

Accountability and Growth: The Costs of Village Democracy in China* (Preliminary and Incomplete)

Monica Martinez-Bravo[†], Gerard Padro-i-Miquel[‡],
Nancy Qian[§] and Yang Yao[¶]

15th March 2010

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 level government towards villagers. We find that this shift in accountability reduced income growth and inequality across villagers. Interestingly, we find no effect of electoral reforms on redistribution. Rather, the reduction in inequality is the outcome of the reduction in growth and the fact growth is biased towards the rich. We provide a simple model to show that in an environment where higher levels of government focused on income growth, electoral reforms can reduce growth by shifting the leader's effort from economic growth to public goods provision; or by reducing the incentives of the leader because villagers perceptions of overall leader performance might be subject to shocks. Our empirical results suggest that both channels may be present. While we find an improvement in some social outcomes such as a lower number of disputes and a reduction in village personnel, such improvements are small.

*We thank Daron Acemoglu, Abhijit Banerjee, Pedro Dal Bo, Andrew Foster, Dilip Mookherjee, Rohini Pande, Scott Rozelle, and Lily Tsai for their insights; the participants of NBER China and Brown Macro Lunch for useful comments; Ang Sun, Jing Tao and Ben Zou for excellent research assistance; and Jeff Blossom and Giovanni Zambotti at the Harvard CGA for GIS assistance. We acknowledge the PSTC at Brown and Stanford GSB for financial support. We are extremely grateful to the Chinese Ministry of Agriculture RCRE for sharing their data, and especially to Zhigang Wu and the team in Gansu Province for conducting the survey and assisting us in the field. We also thank John Giles for sharing his extensive knowledge and documentation of the RCRE NFS dataset with us. We acknowledge financial support from Brown University PSTC, Stanford Graduate School of Business and the National Science Foundation Grant XXXXX.

[†]MIT: mmb@mit.edu

[‡]LSE, NBER, BREAD: g.padro@lse.ac.uk

[§]Yale University, NBER, BREAD, CEPR: nancy.qian@yale.edu

[¶]CCER at PKU: yyao@pku.edu.cn

1 Introduction

The relationship between different methods of accountability of politicians and economic performance is one of the most fundamental questions of political economy and comparative politics. Most of the existing empirical evidence comes from cross-country studies and few papers have investigated the effect of electoral accountability on economic outcomes and policies using within country variation.

This paper uses a unique data set to evaluate the impact of the introduction of village elections in rural China on social and economic outcomes. Prior to these reforms village chiefs were appointed by a higher level branch of the Chinese Communist Party (CCP). Therefore the introduction of village elections shifted the accountability of village leaders from higher levels of government towards villagers. By exploiting time and regional variation in the implementation of these electoral reforms we are able to evaluate their impact on economic and social outcomes. Our empirical results highlight that the introduction of village elections caused a slowdown in economic growth, a decrease in within village inequality and a modest increase in the provision of public goods and other social outcomes that villagers valued.

The introduction of village elections started being discussed among CCP leaders by the mid 1980's in response to the growing concern about the rapidly eroding relationship between villagers and local party cadres. Decollectivization radically changed the configuration of power in China's villages: the dismantling of rural brigades promoted villagers autonomy and reduced the leverage that village leaders had over households. This left party cadres with few resources to implement unpopular laws and achieve production quotas, so they usually resorted to coercion. Many times villagers took revenge acts, contributing to the escalating tension between villagers and party cadres. The national leadership of the CCP started fearing the spark of protests and generalized unrest in the countryside. In this context, several national leaders started pushing for the introduction of village elections as a way of making village leaders accountable to villagers in order to increase villager's satisfaction with the regime.¹

Village elections started being implemented in rural China during 1980s. 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.

In order to evaluate the impact of these reforms on economic and social outcomes we conducted a survey of 266 nationally representative villages in 26 provinces on the timing and implementation of

¹For a more detailed discussion see O'Brien (1994), Kelliher (1997), and Oi and Rozelle (2000).

electoral reforms of each village. This data allows us to be the first to carefully document the reforms for a broad cross section over a long time horizon. We match our survey data to contemporaneously collected data from the National Fixed-point Survey (NFS) for the period 1987-2005 that contains a wide variety of information on economic and social outcomes. Our study improves upon past studies in having much more breadth of data which allows us more statistical power for examining the effect of elections on several village level outcomes and for exploring the mechanisms underlying the effects of elections. Moreover, our data is the first one to be nationally representative. Therefore, the results will be able to speak to the average effect of elections for China.

Our main empirical strategy consists in implementing a fixed effects analysis in which we compare outcomes before and after their first election (or *haixuan*) between villages that have had the reform and those that have not. 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. We also implement a second strategy in which we allow the effects of the reform to vary by the years since its implementation. In this case, identification relies on the trend break in the coefficients we estimate around the time of each reform. We are able to address some concerns of the omitted variables bias and reverse causality problems by showing that there were no pre-trends for the years leading up to the first election in income levels or inequality. Our strategy would be called into question if a reform is introduced at exactly the year when the outcome of interest changes for reasons other than the reform. This is by no means a perfect strategy for resolving identification issues. We choose this strategy over alternative ones because there are no ideal instruments, and the caveats for interpretation are most transparent with this one.

The empirical results highlight that the introduction of village elections lead to a decrease in economic growth and within village inequality. We do not find any effect of the electoral reforms on taxation or income redistribution, and the decrease in inequality seems to be driven by a stronger slowdown in the income growth of the richest households in the village. Finally, we find some modest improvements in the availability of public goods and in social outcomes that villagers valued. For instance, the introduction of election leads to a substantial decrease in the number of disputes in the villages, which is indeed consistent with the original motivation of CCP for the introduction of village elections. We also find a reduction in the number of administrative personnel employed in the village government, hence in the bureaucratic and financial burden on villagers, who had to raise their salaries from villagers fees. The introduction of elections seems to have increased the fraction of village assets that were owned by households (as opposed to collectively owned). Also, we find some improvement (although not statistically significant) in the number of households with access to safe and sanitary water.

In order to illustrate how the changes in accountability experienced in rural China could give raise to these empirical patterns, 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 and he will only be reappointed for a second term if he is able to achieve a certain income growth target for his village. This specification borrows from 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 optimal to devote most of his effort to 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 baseline level of utility to villagers. Since villagers not only care about income but also about the availability of public goods, the local politician finds optimal to transfer some effort from income generating activities to the provision of public goods. Therefore, the model unambiguously predicts that the introduction of village elections will lead to a slowdown on economic growth. Moreover, if villagers' utility functions are subject to random shocks, the total level of effort that the village chief exerts in all tasks decreases upon the introduction of elections. The intuition for this result is that villagers will have a noisy measure of the village chief's performance and this will decrease 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 findings are consistent with the predictions of the model since we estimate a clear slowdown in economic growth and a modest improvement in public good provision and other social outcomes valued by villagers. The inability to find statistically significant estimates for the improvement of some public goods outcomes suggests that villagers' preferences subject to random shocks of large variance.

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 cross-country comparisons of countries with different clusters of institutions (Mauro, 1995; Hall and Jones, 1999; Acemoglu et. al., 2001). However these studies are subject to a number of problems. First, it is not clear which institutions are responsible for any given effect. Second, in a cross-section of heterogeneous countries, reverse causality is likely problem since economic outcomes can determine which political institutions are adopted. 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.

Second, our paper contributes to the growing number of studies that examine the effects of the village electoral reforms in China. Zhang et al. (2004) uses a differences-in-differences strategy with panel data of 60 villages from two provinces and finds that elections have little effects on village

²See Rozelle (1994).

