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analysis using the 2002 CASS CHIP survey

by

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**Graduate School of Economics
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analysis using the 2002 CASS CHIP survey*¹**

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Abstract

Using a large village survey conducted in 2002, this paper examines the relationship between local governance and public goods provision in rural China focusing on village- and county-levels. The main points of this paper are as follows. First, regarding to rural governance at the village level, we have found that promoting 'grassroots democracy' is important to make village administration more public service-oriented. Second, as for the governance at the county level, although detailed information on the characteristics of county governance are not available at present, our examination using county's fiscal statistics suggests that increase in intergovernmental fiscal transfer to county budget does not necessary produce improvement in rural public goods provision by the county government and that the retrenchment of public servants tends to affect public servants working in rural area such as teachers and medical workers than the administrative officials. Thus the characteristics of governance at the county level matters because it actually determines the delivery of public goods.

JEL classification: H42; H72; H77

Keywords: public goods provision; local governance; intergovernmental relations; rural China

1. Introduction

The widening urban–rural disparity in public goods provision is one of the most crucial issues to be settled for building a ‘harmonious urban–rural relationship’ in China. It is noteworthy that the Chinese government has recently developed a series of prorural policies to increase public expenditure to meet the peasants’ needs. However, if the increase in fund allocation is not accompanied by effective public governance in rural areas, the policy outcomes might be discouraging. Focus, therefore, should be put on how to build good governance for public goods provision in rural areas. Using a large administrative village survey conducted in 2002, this paper examines the relationship between local public goods provision and rural governance. Although China’s local administrative system is multilayered, this paper focuses on the administrative village (hereafter referred to as village) level and the county level.

The main points of this paper are as follows. First, regarding rural governance at the village level, we have found that promoting ‘grassroots democracy’ is important to make village administration more public service oriented. Second, in relation to governance at the county level, our examination using county fiscal statistics suggests that increases in intergovernmental fiscal transfers to the county budget do not necessarily produce an improvement in rural public goods provision by the county government. It also suggests that the retrenchment of public servants paid from the county budget tends to affect public servants working in rural areas such as teachers and medical workers more than administrative officials. Thus the characteristics of governance at the county level matter

because they determine the delivery of public goods. Further research is needed on the factors that influence county government decision making.

The main data source for this paper is a large administrative village survey conducted in 2002. The survey is a part of the Chinese Household Income Project organized by the Institute of Economics, Chinese Academy of Social Sciences (hereinafter referred to as the 2002 CASS CHIP survey).² In the 2002 CASS CHIP survey, we circulated an administrative village questionnaire to village cadres simultaneously with a household questionnaire. We collected statistical data and other village-level information on the 961 administrative villages where the 9200 sample households lived. The sampling frame for the household survey was a subsample of the official rural household survey of the National Bureau of Statistics (NBS). Thus, the surveyed administrative villages represented the lowest unit of the NBS's stratified sampling strategy and were chosen from the NBS's designated survey counties according to their income level (see Appendix A regarding the distribution of sample villages in the surveyed provinces).

This paper is structured as follows. Section 2 provides a brief review of current prorural policies. In Section 3, we confirm the influence of rural taxation reform (tax-for-fee reform) on village budgets, and then investigate the relationship between village governance and the delivery of public services at the village level. Using fiscal statistics at the county level, Section 4 examines the correlation between changes in a county's fiscal conditions and fund allocation to primary education in post-taxation-reform villages. Section 5 concludes.

2. Overview of prorural reforms after 2000.

It was not until the beginning of the 21st century that the central government has launched a series of prorural reforms. The structure of the reform is summarized in Table 1. It is convenient to follow the phases of rural taxation reform as a focal point for reviewing the whole reform process. The taxation reform can be divided into the following three phases: Phase 1 tax-for-fee reform (2000-2003); Phase-2 gradual abolition of agricultural taxes (2004-2005); Phase 3: post agricultural tax era (2006-).

