Village Elections, Public Goods Investments and Pork Barrel Politics, Chinese-style

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Abstract

A key issue in political economy concerns the accountability that governance structures impose on public officials and how elections and representative democracy influences the allocation of public resources. In this paper we exploit a unique survey data set from nearly 2450 randomly selected villages describing China's recent progress in village governance reforms and its relationship to the provision of public goods in rural China between 1998 and 2004. Two sets of questions are investigated using an empirical framework based on a theoretical model in which local governments must decide to allocate fiscal resources between public goods investments and other expenditures. First, we find evidence—both in descriptive and econometric analyses—that when the village leader is elected, ceteris paribus, the provision of public goods rises (compared to the case when the leader is appointed by upper level officials). Thus, in this way it is possible to conclude that democratization—at least at the village level in rural China—appears to increase the quantity of public goods investment. Second, we seek to understand the mechanism that is driving the results. Also based on survey data, we find that when village leaders (who had been elected) are able to implement more public projects during their terms of office, they, as the incumbent, are more likely to be reelected. In this way, we argue that the link between elections and investment may be a rural China version of pork barrel politics.

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In recent years there has been increasing interest in many subfields in the link between

democracy and development though there is still no consensus in the literature. A branch of the

literature that is concerned about understanding the mechanism that underlies the relationship

between democracy and growth has emerged centering on works that track the way that

governance institutions affect public resources allocation and public goods investment, both in

developed and developing countries (Fiorina 1981; Key 1966; Besley and Coate, 2003a, Deacon,

2003, Bardhan and Mookherjee 2000a, 2000b, 2001; Besley and Burgess, 2002, Besley and

Coate, 2003b, Rosenzweig and Foster, 2003, Chattopadhyay and Duflo, 2004).

Social scientists have examined similar sets of issues in China. However, despite the

intense attention from political scientists (e.g., O'Brien, 1994; Kelliher, 1997; etc,), there has

been relatively little effort by economists (eg. Zhang et al., 2004, Brandt and Turner, 2003) to

study the linkages between elections and public goods investment in rural China even though the

conditions for studying the questions, such as the relationship between elections and public

spending, would seem attractive to economists.

Therefore, the overall goal of this paper is to better understand the relationship between

rural governance reforms in China and investment into public goods. To meet this overall goal,

we have three specific objectives: First, using survey data from a nearly national representative

sample, we provide a profile of village elections, public goods investments and chart the way that

they move together (or not). Second, we seek to understand if elections, all other things constant,

lead to higher levels of public goods investment. Finally, we seek to explain empirically the mechanism through which elections operate by testing whether or not leaders, who are in office, are able to enhance their chances for reelection by investing in public goods. In other words, we will try to show whether or not there is an emerging form of Pork-Barrel Politic, Chinese Style.

The plan for the rest of the paper is as follows. The next section provides a very brief conceptual framework for understanding the relationship between democracy and public resources allocation, in general. We then use the framework to generate a set of testable hypotheses that we will test in the rest of the paper. Section 3 specifies the empirical model, the data sources and defines the main variables that will be used to examine the effect of directly electing leaders on public goods allocation. Section 4 examines the results showing the effects of directly electing the village leader on public goods investment. Section 5 seeks to answer the question of what the mechanism may be that is driving the relationship between elections and public goods investment. Section 6 concludes.

Local Governance and Public Goods Investment: A Conceptual Framework

In this section the main goal is to establish a conceptual framework with which we can study the relationship between elections and public goods investments in rural China. Our conceptual framework parallels closely with the theoretical model of the Rosenzweig and Foster paper (2003) – henceforth called RF model.

In adapting the RF conceptual model to China, we need to do two things. First, we need to show that there are two distinct classes or strata. Although we cannot use landed and landless to

categorize rural households as it is in RF model, there are several types of households in rural villages which can be segregated into two distinct groups according to Yan (1992). The *elites* category which include cadres (both former and current ones that work in the village and in upper levels of government) and their family members, relatives and close friends. The *villagers* category which constitute the rest of the people in the village. In villages that do not have elections, the strata are characterized mainly on the basis of the access that each group—the *elites* and *villagers*—has to public resources. Elites, who are mostly appointed to their positions (or who have "inherited" their positions by virtue of family ties), control the budget and prefer to spend the budget on those things that benefit the elites (for example, on banquets, office supplies, travel and office buildings). Clearly, these kinds of expenditure have little if anything to do with villagers. In our paper we assume that these types of expenditures (refer as *entertainment expenditure*) are the counterpart to expenditures on irrigation the RF paper.