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. Alternatively, other studies have used a panel of 48 village in eight provinces that are a part of the Ministry of Agriculture's National Fixed Point Surveys (NFS) in combination with a household level retrospective survey conducted by the authors. Wang and Yao (2007) finds that elections substantially increase the share of public expenditures in the village budget, but reduce the shares of administrative costs and income handed to the township government. They found no effects on tax revenues. Nor did they find differential effects for close (competitive) elections. Shen and Yao (2008) finds that elections reduce the Gini coefficient by 0.04, or 14.3% of the sample average and increase the income shares of poorer portions of the population. Li, Xu and Yao (2006) finds that villages are more likely to establish a health care plan after the election is introduced. In addition, village elections reduce the probability of a household to borrow by 16.7% when one of its working adults is seriously sick. In a follow-up study, Li, Xu and Yao (2007) find that consumption insurance for poor and middle income households is more complete when the households live in villages with elected village leaders. Our paper contributes to this literature by estimating the effects of village elections on economic growth in a nationally representative. Also, to our knowledge, our paper is the first one to investigate the two phases of the reform separately (introduction of elections and *haixuan*).

Finally, our paper contributes to the literature that studies the differences in incentives and in performance of appointed versus elected officials. See for instance Besley and Coate (2003), Maskin and Tirole (2004), and Alesina and Tabellini (2007, 2008).

The rest of the paper is organized as follows. Section two describes Chinese villages and the electoral reforms. Section three presents a simple model of the alternative accountability systems for the village chief. Section four presents the empirical strategy. Section five describes the data. Section six presents the empirical results. Section seven offers conclusions.

2 Village Elections

In this section, we describe the powers of the village government and provide a brief history of the electoral reforms. The village government comprises of a committee, the head of which is the village chief (often called chairman or chief); and the CCP party committee, the head of which is the secretary. The electoral reforms only apply to the committee.

Villages are not considered an official level of government. Nor are they fiscal accounting units. However, in practice, villages are fiscally autonomous and village leaders control the revenue and expenditure decisions at the local level. Villagers pay their agricultural taxes directly to a higher level of government, whether the township or the county level. Villages are not allocated any tax revenues, but obtain their resources from collectively owned property and enterprises and from ad

hoc surcharges know as *tiliu*. Almost all public goods in rural villages must be financed by the villagers themselves from these sources. Thus, when we compare results in tax receipts or in public goods provision across villages there are no fiscal spillovers that can confound the comparison. Village officials' salaries are also paid from these funds. Very few transfers are made from upper levels of government or across regions. According to our data, only 3.2% of total village revenue is from upper levels of government. See Oi (1999) for a description of the fiscal structure of villages. In this way, even though we are comparing units within a country, the results we obtain can shed light on relative performance across countries.

To the best of our knowledge, there is little documentation of the fiscal arrangements between the village and the upper levels of government which affects a few public goods such as schools and roads, and more generally in the power village leaders had. Such arrangements will affect the extent to which elections can affect outcomes. To address this, we conducted focus groups in villages in Gansu province during the summer of 2006. The focus groups comprised of all present and past village leaders and village accountants in the village. They discussed the roles that leaders played and their experiences with elections. We summarize the relevant findings below.

Village governments were first organized by the communist government during the land reforms of the early 1950s. Each village has two groups of leaders. The village chief (who is often also called the village chairman) leads a village committee typically comprised of three to five members. This group is supposed to be democratically elected by the village. However, with the exception of the early 1950s, there were no real elections until the reforms described in this study. Leaders were appointed by the party. The second group of leaders comprise of the village party members (cadres). They are led by the village party secretary, who is appointed by the county level party. Villages do not have police or official judicial systems for solving disputes. The village committee and party are the only source of law enforcement and problem resolution between villagers.

Village governments may not be in the position of making large fiscal investments (either because of the lack of funds or political constraints from upper levels of government). But a democratically elected leader with a popular mandate may have a different effect on coordinating villager support for a project relative to an appointed leader. Anecdotally, all village leaders are supposed to work together for a variety of tasks. This includes solving disputes amongst villagers and coordinating villagers for public projects. One common public project undertaken during the period of our study is road construction. The village government is responsible for all funding of roads within a village. They are also responsible for a part of the construction of roads that connects the village to the main through-ways constructed by upper levels of government. The village must contribute labor and sometimes even money for materials. All the villages we interviewed had chosen to construct the road. The decisions are made in meetings that are open to all villagers. The villagers did not have a formal process of voting on decisions. Rather, all decisions were achieved by discussion both in the meeting and outside until a consensus is achieved. In each case, the village leaders were

responsible for coordinating meetings and mediating between differing opinions outside of meetings. In the case of schools, through most of the period of this study, villagers typically had to provide labor for constructing and repairing the school, as well as for raising funds to pay the teacher. Only the construction materials were provided by the upper levels of government. In cases of limited public goods such as irrigation, the village leaders need not only to coordinate their construction, but also the distribution of resources across households.

Disputes are typically solved by mediation by the village chief and party secretary. If a villager is dissatisfied with the outcome of the policies of his village leaders, his only official venue of appeal is to county-level party cadres.

2.1 Electoral Reforms

Studies of village reforms typically focus on the *Organic Law on Village Committees* (OLVC) which was nationally introduced in 1987. However, as our data will show, elections occurred as early as 1982, at the very beginning of the post-Mao reform. As with almost all reforms in Post-Mao China, elections spread slowly across China, until its reasonable “success” caused it to be recognized by the central government.

In deciding whether or not to implement the OLVC, the CCP faced a trade-off. Village leaders were responsible for providing public services within the village. These services were typically under-provided or non-existent, either because the lack of accountability to villagers decreased village leaders’ incentives to respond to local needs, or because the appointed village chiefs lacked the mandate necessary to raise the necessary revenues from villagers. On the one hand, elections, by improving leaders’ accountability to and mandate from villagers, were expected to increase the revenues raised within the village to meet such public good expenses. Elections also had the benefit of partly relieving the CCP from the burden of choosing the correct leader or understanding the specific needs of each of the hundreds of thousands of villages in China. On the other hand, many were concerned that without the power of appointing village leaders, the CCP would have little leverage with these leaders to implement and ensure compliance with centrally mandated policies. Some of these policies, such as the One-Child Policy, were quite unpopular among villagers.

In 1987, the CCP decided to implement the OLVS. It established a democratically elected village committee as the governing body of the village. The entire adult population obtained the right to vote for the committee, which consisted of a chairman (village head), a vice-chairman, and three to five other members. Unlike Maoist period elections, the number of candidates in the post-OLVC elections were supposed to exceed the number of seats; and the candidates were supposed to be nominated by the villagers themselves. To supervise the village committee, villagers were required to set up a village assembly. The candidates were typically appointed by village, county and township level party branches. As long as the number of candidates exceeded the number of

positions, the OLVC was satisfied.

All villages which had not already held elections were supposed to implement them eventually. Provincial governments were given a large window of time to ensure that their villages complied. The reform was implemented gradually through the late 1980s and 1990s. 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.

The next phase of the reform occurred in 1998, when the OLVC was revised and reinforced to specifically address the importance of open primaries, commonly called *haixuan*. Before this law was passed, very few villages had open nominations. For example, O'Brien and Li (2000) find that in 2000, only 17% of the villages in their survey had open nominations. After the revised law was passed in 1998, open nominations were rapidly introduced. Pressure from the central government and from villagers helped the expansion of procedural correct elections with open primaries (Pastor and Tan, 2000). Some subsequent evaluations argue that the reforms were successful in introducing democratic elections (see for instance Xiang, 2000).

The local Communist Party branches persisted despite electoral reforms. The 1998 Law still defines the Party Branch as the “Leadership Core” of the village. However, the OLVC has weakened their influence in two ways. First, the decisions are now formally in the hands of the elected village committee. Second, in cases where party branch heads and elected village leaders disagree, public opinion makes it harder for the former to overrule democratically elected leaders, relative to leaders appointed by upper levels of government. Guo and Bernstein (2004) and Oi and Rozelle (2000) provide analyses of these power struggles.