Phases of the taxation reform

The basic policy in the phase-1 reform is the substitution of local levies collected at the village and township levels with formal taxation (费改税).³ In 2000, Anhui Province was designated as the national model area (试点) of the reform. In March 2002, the party and the central government expanded coverage of the reform. Most of the provinces had launched the reform by the end of 2002. The policy arrangements for 'tax-for-fee' are summarized as 'three abolitions, two adjustments, and one reform'. 'Three abolitions' refers to the termination of the township levy (乡镇统筹), the levy for rural education (农村教育附加), and other local levies. 'One reform' indicates the reform of *de fact* tax collecting at the village level. The administrative village levy (村提留) is to be abolished and fund for public services is to be financed by the budget transfer from upper level administration and case-by-case basis fund collecting (一事一议筹资). 'Two adjustments' refers to adjust (increase) the rate of taxation of the agricultural tax/the special agricultural tax (农业税, 农特税) and to introduce the additional levy for agricultural taxes (两税附加) as the substitute for local levies.

The taxation reform has accelerated sharply after 2004 (phase 2). It shows that the Chinese leadership has begun to change the urban-biased institutional arrangements inherited from the planned economy era. It is stressing that 'unified institutional and policy arrangements for urban and rural development' (统筹城乡) are critical to sustaining economic development and social stability, not only at the rural level, but also at the national level. In March 2004, the State Council announced it would abolish agricultural taxes gradually within the next five years, excluding special agricultural taxes on tobacco and a few other products. The number of provinces that have abolished agricultural taxes was eight in 2004, including Heilongjiang and Jilin, which were nominated as the national model provinces for the reform. By September 2005, 28 provinces had abolished agricultural taxes. Many counties in three other provinces (Hebei, Shandong, Yunnan) also stopped collecting agricultural taxes in 2005.

On December 29, 2005, the Standing Committee of the National Peoples Congress voted that agricultural taxes should be abolished on January 1, 2006. "Agricultural tax has become history (*People's Daily*, December 31, 2005)" and the post agricultural tax (后农业税) era has started.

Education and medical care

Rural education after 1980s has been heavily depending on tuition/school fees (学杂费) paid by parents and on fund collecting at the township/village levels (the levy for rural education, township/village levies, and ad hoc fund collecting or compulsory donations). The basic direction of the educational reform is from such a 'self-reliance' at the local level to nationally supported compulsory education. In the phase 1, the levy for rural education has been abolished and fiscal source for teachers' salaries has been transformed from township

budget to county budget. According to the instruction of the State Council distributed in December 2005, 'two exemptions and one subsidy (两免一补)', that is, exemptions of tuition and school fees and subsidy for dormitory fee, has been introduced in the western regions from 2006. At the same time, subsidy from central budget for operational expenses of the schools has been employed in the western regions. Also, fund arrangement from central budget to make repairs on school building and facilities has started.

The major point of the reform of medical care in rural area is the establishment of the new rural cooperative medical insurance (新型农村合作医疗保险), which is operated at the county level. Experiments of the new cooperative medical insurance has begun in phase 2 and, in January 2006, the central government announced to expand the coverage of the new cooperative medical insurance into 40 percent of the whole counties.

Local governance

Reform of local governance can be understood as two tiers: the high-tier is governance at the county level and the lower-tier is village governance (村级治理). Improvement of local governance is associated with the retrenchment of governmental departments and agencies (简政放权) because tax cut in rural area is premised on the reduction of the cost of government.

For governance at the county level, the major points are the restructure of government and the strengthen of intergovernmental fiscal transfer (财政转移支付) into the county budget. Retrenchment (精简和分流) of public servants paid by county/township budget is also emphasized. Merger of townships (撤乡并镇) has been promoted. Moreover, direct control of township budget by county government (乡财县管) is encouraged.

For village governance, more attention is paid for how to improve the monitoring of village cadres. Monitoring is to be done from two directions. One is the 'grassroots democracy (基层民主)' such as direct election of village cadres (民主选举) and disclosure of village affairs (村务公开) to doing monitoring from the bottom up by improving political participation. The other is monitoring from the upper governments, for example, the direct control of village budget by township government (村财乡管村用). Merger of villages (并村) is also promoted.