The second assumption that we need to make to establish the validity of the conceptual framework of our paper is about the spending preferences of villagers who gain a voice in village affairs through elections. According to Fock and Wong (2005), public good infrastructure spending constitutes the other main spending category of villages apart from *entertainment expenditure*. So, if we find that elections lead to greater spending on public goods, this means that there is less spending on entertainment. Then, our survey contains strong evidence that villagers have a strong demand for spending on village public goods infrastructure.[1] Therefore, for these reasons we believe that there is support for our assumption that rural residents in rural China have

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[1] We draw on a 100 village subset of the full data set and ask 2000 households to investigate the attitude and willingness of villagers on public goods investments and their demand on public goods.

high demand for infrastructure investments. Based on our assumptions and the logic of the RF model, we can test our hypothesis that: elections in rural China stimulate more spending on public goods infrastructure.

Data Sources and Empirical Model Specification

The Data Source

The data used in this paper comes from a nearly national representative sample of 2448 villages in 6 provinces, 36 counties and 216 townships. Detailed discussion on sampling frame can be found from Zhang et. al (2006). Although China initiated reforms aimed at transforming village governance in villages more towards self-governance over the past two decades, the promulgation of the PRC Organic Law for Villager Committees formally took place in 1998 (Shi, 2004). One of the most salient features of the Organic Law is that there is a clear message that village leaders are supposed to be elected. Because of this timing, we collected village information (based on both accountant records and village official recall) in 1997 as a baseline. The survey itself was conducted in late 2003, so the survey period covers 6 years—from 1998 to 2003.

In the survey form we mainly asked the respondents (in general the party secretary and/or the account of village) three sets of questions about sample villages. First, the survey included a section that elicited information about the general characteristics of the village, the timing of other major reforms, ties to government officials in the township and county government, etc. In the second part of the survey, there were a number of questions about public goods investment in

the village. For each year of the survey, the size, timing, source of funding of each public goods investment was enumerated. Finally, the survey had a section that examined the system of governance that prevailed in each year in each sample village. Most importantly, we also asked how each village leaders took office—by direct election or by appointment. In this paper, a direct election is defined as one in which villagers vote for two or more candidates and the winner becomes the village leader. All other village leaders are considered to have been appointed. Among other things, this information allowed us to "count" how many different people served as village leader between 1998 and 2003 and created a list of all of the "terms."

Empirical Model, Variable Definition and Estimation Approach

In order to empirically test the hypothesis of the China-version of the RF model, we assume that public goods investments are a linear function of village governance and other factors. Using the assumptions that will be used to conduct the baseline analysis, the relationship can be written as:

(1) $y_{ijt} = \beta_0 + \beta_1 D_{it} + \beta_2 V_i + \beta_3 V_{it} + \mu_i + \varepsilon_{it}$ for each j,

where the β's are parameters to be estimated and y_{ijt} is a measure of the level of village public goods investment (measured either as the number of projects per year or investment level per year) in village i for investments from source j during village leader's term t. Because not all investments are from the same source, we need to be careful to understand the effect of governance on investments from different sources (identified by j). Specifically, according to our survey, individuals in China villages contribute a large share of the funding to public goods investment (Zhang et al., 2006). Therefore, in equation 1, we specify the dependent variable in

one of four ways: *total investment* which we will identify as sum of all sources of funds (j =1),

three separate regressions for projects that are funded in one of three ways— projects solely

funded by the village itself (j =2); projects jointly funded by both the village and the upper-level

government (j =3); and projects solely funded from above (j =4).

On the right hand side of estimated equation the main variable of interest is D_{it}, the

variable that represents the governance mode of village. We use the variable "Was the village

leader elected directly (one if the village leader was elected directly)?" to construct governance

mode of village. We use this in part because there is little error in this formulation of the

governance variable and in part because it is argued in the political science literature that the

direct election of the village leader is the most salient feature in China's village governance

(Louie, 2001). In our data set we observe the mode of governance in 7041 terms (in the 2448

villages and 6 years time period). We also have at least two observations for each village.

