0.4322
Village Chief & Party Secretary	0.1931	0.3948
Reallocate Land:		
Village Chief	0.3285	0.4697
Party Secretary	0.1347	0.3414
Village Chief & Party Secretary	0.5305	0.4991
Large Public Investment:		
Village Chief	0.1770	0.3817
Party Secretary	0.1497	0.3568
Village Chief & Party Secretary	0.6731	0.4691

Table 2: Descriptive Statistics

	Mean	Standard Deviation
A. Villagers Characteristics		
Number of HH	419.7692	279.7648
# children between 7-13 years old per HH	0.7723	11.2886
# of laborers per HH	2.0346	0.4219
% of Primary Graduates	0.8523	0.6655
% of High School Graduates	0.2145	0.2313
% of HH Full-time Farming	49.4837	32.4397
B. Income		
Mean annual growth (gross income)	0.1299	0.2524
10th Percentile Net Income	3043.9040	2579.8580
50th Percentile Net Income	6853.8430	5829.3120
90th Percentile Net Income	14156.9300	17517.9700
Ratio of 10th/90th Net Income	0.2512	0.1137
Ratio of 10th/50th Net Income	0.4587	0.2145
Ratio of 50th/90th Net Income	0.5303	0.1116
HH Taxes (Gross-net/Gross)	0.3611	0.1477
C. Village Characteristics & Village Government		
% of villages with primary school	0.8846	0.3196
% of villages with middle school	0.1551	0.3620
% of assets owned by households	0.6772	0.2981
% of assets owned collectively	0.2772	0.2973
% of assets owned by firms	0.0476	0.1321
Number of Administrative Committee	5.4916	3.2263
Number of Party Committee	4.3653	2.3603
Age of Village Chief	42.3745	7.8153
Years of Education of Village Chief	9.0888	2.3334
Tenure of Village Chief (years in office)	7.2900	4.8587
Village Chief from Land-owning Family	0.2045	0.4034

Table 3. Determinants of Timing of Elections

	(1) Year of Election
Pre Gini	-0.254
	(6.548)
Pre Gini Growth	-4.602
	(13.66)
Pre 10th Inc	-0.000771
	(0.000848)
Pre 10th Inc Growth	-4.099
	(4.373)
Pre 50th Inc	0.00202***
	(0.000563)
Pre 50th Inc Growth	-1.022
	(7.627)
Pre 90th Inc	-0.000256***
	(6.80e-05)
Pre 90th Inc Growth	0.634
	(4.739)
Village Population	-0.0440
	(0.609)
R-squared	0.774

The regression includes Province Fixed Effects

Table 4. Leadership Characteristics

	Dependent Variables			
	(1)	(2)	(3)	(4)
	Family VC	Family PS	Education VC	Education PS
Sample Mean	0.204	0.172	9.089	9.029
Election	0.1262**	0.0499	-1.3641***	-0.1172
	(0.0613)	(0.0364)	(0.4861)	(0.2287)
Haixuan	0.0141	0.0400	0.3624	0.0790
	(0.0335)	(0.0316)	(0.2487)	(0.2004)
Observations	3878	4497	3896	4521
F-test diff coeff (stat)	2.533	0.0410	9.463	0.416
F-test diff coeff (p-value)	0.113	0.840	0.00237	0.519

All regressions include village and year fixed effects.

Standard Errors are clustered at the village level

Table 5: Effects of Elections on Income Levels and Income Growth

	Dependent Variables			
	(1)	(2)	(3)	(4)
	Ln (Gross Income per HH)	Ln (Net Income per HH)	Annual growth gross income per HH	Annual growth net income per HH
Sample Mean	**7.576**	**7.138**	**0.0635**	**0.0622**
Election	-0.0939*	-0.0874*	-0.0543**	-0.0549*
	(0.0480)	(0.0459)	(0.0256)	(0.0298)
Haixuan	-0.0235	-0.0089	0.0231	0.0120
	(0.0395)	(0.0361)	(0.0314)	(0.0337)
Observations	3264	3263	1344	1344
F-test diff coeff (stat)	1.530	2.007	2.853	1.821
F-test diff coeff (p-value)	0.217	0.158	0.0926	0.179

All regressions include village and year fixed effects. Columns (3) and (4) also control for income lagged one and two periods.