3. Village governance and local public goods provision

Table 2 reports the relationship between the size of public expenditure from village budgets (hereinafter referred to as village expenditure) and the status of the tax-for-fee reform. From Table 2A, it is found that approximately 40 percent of the sample villages have experienced a decrease in village expenditure on public services (services for peasants' economic activities such as irrigation, education, health care, and other services) between 1998 and 2002 and that the postreform villages are more likely to experience decreases in public expenditure. The proportion of villages that recorded a greater than 20 percent decrease is around 32 percent for postreform villages whereas the relevant figure for prereform villages is about 20 percent.⁴ This fact suggests that the abolition of local levies has directly affected local public goods provision from each village's own budget.

It is interesting that there is no simple relationship between changes in village expenditure after the tax-for-fee reform and the level of regional economic development (see Table 2 B). The proportion of postreform villages showing a decrease in village expenditure

on public services is relatively small in the lowest income region (the first decile group) and in the highest income region (the tenth decile group). The former will reflect the favorable fiscal treatment for underdeveloped regions by the central and provincial governments. The latter can be explained by sound local public finance at the county/township levels and sufficient fiscal transfers to the village level. Also, villages located in high-income regions are more likely to have their own revenue sources. In contrast to the lowest and highest income deciles, village expenditure on public services shows a sharp decrease in the postreform villages of the 7th and 8th decile groups, suggesting that both intergovernmental fiscal transfers and each village's own financial ability are rather weak in the upper-middle-income region.

We have seen that village expenditure on public services tends to decrease after the tax-for-fee reform (Table 2). Controlling for the size of village budgets, is there any difference in the structure of village expenditure between postreform villages and prereform villages? Do villages with good governance have more public-service-oriented finances than other villages?

To investigate this issue, we conducted a village-based Ordinary Least Square (OLS) estimation of the determinants of the village budget structure in 2002. The dependent variable is the logit-transformed proportion of expenditure on public services to total village expenditure in 2002.⁵ We try to capture the characteristics of village governance by the following two measurements that are assumed to reflect the degree of political participation. The first measurement is the frequency of villagers' meetings. The second measurement is the type of appointment of village cadres (village head and other members of village committees).

After the enforcement of the ‘Organizational Law of the Village Committee’ in 1987, most villages employed election of village cadres during 1990. As discussed in previous literature, the actual operation of village elections varies from place to place (O’Brien and Li 2000; Oi and Rozelle 2000; Pastor and Tan 2000; Xu and Wu 2001; Zhang, Xu and Xiang 2000). Here we categorize the appointment of village cadres into the following three types: (a) village cadres appointed by direct election, where villagers can nominate candidates directly (the higher degree in political participation); (b) village cadres appointed by upper administration (the lower degree in political participation); (c) village cadres appointed by direct election, where candidates are nominated by upper administration (the medium degree in political participation). Since the actual conditions of the appointment of village cadres vary considerably between regions and among villages in a region, it will be interesting to see whether the type of appointment of village cadres affects the structure of the village budget.

We hypothesize that, when all other factors remain the same, the degree of political participation positively correlated with the proportion of expenditure on public services to total village expenditure. Other factors to be controlled are the size of the village budget (per capita total expenditure from the village budget in 2002), major items of public services provided by the village, and the status of tax-for-fee reform.

The results of village-based OLS estimations are summarized in Table 3. In the postreform villages, both measures of the degree of political participation of villagers show a positive and statistically significant influence on public goods provision by the village as expected (equation 2), whereas no significant correlations are found in prereform villages

(equation 3). It is noteworthy that the effect of political participation is correlated with the status of tax-for-fee reform.

4. County governance and public goods provision

Changes in expenditure for public services at the village level do not show the whole picture of the flow of funds at the local level. If, as is expected by the reform policy, public expenditure for rural areas funded by county or provincial governments has increased, then there should be an improvement in the provision of local public goods in rural areas.