2.2 How Would Elections Matter?

In the context of rural China, increased electoral accountability can affect policies and outcomes in two basic ways. First, accountable leaders can be replaced by their constituencies. This typically means that constituents will choose leaders who are more compatible or more competent. If villages have better information on these attributes than party officials, they should be better at spotting the relevant types. This is the selection effect. Second, increased accountability changes the incentives of the leader by constraining his actions if he wants to remain in power. This is true even if the actual leader is not replaced when elections are introduced since he might want to work to ensure his re-election. A typical outcome of this channel would be a reduction in corruption or bureaucratic “slack” and an increase in responsiveness to villagers’ preferences. This is the incentive effect.

The effects of having a democratically elected leader on the ability to coordinate villagers are ambiguous *ex ante*. On the one hand, leaders have a popular mandate. On the other hand, they may be swayed by electoral pressures, or they may be strongly influenced by voting blocks. Our qualitative research suggested that this is potentially a problem in villages with a dominant clan.

The leader is either from that clan or influenced by that clan which can result in bullying of other villagers. In cases like this, it is the job of the party secretary to resolve the dispute or to remove the village chief. But the party secretaries we spoke were reluctant to remove a democratically elected leader for fear of damaging the popularity of the party amongst villagers. This example illustrates both the potential problems of democracy and the fact that these elections seemed to have been effective in “checking” the party. Note that this is why we do not follow existing studies in using heterogeneity of surnames as instrumental variables.

The effect of elections on dispute resolution is also ambiguous. On the one hand, a democratically elected leader has a popular mandate and could potentially mediate more effectively. On the other hand, villagers may view the elected leader as being more detached from party officials, and therefore having fewer means to exert authority over them. Hence, they may be more likely to ignore the opinions of the village leader and appeal to the county-level party.

3 Model

In this section we develop a model to explore through which mechanism can the introduction of village elections 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 what 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 leader that will take crucial economic decisions. 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 respectively defined as follows

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

where the subscript V stands for villagers and L for leader, and $\alpha \geq 1$ is a parameter that captures the additional preference for income that the leader with respect to villagers. Since village leaders paid their salaries out of growing agriculture and rural industries (Oi, 1999 and Rozelle and Boisvert, 1992), it seems natural to assume they had a stronger preference for income.³ ε is a

³We 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. $U^L(y, g) = (\alpha - 1)y + U^V(y, g)$.

normal random variable with mean 0 and variance σ_ϵ^2 , which captures all the other issues that affect people's utilities and that might not be under the leader's control. Let us denote by R , the value of keeping office and for simplicity we assume it is the same under the appointment and election regimes.

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

$$y = e_y + \epsilon \quad (1)$$

$$g = e_g \quad (2)$$

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 leader's cost of effort is $C(e_y + e_g)$ where $C(\cdot)$ increasing and convex satisfying $C'(0) = 0$.

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 leader and only reappoints him if he generates enough income. This specification borrows from the Chinese case in which village leaders needed to achieve certain village production targets in order to keep their positions (Rozelle, 1994).⁴ In the electoral regime, the leader gets re-elected if he is able to provide a certain level of utility villagers.⁵ We now turn to analyze both regimes.

3.2 The Appointed Village Leader

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

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

By using production function functions (1) and (2) the above expression can be rewritten as

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

which yields the following first order conditions

$$\begin{aligned} \alpha + \phi(\bar{y} - e_y)R &= C'(e_y + e_g) \\ f'(e_g) &= C'(e_y + e_g) \end{aligned}$$

⁴In particular, Rozelle describes how failing to meet targets in agricultural production was the only way in which village leaders could lose their job.

⁵Therefore 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 $\bar{y} = e_y^{ap}$. Incorporating this in the expressions above we obtain

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

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

3.3 The Elected Village Leader

The elected village leader chooses effort levels to maximize the following program:

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

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 $\sigma_\epsilon^2 + \sigma_\varepsilon^2$. This can be rewritten as:

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

Then, we can write the first order conditions as

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

In order to extract the maximum effort from the leader, citizens set the reelection threshold to be $\bar{U} = e_y^{el} + f(e_g^{el})$. This yields

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

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

By comparing the equilibrium effort levels in both types 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.

Therefore, this result tells us that in the absence of noise in villagers' preferences, the total level of effort exerted by the village leader is the same. However the effort devoted to public goods 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 would lead to a transfer of effort from income generating activities to public goods, which is a consequence of the changes in the preferences of the group that holds accountable the village leader.

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

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

Hence we see 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 $\sigma_\epsilon^2 > 0$, 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

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

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 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 goods is also decreasing in the variance of the noise, but decreasing in the α (because current income becomes more important for the village leader).

3.4 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 goods increases.
 - (a) This increase will be small the higher is the variance in random shocks of villagers preferences, σ_ε^2 , and the smaller is the village leader preference for income, α .⁶

4 Empirical Strategy

A village's exposure to electoral reforms is determined by whether it has ever experienced a reform, and the year of its implementation. The estimation will control for village fixed effects and year fixed effects. This strategy is similar to simple differences-in-differences (DD) in that 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. Unlike DD estimates, these estimates allow the effect of electoral reforms to vary by the years since implementation. Hence, to the extent that the effects of electoral reforms are not equally realized in the years after implementation, we will be able to identify this. Finally, in the regression estimates, we can add province*year fixed effects, which will further control for changes over time that differ across provinces.

The identification relies on a break in the trend of outcomes for villages on average at the time when elections are introduced. Therefore, we first estimate the effect of electoral reforms for each year before and after the first election. We do this separately for the introduction of elections and the implementation of haixuan.

$$Y_{vpt} = \sum_{\tau=-3}^T \beta_\tau yrs_to_reform_{vp\tau} + \gamma_v + \rho_t + \varepsilon_{vpt} \quad (9)$$

The outcome in village v of province p in year t is a function of: the dummy variable for the number of years since the reform, $yrs_to_reform_{vp\tau}$; village fixed effects, γ_v ; and calendar year fixed effects, ρ_t . 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

⁶To see the latter effect this compare (8) to (7).

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 yearly estimation allows us to verify that the effects on outcomes occur during the election and that we are not just capturing spurious changes during the pre and post periods. It also allows us to examine pre-trends. One concern for the identification strategy is that elections were implemented in villages where the elites were losing power for other reasons. In that case, the effect of elections on outcomes will reflect the impact of these other factors rather than a causal effect of elections on inequality. To the extent that these omitted variables are reflected in pre-trends in the years leading up to the first election, we can assess their significance.

To assess the magnitude of the effect and the average statistical significance, we estimate a simpler differences-in-differences specification.

$$Y_{vpt} = \beta post_election_{vpt} + \theta post_haix_{vpt} + \mathbf{X}_{vt}\alpha + \delta_{pt} + \gamma_v + \rho_t + \varepsilon_{vpt} \quad (10)$$

This is similar to equation (9). The only differences are that we are now estimating the effects of both reforms in one equation and have grouped all the years prior to the reform into a pre group and all the years after the reform into a post group. The reference group comprises of all villages before the first election. We continue to control for individual year and village fixed effects. $post_election_{vpt}$ takes on a value of one for all the years after a village has implemented its first election. $post_haix_{vpt}$ takes on a value of one for all the years after a village has implemented its first haixuan. Note that villages only implement haixuan after their first election. For robustness, we can also control for a vector of time-varying village characteristics such as village income, $\mathbf{X}_{vt}$; or province $\times$ year fixed effects, δ_{pt} . β is the effect of the elections relative to when there are no elections, and θ is the effect of haixuan and elections relative to when neither exists since haixuan can only occur together with elections. If haixuan has effects beyond the effects of the elections, then $\hat{\theta} > \hat{\beta}$.