To obtain more consistent estimates of the coefficient D_{it}, in the analysis we also add a

number of control variables (V_i and V_{it}) to the right hand side of equation (1). These variables (or

similar variables) have been used by others that are empirically estimating similar equations

(Rosenzweig and Foster, 2003; Besley and Case, 1995b; Chattopadhyay and Duflo, 2004;

Banerjee et al, 2005; Miguel and Gugerty, 2005). In our equation the vector of time-invariant

variables (V_i) include socio-economic as well as locational, geographical and other factors.[2] We

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[2] The time invariant control variables (V_i) include the following socio-economic factors: net per capita income (measured in real 1000 yuan); the size of the village's population (measured in 1000 people); the share of the population that is of minority ethnic origin (%); per capita land size (in mu, which is 1/15th of a hectare); the rate of illiteracy of the village's labor force (%);the migrant ratio of village labor force in 1997(%);the number of collective enterprises that are operating in the village (each); the number of people from the village that are working in either a township or county (each).Meanwhile, there are also a number location and geographical factors: the share of the village's total land area that is mountainous (that is land over 25 degrees—measured as percent); the share of total cultivated land that is effectively irrigated land in village (%);the distance between the village's center to the nearest road (in kilometers); a measure of the size of the village (measured as the furthest distance between the two small groups within village—in kilometers); and the distance between the office of the village

also include a number of time-variant variables (V_{it}), including the level of education of the village leader (measured in years of attainment); the age of the village leader (measured in years); the occupation of the village leader (where the variable is equal to one if the village leader has never held an off farm job—or is a "pure farmer," and zero otherwise); and a policy variable that is equal to one if the election term occurred after China's Tax for Fee reform (a policy that has had a major effect on local fiscal management—Fock and Wong, 2005) and zero otherwise.

<h3 style="text-align:center">Empirical Results—Descriptive and Multivariate</h3>

Village Elections

Despite the fact that villages are supposed to have been electing the village leader, there are still a significant number of villages that do not elect the village leaders. Over the entire study period (1998 to 2003), although 79 percent of villages elected their leaders, 21 percent still did not. There are various differences in ways that village leaders were not elected or (for simplicity) *appointed*. Our data also show that there are notable differences in the propensity of villages to directly elect their village leaders across space and time. For example, the share of villages that do elect their leaders directly over time has risen. Because the village leaders are, by policy, supposed to serve three year terms, to look at the rise in the propensity of villages to choose their leaders over time, we divide our sample into three distinct sets of villages, based on the starting year of the normal term.[3] According to our data, no matter if we look at villages that run their

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committee and township seat (in kilometers).

[3] In counting the number of village leaders that acceded to their positions, if a village leader was elected in 1999 and re-elected in 2002, we counted this as "2." Though a large of village leaders turnover occurred in 1995, 1998 and 2001, there were still some village leaders acceded to the office in other years for the time of village leader turnover were different between regions. In addition, there were still some (about 10 percent) irregular terms because of reasons such as village leaders were resigned, died or fired, etc. In these cases, some villages replaced their village leaders by running a new election or just appointed a new village

regulation elections during election cycle 1 (or those that should hold their direct elections in 1995; 1998 and 2001) or election cycle 2 or election cycle 3, the share of villages that directly elect their leaders rises (from 77 to 86 percent; from 73 to 83 percent; from 62 to 79 percent).

Public Goods Investments

During the time that elections were beginning to spread across China villages invested in a wide variety of different types of public goods projects and there was also a great deal of heterogeneity in the number of and investments levels into projects over time and across villages. Public goods investment (*total investment*) into China's villages has been rising over time. While public goods in many countries are almost entirely the responsibility of upper level governments, households in China's villages also contribute a large share of funding (47%) to the public goods investment (see Zhang at.al, 2006 for detail).

Elections and Investments

While there are other factors that explain differences in the level of investment across villages (Zhang et al., 2006), our data suggest in a number of ways that investment (average number of projects and level of investments) is somewhat higher in villages that directly elect their leaders. The differences appear for all types of investments. In all of these cases, the differences in investment are significant in a statistical sense at least at the 10 percent level.