Unfortunately it is not easy to extract the actual amount of government funding used for rural areas from aggregated fiscal statistics at the county/province levels. We would like to go on to develop a local public finance data set that can capture the provision of rural public goods in future research. Here we will report tentative findings using village cadres' estimation of the changes in government funds spent on schools where the villagers' children are educated, after the tax-for-fee reform. Although village cadres do not know the exact amount of government funding from upper government used for schools, they will be able to judge whether the financial conditions of the schools have improved after the tax-for-fee reform.

Table 4 summarizes the results. Only eight percent of the cadres of postreform villages report increases in public expenditure on schools after the tax-for-fee reform, whereas approximately 48 percent of cadres report decreases and 43 percent of cadres report no change. Even if we consider the incentive of rural cadres to underreport upper government investments, the results suggest possible deteriorations in public goods provision. It is

noteworthy that the proportions of village cadres reporting decreases in public expenditure on schools are relatively small in the lowest income region (the first decile group) and in the highest income region (the tenth decile group). Also, cadres of villages located in the upper-middle-income region (7th and 8th decile groups) report larger decreases in public expenditure on schools. This finding again shows that the policy arrangements for rural public goods provision are not simply correlated with the level of regional economic development.

How then do the characteristics of governance at the county level affect changes in the educational expenditure before and after the tax-for-fee reform? Although detailed information on the characteristics of county politics is not available, we will be able to capture the characteristics of local public goods provision by the county government using official fiscal statistics at the county level.

We conducted village-based logistic regression estimation for the postreform villages. The dependent variable is the above-mentioned village cadres' judgments on the changes in the educational expenditure on the village's primary education after the tax-for-fee reform. To conduct ordered logistic regression, we transform the village cadres' judgment into an ordinal variable (1 = decrease; 2 = no change; 3 = increase). As the explanatory variables, we employ the following variables describing the changes in the county budget structure before and after the tax-for-fee reform. County statistics for 1998 are used for the starting point, that is, the reference year for the prereform period. It should be noted that, although the reference year for judging the reform status is 2002, we use county statistics for 2001 as the endpoint because figures for 2002 are not available at present. The variables (a), (b), and (d) are collected from Caizhengbu Yusuansi (1999–2002) and the variable (c) is compiled

from Jiaoyubu and Guojia Tongjiju (2003). Unfortunately, due to missing values of variable (c) for the counties located in Guangxi, Chongqing, Yunnan, and Xinjiang, the number of effective observations is reduced. Several rich counties without fiscal transfers are also excluded. The number of observations of postreform villages usable for the estimation is 433.⁶

(a) Growth rate of in-budget (预算内) fiscal revenue of the county government between 1998 and 2001 ($\text{per capita revenue in 2001} - \text{per capita revenue in 1998}$) / $\text{per capita revenue in 1998}$).⁷ This is a measurement of the growth rate in the county's own financial ability. We anticipate that this variable is positively correlated with the dependent variable.

(b) Growth rate of intergovernmental fiscal transfers from the upper-level governments between 1998 and 2001. We measure the size of the fiscal transfers by the per capita amount of the fiscal deficit (difference between per capita total fiscal expenditure and per capita in-budget fiscal revenue). The growth rate of fiscal transfers is defined as ($\text{per capita fiscal transfer in 2001} - \text{per capita revenue in 1998}$) / $\text{per capita revenue in 1998}$).

We expect that this variable is also positively correlated with the dependent variable since, as mentioned in Section 2, strengthening of intergovernmental fiscal transfers is one of the most important policy arrangements after 2000 that is complementary to the taxation reform..

(c) Reduction of urban bias in educational expenditure between 1998 and 2001. When the persistent urban bias of fund allocation at the local level is considered, an increase in the size of the county's educational budget does not necessarily mean actual improvement in the input to rural education. Thus, we employ a measurement defined as the proportion of the amount of per-student educational expenditure from the county budget used on the students

in rural areas (children of rural residents having rural household registration) to per-student expenditure in total. The reduction of urban bias is measured as the difference in the proportions between 1998 and 2001.