The main caveat for interpreting the estimates as causal is that implementation of the reforms at the village level is potentially endogenous to unobserved characteristics that are correlated with the outcomes of interest. For example, if villages in need of raising large tax revenues chose to democratize earlier than other villages, then simple fixed effects estimation will overestimate the positive effect of democratization on tax revenues. To address these concerns, we examine the pre-trends in these characteristics for the years leading up to the first election. For robustness, we also control for *province* $\times$ *year* fixed effects. Since they do not affect our estimates, we do not report them in the paper for the sake of brevity.

5 Data

This study uses data from two sources. The first one is a unique survey collected by the authors. We collected a retrospective survey of the political reform histories of 266 villages from 1980-2005. The survey asked present and former village leaders to meet in a local school room. Together, with the help of professional surveyors, they filled out a questionnaire of the years of when elections and haixuan were first implemented, the years when elections were held, the number of candidates for each election, personal characteristics of the village leaders and the powers of each office.⁷ In most cases, recalling these data was not a problem. Most villages were able to retrieve village records for documentation. The sample of the villages were chosen to match the second source of data, the National Fixed-Point Survey (NFS).

The NFS is collected and maintained by the 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. The villages were chosen in the early 1980s to be nationally representative. 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. Villages and households are surveyed every year. 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. Households are then randomly selected from each village. For this study, they shared with us 30% of the variables from their village-level data for 26 provinces for all of the available years, 1987-2005. We did not apply for the 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. The number of surveyed households per village ranges from approximately 7 to 90. 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.).⁸ Figure 1 maps the counties for which we have NFS data.

There are several key advantages of this data. First, the RCRE panel data is reported contemporaneously. This avoids measurement error that would arise from using retrospectively recalled

⁷For 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 power, 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). Documentation for this data can be seen at

http://www.econ.brown.edu/fac/Nancy_Qian/Papers/Village%20Democracy.htm

⁸Samples 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).

data. Second, the panel structure of the survey allows us to control for village fixed effects. Third, the long time horizon allows us to examine long run outcomes. Finally, the richness of the RCRE data allows us to explore mechanisms that underlie our reduced form effects.

We merge our survey data to the NSF data at the village and year level. Thirteen 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 outcome data from the NFS span 1987-2005. The NFS was not collected in 1992 or 1994. For those years, we imputed values that were the averages of 1991 and 1993, or 1993 and 1995. 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 amount of taxes that households paid.

Table 1 shows how many villages had already held their first election or haixuan by year. As we can see, most villages implemented elections during the late 1980s. On average, the first elections with haixuan were implemented during the late 1990s. By 2005, all 217 villages in the sample had implemented elections and 132 of the villages had haixuan. On average, the first haixuan follows the first election by approximately nine years.

Table 2 shows the descriptive statistics. Panel A shows the demographic composition of the villages. On average, there are approximately 420 households per village. Each household has approximately young child and two laborers (working age adults). Approximately 20% of the villages are high school graduates. 50% of households are engaged solely in agriculture. On average, each village has approximately nine disputes per year. We define disputes as non-criminal safety violations. This includes fights and any disturbances of public peace. This is our only measure of social stability in the village.

The NFS reports gross and net income per household. Gross income includes income from all activities, including remittance payments from household members that have migrated away. Net income is income net of taxes and fees paid out. Panel B shows the household net income distribution in villages. On average, mean village income is growing at 13% per year.⁹ The average household on the bottom 10th percentile of the village income distribution is approximately 3,044 RMB. It is less approximately 45% of the median income (6,853 RMB), which 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 the characteristics of the village government. Villages have on average five members on the administrative committee (including the village chief), and four members on the party committee (including the party secretary). The Village chief is on average 42 years of age,

⁹Inflation is extremely low during this period in China so we report all income in nominal terms.

has nine years of education (equivalent to a middle school graduate), and is in office for seven years. Approximately 20% are from former land-owning families. Our definition of a land-owning family is a family “middle-rich” farmer who farmed his own land during the initial land reforms during the 1950s. Party secretaries are on average 45 years old, in office for approximately ten years, and have nine years of education. Approximately 17% of party secretaries come from land-owning families.

Table 3 reports average village government revenues and expenditures. 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 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 forms 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). On average, a village has 11 members on the party and administrative committees and one village accountant. Therefore, the average salaries for these 12 members of the village government is approximately 2,762 RMB, approximately 40% of the median gross household income.

6 Results

6.1 The Effects on Income and Economic Growth

First we estimate the effect of the introduction of elections and haixuan in income levels and economic growth by estimating equation (10). Table 4 displays the main results when the outcome variables are gross income, net income and annual growth. Moreover, we investigate whether the effect on income is different across deciles of the income distribution.

The results from columns (1)-(6) indicate that elections decreased gross and net income for all deciles of the village population. However, this effect seems to be larger for richer households with those in the 50th and 90th percentiles experiencing drops 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 by 7.1%, (significant at the 5% level). Columns (7)-(9) show that there was also a decline in annual income growth. Despite the statistical insignificance of the estimates, the strong pattern of the coefficients suggests that growth is declining for the higher income households.

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 CCP to villagers. The village chief was no longer evaluated only based of economic performance, but on the basis of multiple objectives that

villagers had. This produced a translation of the effort of the village chief from income generating activities to the provision of public goods and other outcomes valued by villagers.

6.2 The Effects on Public Goods and Social Outcomes

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. However, this increase might be small if villagers' utility is subject to random shocks with a large variance associated. In order to investigate this, we estimate the effect of the introduction of village elections on several public goods and other outcomes that villagers value. The main results are displayed in Table 5.

Column (1) shows that elections decreased the number of village leaders from around five to four people per village. This substantial decrease in the number of employed personnel suggest that villagers disliked having too many people at the village government, since their salaries needed to be paid out of villagers fees. In column (2) we observe that elections decreased disputes by approximately four per year and elections with *haixuan* decreased it by approximately seven per year. Notice that this is more than 50% of the average number of disputes per year, which is very likely to have had a significant positive effect in villagers well-being. In column (3) we observe that elections lead to a increase in the fraction of households that had access to safe and sanitary water, and column (4) indicates that there was an increase in the number of obligated work days that were allowed to be bought off. Although neither of the latter two results are statistically significant, their positive point estimates suggest that the introduction of elections lead to outcomes villagers valued: access to sanitize water or higher flexibility in the implementation of some state restrictions. Similarly, column (6) suggest that elections lead to a better compliance of the one-child policy since there was an increase in the number of first borns as a fraction of total births. Although our estimates are not statistically significant they are consistent with anecdotal evidence provided by Kelliher (1997) which suggested that compliance with unpopular state laws improved upon the implementation of village elections. Finally, columns (6)-(8) suggest that elections lead to an increase in the proportion and the value of assets that households owned, while if anything the proportion of assets collectively owned decreased once *haixuan* was implemented.

Overall, these results suggest that the introduction of village elections lead to the improvement of several outcomes that villagers valued. However, our estimated results indicate that some of these advances were modest since they are sometimes statistically insignificant. This could be due to mainly three factors. First, as our model suggested it can be that villager's preferences are very noisy and reduces the power of the incentives of the village leader, which does not increase by much the effort exerted in the production of public goods with respect to the appointment period. Second, it could be that different villages wanted different things and this makes it challenging to find aggregate patterns for each specific outcome. And third, it could be that villagers are

obtaining some improvements in outcomes for which we do not have good measures. For instance, some scholars point out that the introduction of elections lead to an increase in the transparency in the budgeting process of the village government and village accounting was made public. There is also anecdotal evidence that the implementation of unpopular state laws and the distribution of jobs and profits of village enterprises was more fair from the point of view of villagers O'Brien and Li (1999). However, the lack of availability of good measures for these outcomes makes it hard to evaluate if this was the case.