The relationship between elections and public goods investment is even clearer when looking at differences over time.[4] When a village went from an elected leader to an elected leader

leader. Thus to account of these irregular term, we use the average public goods investment in the term (per year) instead of the total public goods investment in one term.

[4] According to our survey, there is about 22 percent of sample villages (or 536 villages) actually changed their mode of selection for village leader, in which 17 percent (or 409 villages) changed from appointment to direct election. For those villages with the mode of selection for village leader changed, we can not find any evidence that these villages are proportionately concentrated in particular provinces and very few villages have more than one switch.

(or from an appointed leader to an appointed leader) there was little change in total investment (although still relatively small, the change is larger in terms of number of projects than in term of level of investment). Likewise, there was little change in village-funded only projects, above-funded only or co-funded projects.[5] However, when a village went from an appointed leader to a directly elected leader the number of projects per year and the level of investment per year both raised relatively more. In contrast, when a village went from a having a directly elected leader to an appointed leader, the number of projects and level of investment fell (for both total investment and village funded-only projects).

Multivariate Analysis

Because descriptive statistics do not account for the impact of other observed and unobserved factors, we first use equation 1 to assess the effect of direct elections on public goods investment. Using the OLS estimation, we produce an initial set of estimates of whether or not directly elected village leaders have an effect on village public goods investment, while holding a number of other observables (V_i) constant. The sample for use in the model includes more than 7000 pairs of election/appointment-investment observations from 2448 villages. There are eight different versions of the model equation, which use eight different measures of the dependent variables: four using the number of public goods (total number; from village fund-only projects; jointly fund projects and above fund-only projects) and four using the level of investment.

In running the model in equation 1 (in its eight different versions), the regression equations appear to perform well. In particular, a number of the control variables behave as expected. First, as also found in Zhang et al. (2006), poorer villages in China are shown to receive more projects that are fund from above-only; richer villages invest more of their own funds into village fund-only public goods (Table 1, row 2, columns 2, 4, 6 and 8). Villages with

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[5] For public goods projects/investments from all sources, when we divide the "no difference across terms in the mode of governance" into 2 groups (elected-to-elected and appointed-to-appointed), there is almost no difference.

higher levels of out migration, as expected, have lower levels on public goods investment (row 7, columns 2 and 6). The results also imply that political connections are important ways to raise investment; villages with more fellow villagers working in town and county governments have more public goods investments (Table 1, row 9).

Most importantly, the results show the positive relationship between directly electing a village's leader and the number of projects and level of investment into public goods (Table 1, row 1). All of the sign are positive and most of them are significant at 10 percent level. Above all, when village leaders are elected directly, there is more village funded-only projects and higher level of investment (and the t-ratios of the coefficients are high—(row 1, columns 2 and 6). Although there is a positive coefficient, the average magnitude of the effects are relatively small (about 0.1 project more per year and around 10000 yuan more investment—a level equal to about 10% of the mean number of projects and level of investment.[6]

While the OLS analysis provides us with important information (it at least shows us correlations), it is necessary to use caution in our interpretations of the results. The coefficient of interest (D_{it}) may still be affected by unobserved heterogeneity. For example, it could be that a community has a long history of collective action and there is trust within the community. Although these factors may be difficult (or impossible) to measure, they still may affect both whether or not there is a direct election and the level of investment. To get a consistent estimation of the coefficient of variable D_{it}, we also applied fixed effects estimation by adding a set of village dummy variables μ_i on the right hand side of estimated equation to control for all village fixed effects. Fixed effects estimation can account for large part of unobserved heterogeneity because we also add a time trend variable in our analysis (which is measured as the first year of

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[6] The results are almost the same when using the year (or term) fixed effects instead of the time trend variable in baseline and following specification, and the significant level and T value for the independent variables are almost the same when using the clustered and robust standard errors.

the village leader's term). The results of the fixed effects models are similar to those of baseline OLS results. Overall, our results are somewhat like those of Rosenzweig and Foster (2003), Pande (2003) and Chattopadhyay and Duflo (2004) in that they find positive effects of changes in elections and political democracy (the effect are significant and the magnitude of the effect is not very large too).

<div align="center">

Pork Barrel Politics, China Style

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While there are a number of reasons why village leaders that are directly elected might invest more into public goods, we examine if village leaders are doing so as part of their strategy to get re-elected. The assumption behind our test of motivating behavior is that village leaders gain utility (in some way) from holding their position. If, as shown above, villagers that vote demand public goods, then leaders who are able to influence the direction of spending and increase allocations to public goods investment should be expected to enhance their reelection hopes.