(d) Progress of the retrenchment of officials in the county government. We measure the size of the county government relative to population size using the ratio of the total number of public servants paid by the county budget to the county's total population. Then we employ a dummy variable that indicates whether the indicator has decreased from 1998 to 2001 or not (1 = decreased; 0 = not decreased). As discussed in Section 2, retrenchment of local officials at the county level is another important prorural reform policy that is complementary to the tax-for-fee reform. However, since a large proportion of public servants paid by the county budget are those who serve rural areas, such as schoolteachers and medical workers, the retrenchment policy might cause deterioration in rural public services. If so, we will find a negative correlation between this measure and the dependent variable.

In addition to the variables measuring the structure of the county budget, we introduce two dummy variables that indicate whether the sample villages are located in nationally designated poor counties or autonomous regions of ethnic minorities. We expect that these variables measuring regional targeting policies positively affect rural public goods provision. We also employ county per capita GDP and its squared term to control for the overall level of regional economic development and to confirm the U-shaped relationship between the change in the input to rural education and the level of regional economic development found in Table 4.

Table 5 reports the results of the regressions. The following points can be made from the table about variables relating to the county budget. First, it seems that increases in intergovernmental fiscal transfers do not necessarily bring about the expected improvements in rural public goods provision. The change in fiscal transfers (variable (b)) shows no statistically significant correlation with the change in fund allocations to rural education, whereas improvement in the county's own financial ability (variable (a)) shows a positive and statistically significant correlation. Second, as is expected, the reduction in urban bias in educational expenditure at the county budget (variable (c)) has brought about improvements in the financial situation of primary education at the village level. Third, retrenchment of public servants tends to cause deterioration in inputs to rural education rather than bringing about a more public-service-oriented budget structure, suggesting that the retrenchment policy affects public servants working in rural areas more than administrative officials.

None of the two regional policy variables show the expected results. The dummy variable for villages located in the autonomous regions of ethnic minorities shows positive correlation with the change in fund allocation, the level of statistical significance is less than 10 percent. The dummy variable for nationally designated poor counties is negative and insignificant.

From Table 5, we have also confirmed a U-shaped relationship between the level of regional economic development and the change in fiscal input on rural education after the tax-for-fee reform.

5. Concluding remarks

We have examined the relationship between local governance and public goods provision in rural China at the village level and the county level. The main points can be summarized as follows.

First, regarding rural governance at the village level, we have found that promoting ‘grassroots democracy’ has the effect of making village cadres more public service oriented. Investigation of the correlation between the degree of political participation (village elections and villager meetings) and the village budget structure shows that village budgets tend to be more public service oriented in villages with relatively a higher degree of political participation. It is also found that the correlation between political participation and the village budget structure is stronger in postreform villages than in prereform villages, suggesting a complementary relationship among rural taxation reform, the reform of village politics, and local public goods provision. A criticism will be addressed that the current reform policies, in general, make the financial role of villages to provide public goods less important than prior to the 1990s. However the characteristics of village governance is still important because the village still is the gateway to to allocate fund from upper administration and to transmit peasants’ needs for public goods.

Second, as for governance at the county level, although detailed information on the characteristics of county governance are not available at present, our examination using county level fiscal statistics suggests that increases in intergovernmental fiscal transfers to county budgets does not necessarily produce improvements in rural public goods provision by the county government. It also suggests that the retrenchment of public servants paid by county budgets tends to affect public servants working in rural areas such as schoolteachers

and medical workers more than administrative officials. Since intergovernmental fiscal transfers and retrenchment of local government officials has become more important for the delivery of rural public goods after the abolition of agricultural taxes, this finding suggests possible unfavorable policy outcomes for taxation reform. This is consistent with recent case studies in inland, purely agricultural regions that report serious deterioration in the delivery of public services after the abolition of agricultural taxes (see for example Lin and Ge 2004; Zhang, Zhang and Zhu 2004). It is not enough to increase intergovernmental fiscal transfers to the county budget. Thus, the characteristics of governance at the county level matter because they actually determine the delivery of public goods. Further research is needed on the factors that influence county governments' decision making about the direction of the flow of public expenditure.