6.3 The Effects on Inequality

Table 6 shows the main estimates for the effects of elections and haixuan on inequality. Panel A shows that elections reduced the Gini coefficient of gross incomes by approximately 0.01. Columns (2), (4) and (6) show that in RMB terms, elections reduced the gross income distance between the 10th and 90th percentiles by 5,752 RMB, between the 50th and 90th percentiles by 4,999 RMB, and between the 10th and 50th percentiles by 754 RMB. In terms of ratios, columns (3), (5) and (7) show that elections increased the ratio of 10th to 50th percentile incomes by 1.4 percentage-point and the ratio of 50th to 90th percentile incomes by 2.2 percentage-points. These estimates are statistically significant at the 5% and 10% levels. The estimates for haixuan are similar in magnitude but typically not statistically significant. Panel B shows that elections also decreased net income inequality within villages. But the reductions are smaller in magnitude both in terms of levels and ratios than the reduction in gross income inequality.

We also estimate the yearly effect of elections on the difference in income between the top 90th percentile households and the median households, $HHInc_{vpt}^{50p} - HHInc_{vpt}^{90p}$, and the top 90th and the bottom 10th percentile households, $HHInc_{vpt}^{10p} - HHInc_{vpt}^{90p}$, for each year. For brevity, we only report the estimates for these outcomes. The estimated coefficients for the vector of $\hat{\beta}$ s from equation (9) are plotted in Figures 2A and 2B. The coefficients for the difference between the 50th and the 90th percentile is reported in Appendix Table A1. The figures show that there is a clear trend break at the time of the first election and no evidence of a pre-trend. Since $HHInc_{vpt}^{50p} - HHInc_{vpt}^{90p} < 0$ and $HHInc_{vpt}^{10p} - HHInc_{vpt}^{90p} < 0$, the positive coefficients for the years after the first election means that elections reduce inequality. The finding that the magnitude of the coefficients increase over time suggests that successive elections further reduce inequality (at least for the first two or three elections).

6.4 The Effects on Fiscal Revenues and Expenditures

In Table 7 we show our results of the impact of the elections on the taxation burden on households. Villagers pay taxes and fees. Villages do not officially have the power to change taxes, which are paid to upper levels of government. Typically, to raise revenue, village governments impose fees.

This was made illegal by the *Tax and Fee Reform* in 2003. However, anecdotal evidence suggests that their collection was continued in practice. Some production costs (e.g. use of collectively owned assets such as tractors or other machinery) are also paid to the village. Our analysis will use three different measures to proxy for the effective tax rate. First, we use the measures of taxes and fees as reported in the NFS survey. Fees are the sum of those delivered to the township, village, and production groups.¹⁰ Second, we use a measure of imputed taxes, fees, and production costs. This is the difference between a households gross and net incomes divided by gross income. 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 Table 5. There is no evidence that elections affected taxes, fees or production costs. 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.

6.5 Robustness Checks

One concern over the interpretation of the results on income and within village inequality is that households, in fear of progressive taxation, under-report income proportional to income level; the more they earn, the more they under-report. If this is the case, then we will not be able to distinguish whether the 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 we are more likely to believe that at least part of the income fall due to elections were real. For these estimates, we currently only have data from 48 villages. We are in the process of collecting data for the other villages. Table 8 columns (1)-(6) shows that for this subsample of villages, elections have a larger effect in reducing income that for the main sample on average. The coefficients are twice the size in magnitude as those from the main sample in Table 4. The estimates are negative for all percentiles. For the 50th, 75th and 90th percentiles are statistically significant at the 1% level. Like the main estimates, they show that the reduction of income caused by the elections are twice as large for households on the 90th percentile than the median household. Next, we estimate the effect of elections on the mean for households with incomes below the 25th percentile of their villages, between the 25th and 50th percentiles, the 50th and 75th percentiles, and for those above the

¹⁰These include fees paid to as collective levies, miscellaneous fees and fines, paid to contracted businesses.

75th percentiles. Columns (7)-(10) show that elections reduce income more for richer households. Columns (11)-(14) show that elections also reduce consumption more. The estimates are statistically significant at the 1% level for households in the top three quartiles. 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 entirely due to under-reporting.

7 Conclusion

The introduction of village elections in rural China produced a shift in the accountability of village leaders from the CCP to villagers. Using a novel dataset, we find that the adoption of village elections caused a slowdown in economic growth at the village level and a decrease in within village inequality. In this paper we have developed a simple theoretical framework to show that, in an environment where higher levels of government focus on economic growth, the reduction in growth can theoretically be a consequence of two effects. First, a translation of effort from economic growth to public goods provision. Second, a reduction in the power of incentives caused by the noise that affects villagers perception of village leader's performance. Our empirical results suggest that both channels may be present since we also find a modest improvement in some social outcomes which are valued by villagers, such as lower number of disputes, reduction of village personnel and increase in the proportion of assets owned by households. This weak improvements in social outcomes are consistent with a specification of our model in which villagers' utility is subject to random shocks of large variance. Finally, we do not find an effect of electoral reforms on redistribution. Therefore the decrease in within village inequality seems to be an outcome of the reduction of economic growth which was biased towards the richest households.

References

- [1] Acemoglu, Daron and Simon Johnson (2004) "Unbundling Institutions" *Journal of Political Economy*, 113: 949-995.
- [2] Acemoglu, Daron, Simon Johnson and James Robinson (2001) "The Colonial Origins of Comparative Development: An Empirical Investigation" *American Economic Review*, 91: 1369-1401.
- [3] Alesina, Alberto and Guido Tabellini (2007) "Bureaucrats or Politicians? Part I: A Single Policy Task" *American Economic Review*, 97 (1):169-179.
- [4] Alesina, Alberto and Guido Tabellini (2008) "Bureaucrats or Politicians? Part II: Multiple Policy Tasks" *Journal of Public Economics*, 92: 426-447.
- [5] Austen-Smith, David and Jeffrey Banks (1989) "Electoral Accountability and Incumbency" in Ordeshook, ed. *Models of Strategic Choices in Politics*. University of Michigan Press.
- [6] Barro, Robert (1973) "The Control of Politicians: an Economic Model" *Public Choice*, 14: 19-42.
- [7] Benjamin, Dwayne, Loren Brandt and John Giles (2005) "Inequality and Growth in Rural China: Does Higher Inequality Impede Growth?" Toronto University typescript.
- [8] Besley, Timothy and Stephen Coate (2003) "Elected versus Appointed Regulators: Theory and Evidence". *Journal of the European Economic Association*, 1, 5, 1176-1206.
- [9] Besley, Timothy (2006) *Principled Agents: Motivation and Incentives in Politics*. Oxford University Press.
- [10] Bueno de Mesquita, Bruce, Alastair Smith, Randolph Siverson and James Morrow (2003) *The Logic of Political Survival*. MIT Press: Cambridge, MA.
- [11] De Brauw, Alan and John Giles (2006) "Migrant Opportunity and the Educational Attainment of Youth in Rural China" Michigan State University typescript.
- [12] Fearon, James (1999) "Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance" in Przeworski et al. eds *Democracy, Accountability and Representation*. Cambridge University Press, New York, NY.
- [13] Ferejohn, John (1986) "Incumbent Performance and Electoral Control" *Public Choice*, 50: 5-26.