Standard Errors are clustered at the village level

Table 6: The Effects of Elections on Public Goods, Social Outcomes and Inequality

Panel A. Dependent Variables

	(1) Village has primary school	(2) Adminstratives	(3) 2nd child allowed	(4) 2nd child allowed if 1st girl	(5) Gini	(6) Gini Net
Sample Mean	**0.885**	**5.439**	**0.389**	**0.697**	**0.280**	**0.306**
Election	0.0341**	-1.1989*	0.0744	0.1363***	-0.0112*	-0.0130**
	(0.0165)	(0.6155)	(0.0555)	(0.0441)	(0.0060)	(0.0064)
Haixuan	0.0276	0.3065	0.0878*	-0.0434	0.0028	0.0009
	(0.0288)	(0.2055)	(0.0516)	(0.0503)	(0.0061)	(0.0063)
Observations	4930	2290	2427	3744	3550	3763
F-test diff coeff (stat)	0.0333	5.810	0.0324	6.905	2.996	2.465
F-test diff coeff (p-value)	0.855	0.0168	0.858	0.00946	0.0849	0.118

Panel B. Dependent Variables

	Gross Income				Net Income	
	(7) inc10/inc90	(8) inc10-inc90	(9) inc50/inc90	(10) inc50-inc90	(11) inc10/inc90	(12) inc50/inc90
Sample Mean	**0.275**	**-19347**	**0.529**	**-13915**	**0.248**	**0.528**
Election	0.0155*	5,845.7316**	0.0221**	5,053.4405**	0.0105	0.0153*
	(0.0080)	(2,708.4227)	(0.0093)	(2,401.5791)	(0.0078)	(0.0079)
Haixuan	0.0058	427.4711	-0.0021	704.2515	0.0049	0.0002
	(0.0082)	(3,815.3700)	(0.0098)	(3,447.5935)	(0.0077)	(0.0079)
Observations	3778	3778	3778	3778	3763	3763
F-test diff coeff (stat)	0.739	2.014	3.480	1.682	0.243	1.915
F-test diff coeff (p-value)	0.391	0.157	0.0635	0.196	0.623	0.168

Panel C. Dependent Variables

	Ln(Gross Income) by Quantiles			Ln(Net Income) by Quantiles		
	(13) 10th	(14) 50th	(15) 90th	(16) 10th	(17) 50th	(18) 90th
Sample Mean	**8.284**	**9.005**	**9.677**	**7.627**	**8.553**	**9.222**
Election	-0.0090	-0.0429	-0.1005***	-0.0190	-0.0298	-0.0697*
	(0.0433)	(0.0271)	(0.0379)	(0.0547)	(0.0331)	(0.0361)
Haixuan	0.0242	-0.0171	-0.0187	0.0076	-0.0124	-0.0127
	(0.0379)	(0.0259)	(0.0385)	(0.0490)	(0.0340)	(0.0380)
Observations	3778	3778	3778	3755	3762	3763
F-test diff coeff (stat)	0.300	0.468	2.622	0.135	0.126	1.252
F-test diff coeff (p-value)	0.584	0.495	0.107	0.713	0.723	0.264

All regressions include village and year fixed effects.

Standard Errors are clustered at the village level

Table 7: The Effects of Elections on Village Revenue and Asset Redistribution

	Panel A. Dependent Variables: Source of Village Fiscal Revenue (in logs)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Collectives	Households	Workdays	Firms	Upper levels	Other
Sample Mean	**3.494**	**5.047**	**1.204**	**1.051**	**1.830**	**2.660**
postel	0.3338	0.1936	0.0494	-0.2219	-0.2759	-0.4000
	(0.2700)	(0.2237)	(0.1959)	(0.2821)	(0.3340)	(0.4408)
poshaix	-0.2951	-0.0762	-0.1746	-0.0734	0.2346	0.2241
	(0.2382)	(0.2119)	(0.1978)	(0.2409)	(0.2480)	(0.2985)
Observations	3113	2886	1882	1673	1882	1673
F-test diff coeff (stat)	3.235	0.720	0.654	0.154	1.813	1.207
F-test diff coeff (p-value)	0.0735	0.397	0.420	0.695	0.180	0.273

	Panel B. Dependent Variables: Village Assets by onwnership					
	(7)	(8)	(9)	(10)	(11)	(12)
	Ln(Cooperatives)	Ln(Households)	Ln(Firms)	Cooperatives/Total	Households/Total	Firms/Total
Sample Mean	**3.894**	**8.504**	**1.278**	**0.277**	**0.677**	**0.0476**
postel	-0.0041	0.2094*	-0.3551*	-0.0003	0.0490**	-0.0139
	(0.1838)	(0.1132)	(0.1835)	(0.0249)	(0.0202)	(0.0106)
poshaix	0.0059	0.0501	0.0508	-0.0547**	-0.0013	0.0055
	(0.2099)	(0.1190)	(0.2151)	(0.0257)	(0.0215)	(0.0103)
Observations	5208	2886	5208	3234	2880	3234
F-test diff coeff (stat)	0.00129	1.340	1.995	2.263	2.803	1.658
F-test diff coeff (p-value)	0.971	0.248	0.159	0.134	0.0955	0.199

All regressions include village and year fixed effects.