Reelection Incentives in Rural China

While most of the literature focuses on the actions that leaders take to improve their chances for reelection (Barro, 1973, Nordhaus, 1975, Ferejohn, 1986, List and Sturm, 2006, Besley and Case, 1995a), it is still not clear whether these effects exist in countries that are in the early stages of democracy. To test whether or not an incumbent's reelection depends on his/her ability to deliver public goods, the first step to take is to create a subsample of election cycle terms in which the village leader who was elected runs for office again and faces an election. Of the 5553 election terms in which the village leader was directly elected, we need to drop "in-complete" election terms (eg. early resign, un-successful run and etc). After dropping these election terms, the election terms that remain in our sample include village leader incumbents that

ran for office and won and incumbents that ran for office and lost. In addition, we also look for

comparisons purposes at a sample of village leaders that were appointed and subsequently were

either reappointed or not.

In looking the empirical relationship between public goods investment behavior and the

propensity of a leader to be reelected, we also will look at two time periods—the first three years

of our data (1998-2000) and the last three years (2001-2003). This dimension of the analysis is

needed because it is possible that before 2000 villagers were more concerned about issues such as

tax reform and family planning policy implementation (Yep, 2004). Villagers started to become

highly interested in public goods investment after 2000 after many of the tax and fee burdens

began to be reduced.

The simple descriptive statistics give little evidence that is consistent with an argument

that those village leaders that invest more into public goods are rewarded with reelection.

However, if we divide the sample into villages that have relatively few and relative more projects

and those that have relatively small and large sized projects, the descriptive statistics do suggest

that there is a relationship between public goods investment and reelection.

Multivariate Analysis

To understand whether or not investment into public goods helps village leaders become

reelected, we use a similar empirical strategy as Besley and Case (1995a) to test for the nature of

the reelection incentives. The empirical function is as follows:

(2) $\qquad p_{it} = \gamma_0 + \gamma_1 I_{it-1} + \gamma_2 V_{it} + \mu_i + \mu_t + \varepsilon_{it}$

where p_{it} is an indicator variable measuring if the incumbent leaders was reelected/reappointed

(equaling one if the incumbent in village i during term $(t-1)$ was reelected as village leader in

term t, and otherwise was zero). On the right hand side of the equation (2), I_{it-1} is a variable

that is a measure of the number of public goods projects (or level of investment) that the incumbents in village i during term $(t-1)$ implemented. In this section γ_1 is the coefficient of interest. We also include a number of control variables, V_{it}, such as the age and education of the village incumbent (etc.). We also add village fixed effects and year effects (trend variables) in order to hold constant all non-time varying unobservables.

Our estimations show that there is a positive relationship between public goods investment and the possibility of being reelected. Although the magnitude of the coefficient is small, it is statistically significant in the reelection equations (Table 2, row 1, columns 1 and 3). In other words there is evidence that villagers rewarded incumbents with reelection if they implement more public goods projects. Our results are consistent with the story that China's rural leaders also are engaged in Pork Barrel Politics.

Interestingly, when looking at the relationship between the level of public goods investment and the propensity to be reappointed, it is absent (Table 2, Columns 5-8). Unlike the case of direct election where leaders are trying to please villagers that demand public goods projects, it seems that public goods projects/investments are not a major concern in the decision to reappointment or not. When village leaders are appointed, there appears less of an imperative to deliver "pork" to their villagers—at least in the form of public goods investments.

Conclusion

The purpose of this paper has been to provide empirical evidence pertinent to theories of democratization using survey data in rural China. Through adapting the conceptual framework developed by Rosenzweig and Foster (2003) to China, we are able to empirically test what is the effect of democracy, in the form of direct election of village leaders in rural China, on the village

resources allocation. After that, we then test the latent mechanisms that discipline the behavior of village leaders.

There are two major findings of this study. First, compare to the traditional governance mode in rural China, the shift toward democracy (through the direct election of village leaders) results in the implementation of policies that villagers benefit more from it (in rural China case, more public goods projects/investments). In particular, we find that when village leaders were elected directly, they will implement more public goods projects/investments compare to the appointed village leaders. Through accounting the funding sources of public goods projects, our analysis shows the results are consistent for every types of projects.