- [14] Gil, Ricard, Casey Mulligan and Xavier Sala-i-Martin (2004) "Do Democracies have Different Public Policies than Non-Democracies" *Journal of Economic Perspectives*, 18: 51-74.
- [15] Giles, John (2005) "Is life more risky in the Open? Household Risk-Coping and the Opening of China's Labor Markets" forthcoming in *Journal of Development Economics*.
- [16] Guo Zhenglin and Thomas Bernstein (2004) "The Impact of Elections on the Village Structure of Power: the Relations between the Village Committees and the Party Branches" *Journal of Contemporary China*, 13: 257-275.
- [17] Hall, Robert and Charles Jones (1999) "Why do Some Countries Produce so much more Output per Worker than others?" *Quarterly Journal of Economics*, 114: 83-116.
- [18] Kelliher, Daniel (1997) "The Chinese Debate Over Village Self-Government," *The China Journal*, No. 37 pp. 63 - 86.
- [19] Li, Gan, Lixin Colin Xu, Yang Yao. 2007. "Local Elections and Consumption Insurance: Evidence from Chinese Villages", WPS 4205
- [20] Maskin and Tirole (2004) "The Politician and the Judge: Accountability in Government" *American Economic Review* Vol. 94 No. 4 pp. 1034 - 1054.
- [21] Mauro, Paulo (1995) "Corruption and Growth" *Quarterly Journal of Economics*, 110: 681-712.
- [22] Milesi-Ferretti, Gian Maria, Roberto Perotti and Massimo Rostagno (2002) "Electoral Systems and Public Spending" *Quarterly Journal of Economics*, 117: 609-657.
- [23] O'Brien, Kevin (1994) "Implementing Political Reform in China's Villages," *Australian Journal of Chinese Affairs*, 32, 49.
- [24] O'Brien, Kevin J. and Lianjiang Li (1999) "The Struggle over Village Elections" in Merle Goldman and Roderick MacFarquhar eds. *The paradox of China's post-Mao reforms*; Cambridge: Harvard Chapter in the book: The Paradox of China's Post-Mao Reforms. 1996
- [25] O'Brien, Kevin and Lianjiang Li (2000) "Accommodating 'Democracy' in a One-party State: Introducing Village Elections in China" *The China Quarterly*, 162: 465-489.
- [26] Oi, Jean (1999) *Rural China Takes Off: Institutional Foundations of Economic Reform*. University of California Press, Berkeley and Los Angeles, CA.
- [27] Oi, Jean and Scott Rozelle (2000) "Elections and Power: the Locus of Decision Making in Chinese Villages" *The China Quarterly*, 162: 513-539.

- [28] Pastor, Robert and Tan Qingshan (2000) "The Meaning of China's Village Elections" *The China Quarterly*, 162: 490-512.
- [29] Persson, Torsten, Gérard Roland and Guido Tabellini (1997) "Separation of Powers and Political Accountability" *Quarterly Journal of Economics*, 112: 1163-1202.
- [30] Persson, Torsten and Guido Tabellini (2000) *Political Economics- Explaining Economic Policy* MIT Press: Cambridge, MA.
- [31] Persson, Torsten and Guido Tabellini (2003) *The Economic Effect of Constitutions* MIT Press: Cambridge, MA.
- [32] Persson, Torsten and Guido Tabellini (2004) "Constitutions and Economic Policy" *Journal of Economic Perspectives*, 18: 75-98.
- [33] Rozelle, Scott (1994) "Decision-Making in China's Rural Economy: The Linkages between Village Leaders and Farm Households," *The China Quarterly*, No. 137, pp. 99 – 124.
- [34] Rozelle and Boisvert (1994) "Quantifying Chinese Village Leaders' Multiple Objectives," *Journal of Comparative Economics*, 18, 1: 25-45.
- [35] Shen Yan and Yao Yang (2008) "Grassroots Democracy and Income Distribution: Evidence from Village Elections in China" *Journal of Public Economics*.
- [36] Wang, Shuna, Yang Yao. (2007) "Grassroot Democracy and Local Governance: Evidence from Rural China," *World Development*.
- [37] Xiang, J. (2000) "Self-government in Chinese villages: An evaluation" *Perspectives*, Vol. 1, No. 4.
- [38] Zhang, Xiaobo, Shenggen Fan, Linxiu Zhang, Jikun Huang. (2004). "Local governance and public goods provision in rural China" *Journal of Public Economics* 88, 2857-2871.

Figure 1: Map of the Counties where NFS Villages are Located.

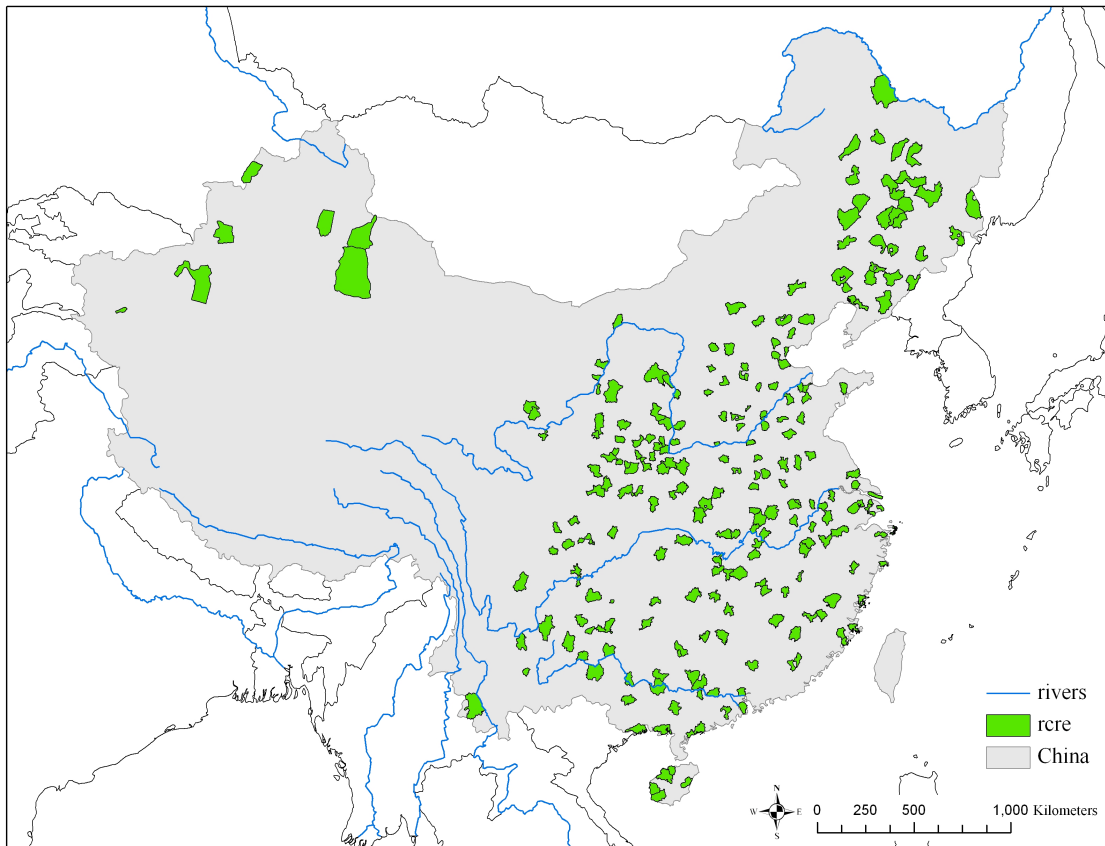


Figure 2A: The Effect of Starting Elections on The Difference between the Net Incomes of the 90th Percentile Household and the 50th Percentile Household
Coefficients of the dummy variables for the number of years before and after the first election in the village, controlling for village and calendar year fixed effects.