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Table 1 An overview of pro-rural reforms after 2000

	Phase 1 (2000--2003)	Phase 2 (2004--2005)	Phase 3 (2006--)
Taxation reform From tax-for-fee to abolition of taxes & levies	Tax-for-fee (费改税) reform *Substitution of local levies with formal taxation	Gradual abolition of agricultural taxes *Agricultural taxes have been abolished in 22 provinces until 2005	Post-agricultural tax (后农业税) era *Jan. 2006 The government announced abolition of agricultural taxes
Education From 'self-reliance' at the local level toward nationally supported compulsory education	* Abolition of the levy for rural education (农村教育附加) *May, 2001 The state council introduced a new county-based educational system (teachers' salaries are to be paid by the county budget)	*Dec., 2005 The State Council distributed an instruction to assure to the fund for rural compulsory education ("关于深化农村义务教育经费保障机制改革的通知")	*The western region: exemption of tuition/school fees and subsidy for dormitory fee (两免一补) ; subsidy from the central government for the operational expenses of the schools *The whole regions: fund arrangement from central budget to make repairs on school the building and facilities.
Medical care Toward nationally subsidized medical insurance		* Experiment of new rural cooperative medical insurance (新型农村合作医疗保险)	*Expansion of the coverage of the cooperative medical insurance
Local governance (治理)	<i>County/township level</i> : Restructure of government (精简) and the strengthen of intergovernmental fiscal transfer (转移支付) *Restructure of governmental departments and agencies (简政放权) *Retrenchment (精简和分流) of public servants paid by county/township budget *Merger of townships (撤乡并镇) *Direct control of township budget by county government (乡财县管)		
	19 <i>Village level</i> : Grassroots democracy (基层民主), strengthened control over village, and village merger *Direct election of village cadres (民主选举) *Disclosure of village affaires (村务公开) *Direct control of village budget by township government (村财乡管村用) *Merger of villages (并村)		

Table 2 Change in per capita village expenditure on public services by tax-for-fee reform status, 1998–2002

A. By reform status (%)

	Postreform villages	Prereform villages	Total
Decreased over 20%	31.9	20.4	28.5
Decreased under 20%	10.5	10.2	10.4
Increased under 20%	24.0	29.5	25.6
Increased over 20%	33.6	40.0	35.5
Total	100.0	100.0	100.0
Per capita village expenditure on public services, 2002 (Yuan, at current prices)	42	64	48
(Number of observations, villages)	(676)	(285)	(961)
			Pr = 0.003

Note: This table reports changes in per capita village expenditure on public services between 1998 and 2002 (deflated to 1998 prices using rural consumer price indices at the province level). Pr = indicates the level of significance of the chi square test of independence between changes in village expenditure and reform status.

B. By level of regional income (postreform villages) (%)

Changes in village expenditure on public services	Per capita GDP at the county level							Total
	Lowest 10%	2nd decile	3rd–4th decile	5th–6th decile	7th–8th decile	9th decile	Highest 10%	
Decreased over 20%	9.1	36.2	30.8	32.9	46.8	25.0	19.3	31.9
Decreased under 20%	5.5	7.5	9.8	12.3	13.5	10.9	8.8	10.5
Increased under 20%	54.6	35.0	19.6	25.3	14.9	20.3	12.3	24.0
Increased over 20%	30.9	21.3	39.8	29.5	24.8	43.8	59.7	33.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Per capita village expenditure on public services, 2002 (Yuan, at current prices)	15	10	21	28	21	107	235	48
(Number of observations, villages)	(55)	(80)	(133)	(146)	(141)	(64)	(57)	(676)

Table 3 Village governance and the structure of village budgets: results of village-based OLS estimations