Second, this paper also tests whether the reelection incentives---a mechanism used by villagers to discipline the incumbents through the voting, exist or not in an early democratization circumstance. Our results indicate that even in the early stage and in the micro community level, the reelection incentives still have effect on the behavior of incumbents because villagers' (voters) reward only those good incumbents. At the same time, we do not find any significant evidence that the appointment institution has the same reappointment incentives.

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Table 1. Analysis (OLS) of the impact of directly electing the village leader on rural public investment in rural China (1998-2003).

	Yearly public goods projects in village leader's term				Yearly public goods investment in village leader's term			
	All sources	Village funded	Co-funded	Above funded	All sources	Village funded	Co-funded	Above funded
The way village leader acceded to office	0.09	0.06	0.01	0.02	10.1	3.0	3.9	3.2
(0=appointed, 1=elected directly)	(4.22)***	(5.18)***	(0.78)	(1.66)*	(1.53)	(2.85)***	(0.63)	(1.81)*
Time invariant social-economic factors								
Net per capita income in 1997(1000 yuan)	-0.012	0.049	-0.039	-0.022	7.9	5.3	5.2	-2.6
	(0.99)	(7.31)***	(4.68)***	(3.50)***	(2.05)**	(8.71)***	(1.44)	(2.44)**
Total population in 1997(1000 people)	0.04	0.01	0.02	0.01	14	2.4	7.1	4.5
	(3.57)***	(0.99)	(3.00)***	(1.91)*	(4.19)***	(4.58)***	(2.28)**	(4.99)***
Percentage of minority population in	-0.0003	-0.0001	-0.0003	0.00003	0.32	0.03	0.23	0.06
1997(%)	(0.90)	(0.39)	(1.13)	(0.15)	(2.73)***	(1.40)	(2.12)**	(2.00)**
Per capita land in 1997 (mu)	-0.01	-0.01	-0.003	-0.001	2.9	0.1	2.1	0.7
	(2.27)**	(2.49)**	(1.01)	(0.44)	(1.94)*	(0.29)	(1.52)	(1.77)*
The illiterate rate of village	-0.03	-0.04	-0.01	0.02	31.1	-1.4	19.1	13.4
labor force in 1997(%)	(0.49)	(1.34)	(0.18)	(0.71)	(1.68)*	(0.47)	(1.11)	(2.68)***
The migrant ratio of village labor in 1997(%)	-0.19	-0.14	-0.02	-0.03	0.7	-9.0	18.5	-8.8
	(2.67)***	(3.66)***	(0.42)	(0.74)	(0.03)	(2.55)**	(0.89)	(1.46)
The number of village/group	0.02	0.02	0.0003	-0.0005	50.7	2.7	48.3	-0.3
enterprise in 1997(each)	(2.70)***	(4.98)***	(0.06)	(0.12)	(21.26)***	(7.12)***	(21.78)***	(0.50)
Number of fellow villagers working in	0.005	0.0003	0.004	0.001	1.3	0.1	0.9	0.3
township or county governments(each)	(4.22)***	(0.45)	(4.88)***	(1.30)	(3.34)***	(1.33)	(2.42)**	(3.23)***
Time invariant locational-geographical factors								
Hilly land over 25 degree in total	0.0006	0.00002	0.0002	0.0004	0.15	0.00003	0.04	0.11
land area in the village in 1997(%)	(1.54)	(0.08)	(0.80)	(1.83)*	(1.30)	(0.00)	(0.34)	(3.63)***
Percentage of effectively irrigated land in	-0.001	-0.0001	-0.0002	-0.001	-0.04	0.04	-0.04	-0.04
1997 (%)	(4.04)***	(0.56)	(0.74)	(6.23)***	(0.38)	(2.61)***	(0.47)	(1.32)
The distance of the nearest road	-0.002	-0.002	0.0001	-0.0001	-0.40	-0.08	-0.36	0.04
to the village seat in 1997(km)	(1.97)**	(3.59)***	(0.16)	(0.23)	(1.72)*	(2.04)**	(1.67)*	(0.57)
The farthest distance between two small	0.004	-0.001	0.002	0.003	-1.1	-0.1	-1.1	0.2
groups within this village in 1997(km)	(1.44)	(0.65)	(1.13)	(1.96)**	(1.12)	(0.94)	(1.25)	(0.70)
The distance between village committee	-0.001	0.001	-0.0004	-0.001	-0.20	-0.03	0.12	-0.29
and township seat in 1997(km)	(0.75)	(0.60)	(0.38)	(1.57)	(0.36)	(0.32)	(0.24)	(1.98)**
Time variant factors								
Tax-for-Fee reform	-0.34	-0.06	-0.17	-0.11	-35.5	-3.7	-25.3	-6.6
(after=1,before=0)	(11.92)***	(3.90)***	(8.70)***	(7.50)***	(3.94)***	(2.58)**	(3.01)***	(2.70)***
Age of village leader	0.001	0.002	-0.001	0.001	0.41	0.12	-0.05	0.34
	(1.21)	(2.86)***	(1.15)	(0.81)	(1.09)	(1.98)**	(0.14)	(3.35)***
Education of village leader	0.02	0.02	-0.01	0.01	-1.9	0.9	-5.1	2.3
	(1.48)	(3.51)***	(1.64)	(1.30)	(0.48)	(1.41)	(1.37)	(2.12)**
Prior occupation of village leader	-0.04	-0.03	-0.02	0.01	-7.6	-2.6	-3.9	-1.1
(pure farmer=1,others=0)	(2.15)**	(2.58)***	(1.81)*	(0.94)	(1.33)	(2.85)***	(0.73)	(0.73)
Province dummy	yes	yes	yes	yes	Yes	yes	yes	Yes
Time trend	yes	yes	yes	yes	Yes	yes	yes	Yes
Constant	-130	-16	-56	-59	-6180	157	-3844	-2494
	(15.78)***	(3.49)***	(10.02)***	(13.65)***	(2.38)**	(0.38)	(1.59)	(3.55)***