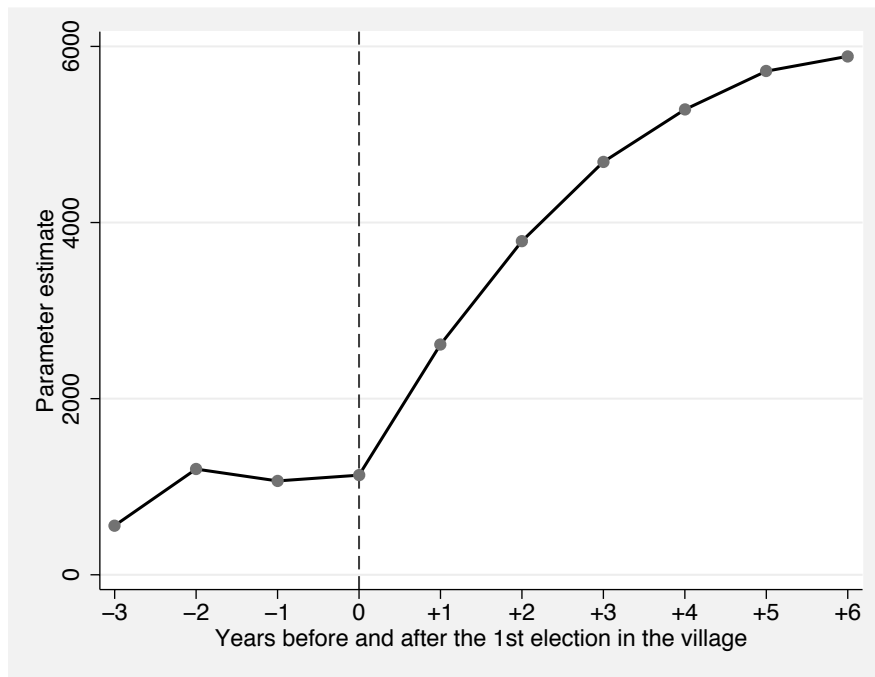


Figure 2B: The Effect of Starting Elections on The Difference between the Net Incomes of the 90th Percentile Household and the 10th Percentile Household
Coefficients of the dummy variables for the number of years before and after the first election in the village, controlling for village and calendar year fixed effects.

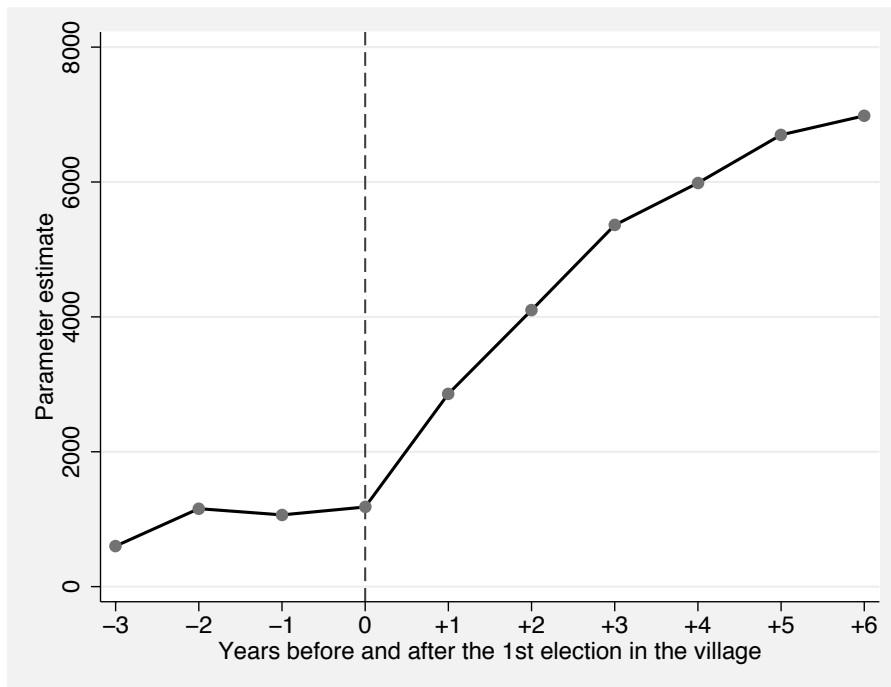


Table 1: Timing of Electoral Reforms
The year of the first election or the first election with haixuan

year	# villages that had 1st election	# villages that had 1st haixuan
1982	0	0
1983	13	1
1984	26	2
1985	68	9
1986	71	9
1987	106	13
1988	118	14
1989	125	15
1990	140	16
1991	165	17
1992	166	17
1993	169	18
1994	175	21
1995	177	24
1996	186	27
1997	190	45
1998	193	45
1999	199	51
2000	208	93
2001	215	105
2002	217	117
2003	217	128
2004	217	131
2005	217	132

Table 2: Descriptive Statistics

	Mean	Standard Deviation
A. Village 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
# of Disputes (Non-criminal safety violations)	8.6003	23.1499
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 Government		
Number of Administrative Committee	5.4916	3.2263
Number of Party Committee	4.3708	2.2999
Age of Village Chief	42.3745	7.8153
Tenure of Village Chief (years in office)	7.2900	4.8587
Years of Education of Village Chief	9.0888	2.3334
Fraction of Village Chiefs from Landowning or Rich Families	0.2045	0.4034
Age of Party Secretary	44.6362	8.2145
Tenure of Party Secretary	9.7308	6.1528
Years of Education of Party Secretary	9.0292	2.3346
Fraction of Party Secretaries from Landowning or Rich Families	0.1721	0.3775

Table 3: Fiscal Revenues and Expenditures of Village Governments

Variable	Obs	Mean	Std. Dev.	Min	Max
Total Revenues (100 RMB)	3687	4946.771	36755	0	1674285
from collectives	3113	2763.654	30327.52	0	1421235
from HH	2886	1061.141	10558.87	0	480265
from obligated working days	1882	69.36185	217.579	0	3710
from firms	1673	440.2869	4262.417	0	127750
from upper levels of government	1882	157.8993	753.867	0	12868
from other sources	1673	1054.234	7999.234	0	176000
Total Expenditures (100 RMB)	3693	4701.056	39060.8	0	1930056
collective production	2886	1971.671	35441.05	0	1794526
HH production	2111	460.5604	2260.469	0	53100
delivery to upper levels of gov	2979	474.6455	2269.926	0	66120
public affairs	3189	418.1664	1455.833	0	26500
Administrative Expenditures	3291	331.4319	930.8903	0	22536

Table 4: The Effects of Elections on Household Income Levels and Yearly Growth Rates

	Dependent Variables								
	Ln (Gross Income) by Income Quantiles			Ln (Net Income) by Income Quantiles			Annual Growth*		
	(1) 10th	(2) 50th	(3) 90th	(4) 10th	(5) 50th	(6) 90th	(7) 10th	(8) 50th	(9) 90th
Sample Means	8.273	8.987	9.655	7.634	8.540	9.203	0.130	0.123	0.138
Election	-0.0177 (0.0401)	-0.0437* (0.0257)	-0.1001*** (0.0355)	-0.0334 (0.0516)	-0.0336 (0.0319)	-0.0714** (0.0346)	-0.0091 (0.0197)	-0.0162 (0.0125)	-0.0379** (0.0185)
Haixuan	0.0072 (0.0505)	-0.0568 (0.0364)	-0.1157** (0.0557)	-0.0219 (0.0707)	-0.0415 (0.0452)	-0.0801 (0.0524)	-0.0213 (0.0299)	-0.0207 (0.0171)	-0.0316 (0.0249)
Observations	4205	4205	4205	4185	4192	4193	3231	3236	3236
F-test diff coeff (stat)	0.454	0.262	0.167	0.0571	0.0535	0.0532	0.350	0.116	0.145
F-test diff coeff (p-value)	0.501	0.609	0.683	0.811	0.817	0.818	0.555	0.734	0.704

All regressions control for village and year fixed effects. Growth regressions in columns (7)-(9) also control for income levels lagged one, two and three years.