Dependent variable: the logit-transformed proportion of expenditure on public services to total village expenditure in 2002	(1) All villages	(2) Postreform villages	(3) Prereform villages
Village governance			
Type of appointment of village cadres, 2002			
(a) Village cadres are appointed by direct election where villagers can nominate candidates directly	0.409 (1.20)	0.687 (1.77)*	-0.500 (0.69)
(b) Village cadres are appointed by upper administration	0.488 (1.03)	0.636 (1.12)	-0.255 (0.29)
(c) Village cadres are appointed by direct election where candidates are nominated by upper administration	omitted		
Number of villagers meetings held in 2002	0.158 (2.60)***	0.156 (2.12)**	0.129 (1.21)
Public service provision by village budget, 2002			
Villages provide collectively managed irrigation service using village-owned facilities (dummy)	0.241 (1.14)	0.256 (0.98)	0.034 (0.09)
Villages provide mechanized cultivating service	0.445 (1.54)	0.727 (1.88)*	0.239 (0.56)
Reform status			
Postreform villages (dummy)	0.059 (0.16)	-	-
Size of village budget in 2002 (Yuan)	0.001 (3.19)***	0.002 (4.66)***	-0.000 (0.03)
Constant	-4.088 (5.04)***	-7.103 (5.01)***	-2.075 (1.85)
Number of observations (villages)	888	638	250
Adjusted R-squared	0.113	0.103	0.172

Note: This table reports the results of village-based OLS estimations of the determinants of the structure of village budgets. Province dummies are included in all equations, but are not reported here. *t* statistics are provided in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4 Change in fund allocation to primary schools after the tax-for-fee reform

Per capita GDP at the county level								
	Lowest	2nd	3rd-4th	5th-6th	7th-8th	9th	Highest	Total
Change in fund allocation after the reform	10%	decile	decile	decile	decile	decile	10%	
Decreased over 25%	13.0	25.6	25.8	23.4	28.9	23.8	3.7	23.0
Decreased under 25%	19.6	18.0	28.0	25.5	34.1	23.8	14.8	25.4
No change	54.4	47.4	37.1	45.3	32.6	36.5	74.1	43.4
Increased	13.0	9.0	9.1	5.8	4.4	15.9	7.4	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(Number of observations, villages)	(46)	(78)	(132)	(137)	(135)	(63)	(54)	(645)

Table 5 Ordered logistic regression estimations of the change in educational expenditure before and after the tax-for-fee reform

Dependent variable: Village cadre's judgment on the changes in educational expenditure on village primary education after the tax-for-fee reform (1 = decrease; 2 = no change; 3 = increase)	(1)	(2)
Changes in the structure of the county budget		
(a) Growth rate of in-budget revenue of county government between 1998 and 2001	0.973 (3.01)***	0.977 (3.01)***
(b) Growth rate of intergovernmental fiscal transfer from the upper-level governments between 1998 and 2001	-0.064 (-0.87)	-0.096 (-1.24)
(c) Reduction of urban bias in educational expenditure between 1998 and 2001	0.878 (2.96)***	0.897 (3.02)***
(d) Progress of retrenchment of the county government (dummy)	-0.740 (-2.53)**	-0.751 (-2.52)**
Level of regional economic development		
Per capita GDP at the county level 2001	-0.139 (-1.68)*	-0.158 (-1.81)*
Per capita GDP at the county level 2001 (squared)	0.011 (2.66)***	0.011 (2.70)***
Other variables relating to regional policy		
Dummy for nationally designated poor counties		-0.268 (-0.77)
Dummy for villages located in the autonomous regions of ethnic minorities		0.928 (1.58)
/cut1 (standard error)	1.253 (1.037)	1.955 (1.216)
/cut2 (standard error)	3.870 (1.056)	4.580 (1.235)
Log likelihood =	-371.182	-369.635
Number of observations (villages)	433	433

Note: This table reports the results of ordered logistic regression estimations of the village cadres' judgments on the changes in educational expenditure on village primary education after the tax-for-fee reform. Province dummies are included in all equations, but are not reported here. Z statistics are provided in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix A Distribution of sample villages by the reform status in 2002