| Observations | 7041 | 7041 | 7041 | 7041 | 7041 | 7041 | 7041 | 7041 |

Absolute value of t statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%. Data source: Authors survey.

Table 2. Fixed effects estimation of the effect of the annual number of public goods projects (amount of investments) in latest term and the re-election (re-appointment) of village leader in rural China.

	Re-elected (1=yes,0=no)				Re-appointed (1=yes,0=no)			
	Equation1	Equation2	Equation3	Equation4	Equation5	Equation6	Equation7	Equation8
Public projects number	0.04		0.04		-0.02		-0.02	
	(1.72)*		(1.96)**		(0.54)		(0.56)	
Above funded public projects number				0.09				0.08
				(2.05)**				(0.75)
Village funded public projects number				0.08				-0.17
				(1.84)*				(2.20)**
Co-funded public projects number				0.01				0.03
				(0.37)				(0.55)
Public investment level		-0.0001				0.00000		
		(0.70)				(0.00)		
Average investment level per project			-0.0002				0.00002	
			(1.75)*				(0.17)	
Average investment level of above funded public projects				-0.0001				0.0004
				(0.70)				(0.91)
Average investment level of village funded public projects				-0.0004				-0.0003
				(1.07)				(0.40)
Average investment level of co-funded public projects				-0.0001				0.00001
				(1.69)*				(0.12)
Age of incumbent	-1.66	-1.68	-1.67	-1.68	-0.75	-0.74	-0.75	-0.72
	(12.70)***	(12.83)***	(12.75)***	(12.80)***	(4.35)***	(4.32)***	(4.34)***	(4.20)***
Education of incumbent	0.25	0.25	0.25	0.24	0.45	0.46	0.45	0.47
	(1.20)	(1.19)	(1.19)	(1.17)	(1.34)	(1.36)	(1.34)	(1.39)
Year Dummy	yes	yes	yes	Yes	yes	yes	yes	Yes
Village fixed effect	yes	yes	yes	Yes	yes	yes	yes	Yes
Constant	6.82	6.89	6.83	6.90	3.03	3.00	3.03	2.91
	(10.53)***	(10.63)***	(10.55)***	(10.64)***	(4.15)***	(4.11)***	(4.14)***	(4.00)***
Observations[a]	2686	2686	2686	2686	875	875	875	875

Absolute value of t statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

[a] this is unbalance panel data with some villages have one observation and the other have two observations.