Standard errors are clustered at the village level.

Growth is the $\ln(\text{gross inc})_{t+1} - \ln(\text{gross inc})_t$

Table 5: The Effects of Elections on Personnel, Disputes, Public Goods and Assets

	Dependent Variables							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Administratives	Disputes	% HH sanitary water	% Work days bought off	First born / Total born	% Assets owned collectively	% Assets owned by HH	Value assets owned by HH (in logs)
Sample Mean	5.492	8.600	0.666	0.318	0.703	0.267	0.677	7.295
Election	-1.0860** (0.5324)	-3.5567 (2.9746)	0.0537 (0.0586)	0.0537 (0.0866)	0.0160 (0.0323)	0.0014 (0.0219)	0.0490** (0.0202)	0.1954* (0.1054)
Haixuan	-0.7876 (0.5903)	-7.2879* (4.0796)	-0.0015 (0.0703)	-0.2409 (0.1801)	0.0185 (0.0362)	-0.0646* (0.0338)	0.0477 (0.0290)	0.2230 (0.1734)
Observations	2499	2233	2189	1105	2280	3154	2880	2883
F-test diff coeff (s	2.187	3.087	1.432	1.593	0.0145	8.719	0.00369	0.0619
F-test diff coeff (p	0.141	0.0804	0.233	0.208	0.904	0.00350	0.952	0.804

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.

Table 6: The Effects of Elections on Household Income Inequality Within Villages

	Dependent Variables: Income Inequality						
	A. Gross Incomes						
	(1) Gini	(2) inc10-inc90	(3) inc10/inc90	(4) inc50-inc90	(5) inc50/inc90	(6) inc10-inc50	(7) inc10/inc50
Sample Means	0.280	-18629	0.277	-13371	0.530	-5258	0.512
Election	-0.0106* (0.0058)	5,574.5022** (2,546.3687)	0.0145* (0.0075)	4,844.9278** (2,258.2526)	0.0215** (0.0087)	729.5744* (370.7059)	0.0109 (0.0101)
Haixuan	-0.0077 (0.0089)	6,130.6176 (5,318.1083)	0.0196* (0.0112)	5,690.8740 (4,838.2789)	0.0198 (0.0138)	439.7436 (640.2869)	0.0204 (0.0134)
Observations	3968	4205	4205	4205	4205	4205	4205
F-test diff coeff (stat)	0.221	0.0209	0.373	0.0589	0.0329	0.335	0.863
F-test diff coeff (p-value)	0.639	0.885	0.542	0.809	0.856	0.563	0.354
	B. Net Income						
	Gini	inc10-inc90	inc10/inc90	inc50-inc90	inc50/inc90	inc10-inc50	inc10/inc50
Sample Means	0.280	-11113	0.251	-7303	0.530	-3810	0.459
Election	-0.0106* (0.0058)	2,041.3139* (1,228.1713)	0.0084 (0.0075)	1,663.2647 (1,043.5273)	0.0141* (0.0076)	378.0492 (251.0326)	0.0110 (0.0108)
Haixuan	-0.0077 (0.0089)	2,387.8557 (2,463.0905)	0.0134 (0.0106)	2,240.9457 (2,189.8869)	0.0147 (0.0113)	146.9100 (387.1709)	0.0164 (0.0142)
Observations	3968	4193	4193	4193	4193	4193	4193
F-test diff coeff (stat)	0.221	0.0460	0.414	0.173	0.00549	0.516	0.235
F-test diff coeff (p-value)	0.639	0.830	0.521	0.678	0.941	0.473	0.629

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.

C

Table 7: The Effects of Elections on Taxation of Households

	Dependent Variables														
	Ln Taxes Paid					Ln Fees and Levies Paid					Ln(Gross Inc - Net Income/Gross Income)				
	MEAN (1)	< 25th (2)	25th - 50th (3)	50th - 75th (4)	>75th (5)	MEAN (6)	< 25th (7)	25th - 50th (8)	50th - 75th (9)	>75th (10)	MEAN (11)	< 25th (12)	25th - 50th (13)	50th - 75th (14)	>75th (15)
Sample Means	4.141	3.496	4.021	4.248	4.862	3.712	3.312	3.749	3.878	3.935	0.361	0.332	0.312	0.315	0.362
Election	0.1051 (0.2550)	0.0840 (0.2753)	0.1519 (0.2461)	0.1208 (0.2878)	-0.0029 (0.4290)	-0.2236 (0.4412)	-0.0635 (0.4347)	-0.2410 (0.4885)	-0.3753 (0.4239)	-0.3452 (0.4684)	-0.0034 (0.0097)	-0.0019 (0.0078)	0.0032 (0.0069)	0.0023 (0.0077)	-0.0068 (0.0107)
Haixuan	-0.3591 (0.3928)	-0.4461 (0.4207)	-0.2705 (0.4088)	-0.2621 (0.4790)	-0.5064 (0.5338)	0.0787 (0.6003)	0.2949 (0.5769)	0.0373 (0.6684)	-0.0011 (0.5876)	-0.0901 (0.6462)	-0.0137 (0.0133)	-0.0114 (0.0117)	-0.0052 (0.0096)	-0.0021 (0.0114)	-0.0152 (0.0145)
Observations	440	440	437	439	437	440	440	437	439	437	4172	3762	3762	3763	3762
F-test diff coeff (stat)	1.303	2.265	1.038	0.647	0.802	0.181	0.312	0.122	0.271	0.117	0.887	1.246	1.246	0.271	0.551
F-test diff coeff (p-value)	0.262	0.142	0.316	0.427	0.377	0.673	0.580	0.729	0.606	0.734	0.347	0.266	0.266	0.603	0.459

All regressions include village and year fixed effects.

Standard errors are clustered at the village level.

Table 8: The Effects of Elections on Income and Consumption for a 48 Village Subsample

	Dependent Variables													
	Ln Total Household Income										Ln Total Household Consumption			
	Percentiles						Income Brackets				Income Brackets			
	(1) Mean	(2) 10th	(3) 25th	(4) 50th	(5) 75th	(6) 90th	(7) < 25th	(8) 25th - 50th	(9) 50th - 75th	(10) >75th	(11) < 25th	(12) 25th - 50th	(13) 50th - 75th	(14) >75th
Sample Means	9.132	8.381	8.762	9.118	9.494	9.919	8.411	8.958	9.313	9.927	7.969	8.346	8.584	8.900
Election	-0.1787* (0.0893)	-0.0828 (0.1215)	-0.1831* (0.0926)	-0.1314* (0.0720)	-0.1597* (0.0938)	-0.2636* (0.1467)	-0.1502 (0.1165)	-0.1596** (0.0710)	-0.1649* (0.0833)	-0.2874* (0.1524)	-0.1732 (0.1225)	-0.2063* (0.1078)	-0.2588** (0.1022)	-0.3344*** (0.1093)
Haixuan	-0.0236 (0.0887)	-0.0741 (0.1242)	-0.0004 (0.0862)	0.0521 (0.0820)	0.0175 (0.1123)	-0.1007 (0.1866)	-0.0285 (0.1094)	0.0434 (0.0794)	0.0518 (0.0934)	-0.1638 (0.1861)	-0.0839 (0.1176)	-0.0146 (0.1270)	-0.0668 (0.0979)	0.0520 (0.1429)
Observations	440	440	440	440	440	440	440	437	439	437	440	437	439	437
F-test diff coeff (stat)	3.658	0.00365	3.977	6.207	3.304	1.341	1.029	6.483	6.075	0.718	0.945	3.483	4.413	4.817
F-test diff coeff (p-value)	0.0645	0.952	0.0544	0.0179	0.0782	0.255	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.

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.