Standard Errors are clustered at the village level

APPENDIX Table A1: The effects of elections on Income Inequality by Year

Dummy variables for years to 1st elec	Dependent Variable: inc50-inc90
-3	511.9666
	(1,082.3916)
-2	1,136.0952
	(1,741.0206)
-1	1,006.9693
	(2,530.8654)
0	1,030.5468
	(3,074.0211)
+1	2,507.2036
	(3,923.2438)
+2	3,736.2949
	(4,567.5914)
+3	4,609.3318
	(5,149.7914)
+4	5,263.1330
	(5,803.4343)
+5	5,701.4228
	(6,368.1507)
+6	5,873.9945
	(7,011.6358)
+7	6,345.3968
	(7,745.6013)
+8	7,111.0049
	(8,355.5901)
+9	7,296.3605
	(9,129.0914)
+10	6,022.1925
	(9,988.6912)
Observations	2210
R-squared	0.741

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.

Table A2: Fiscal Revenues and Expenditures of Village Governments

	Obs	Mean	Std. Dev.	Min	Max
Total Revenues (100 RMB)	**3,687**	**4,947**	**36,755**	**0**	**1,674,285**
from collectives	3,113	2,764	30,328	0	1,421,235
from HH	2,886	1,061	10,559	0	480,265
from obligated working days	1,882	69	218	0	3,710
from firms	1,673	440	4,262	0	127,750
from upper levels of government	1,882	158	754	0	12,868
from other sources	1,673	1,054	7,999	0	176,000
Total Expenditures (100 RMB)	**3,693**	**4,701**	**39,061**	**0**	**1,930,056**
collective production	2,886	1,972	35,441	0	1,794,526
HH production	2,111	461	2,260	0	53,100
delivery to upper levels of gov	2,979	475	2,270	0	66,120
public affairs	3,189	418	1,456	0	26,500
Administrative Expenditures	3,291	331	931	0	22,536

Table A3: Balance Sheet of Village Assets

	Obs	Mean	Std. Dev.	Min	Max
Assets owned by Collectives and Cooperatives:	5,208	10,512	67,810	0	1,810,200
Collectives	3,164	12,403	67,241	0	1,810,200
Cooperatives	1,882	8,238	60,832	0	1,169,900
Assets owned by Households:	2,886	17,670	147,111	0	4,602,788
Assets owned by Firms:	5,208	4,066	38,988	0	1,072,750
Partnership Enterprises	2,885	1,283	13,541	0	518,468
Private Enterprises	1,882	6,561	35,460	0	496,730
Joint venture Firms	1,672	3,064	32,151	0	576,020
Other	1,669	971	6,054	0	120,000
Total Assets	**3,244**	**41,471**	**187,713**	**0**	**4,649,281**

Table A4: The Effects of Elections on Taxation of Households

	Ln(Gross Inc - Net Income / Gross Income)				
	Mean	< 25th	25th - 50th	50th - 75th	>75th
	(1)	(2)	(3)	(4)	(5)
Sample Means	**0.362**	**0.332**	**0.312**	**0.315**	**0.362**
Election	-0.0045	-0.0019	0.0032	0.0023	-0.0068
	(0.0101)	(0.0078)	(0.0069)	(0.0077)	(0.0107)
Haixuan	-0.0083	-0.0095	-0.0084	-0.0045	-0.0084
	(0.0108)	(0.0085)	(0.0075)	(0.0086)	(0.0113)
Observations	3763	3762	3762	3763	3762
F-test diff coeff (stat)	0.0580	0.449	1.169	0.344	0.00849
F-test diff coeff (p-value)	0.810	0.503	0.281	0.558	0.927

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.

Table A5: The Effects of Elections on Income and Consumption for a 48 Village Subsample

	Dependent Variables							
	Ln (Househod Income)				Ln (Household Consumption)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	< 25th	25th - 50th	50th - 75th	>75th	< 25th	25th - 50th	50th - 75th	>75th
Sample Means	**8.411**	**8.958**	**9.313**	**9.927**	**7.969**	**8.346**	**8.584**	**8.900**
Election	-0.1502	-0.1596**	-0.1649*	-0.2874*	-0.1732	-0.2063*	-0.2588**	-0.3344***
	(0.1165)	(0.0710)	(0.0833)	(0.1524)	(0.1225)	(0.1078)	(0.1022)	(0.1093)
Haixuan	-0.0285	0.0434	0.0518	-0.1638	-0.0839	-0.0146	-0.0668	0.0520
	(0.1094)	(0.0794)	(0.0934)	(0.1861)	(0.1176)	(0.1270)	(0.0979)	(0.1429)
Observations	440	437	439	437	440	437	439	437
F-test diff coeff (stat)	1.029	6.483	6.075	0.718	0.945	3.483	4.413	4.817
F-test diff coeff (p-value)	0.318	0.0157	0.0191	0.403	0.338	0.0709	0.0434	0.0353

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.