Province	Counties			Administrative villages		
	Pre-reform	Post-reform	Total	Pre-reform	Post-reform	Total
Beijing	1	1	2	10	6	16
Hebei	0	5	5	0	37	37
Shanxi	5	1	6	32	8	40
Liaoning	5	1	6	37	8	45
Jilin	0	6	6	0	48	48
Jiangsu	0	5	5	0	44	44
Zhejiang	4	2	6	32	21	53
Anhui	0	5	5	0	44	44
Jiangxi	0	6	6	0	43	43
Shandong	1	6	7	2	61	63
Henan	0	7	7	0	53	53
Hubei	0	6	6	0	52	52
Hunan	0	5	5	0	45	45
Guangdong	4	3	7	31	22	53
Guangxi	5	0	5	40	0	40
Chongqing	0	2	2	0	20	20
Sicuan	0	6	6	0	50	50
Guizhou	0	6	6	0	40	40
Yunnan	5	0	5	26	0	26
Shaanxi	0	6	6	0	37	37
Gansu	0	5	5	0	32	32
Xinjiang	8	0	8	75	5	80
Total	38	84	122	285	676	961

Appendix B. Descriptive statistics of variables used in village-based regression estimations

Variables used in Table 3

The whole villages (Number of observations: 888 villages)

Variable	Mean	Std. Dev.
Logit-transformed proportion of expenditure on public services to total village expenditure in 2002 (raw figures in parentheses)	-1.658 (0.318)	2.654 (0.266)
Village cadres are appointed by direct election and villagers can nominate candidates directly	.867	.340
Village cadres are appointed by upper administration	.062	.241
Number of villagers meetings held in 2002	3.090	1.455
Villages provide collectively managed irrigation service using village-owned facilities (dummy)	.261	.440
Villages provide mechanized cultivating service	.125	.331
Post-reform villages (dummy)	.718	.450
Size of village budget in 2002 (yuan)	112.487	382.123

Post-reform villages (Number of observations: 638 villages)

Variable	Mean	Std. Dev.
Logit-transformed proportion of expenditure on public services to total village expenditure in 2002 (raw figures in parentheses)	-1.812 (.303)	2.712 (.265)
Village cadres are appointed by direct election and villagers can nominate candidates directly	.861	.347
Village cadres are appointed by upper administration	.058	.234
Number of villagers meetings held in 2002	3.077	1.460
Villages provide collectively managed irrigation service using village-owned facilities (dummy)	.257	.437
Villages provide mechanized cultivating service	.096	.294
Size of village budget in 2002 (yuan)	89.820	304.509

Pre-reform villages (Number of observations: 250 villages)

Variable	Mean	Std. Dev.
Logit-transformed proportion of expenditure on public services to total village expenditure in 2002 (raw figures in parentheses)	-1.264 (.358)	2.462 (.263)
Village cadres are appointed by direct election and villagers can nominate candidates directly	.884	.321
Village cadres are appointed by upper administration	.072	.259
Number of villagers meetings held in 2002	3.124	1.444
Villages provide collectively managed irrigation service using village-owned facilities (dummy)	.272	.446
Villages provide mechanized cultivating service	.200	.401
Size of village budget in 2002 (yuan)	170.334	527.507

Variables used in Table 5 (Number of observations: 433 villages)

Variable	Mean	Std. Dev.
Village cadre's judgment on the changes in the educational expenditure on the village's primary education after the tax-for-fee reform	1.610	.654
Increase rate of in-budget revenue of county government	.328	.762
Increase rate of intergovernmental fiscal transfer from the upper-level governments between 1998-2001	1.950	1.997
urban-bias in educational expenditure between 1998-2001	.970	.377
Progress of retrenchment of the county government	.427	.495
Per capita GDP at the county level 2001 (1000 yuan)	5.802	4.408
Square of county's per capita GDP	53.042	89.780
Dummy for nationally designated poor county	.242	.429
Dummy for villages located in the autonomous regions of ethnic minorities	.044	.205

Notes

- *¹ Paper presented at the Beijing Forum 2006 "The Harmony of Civilizations and Prosperity for All", co-hosted by Peking University and Beijing Municipal Commission of Education, and the Korea Foundation for Advanced Studies, October 27-29, 2006, at the Great People's Hall and Peking University.
- ² The survey was conducted in collaboration with several foreign researchers including the author. The 2002 CASS CHIP survey was funded mainly by the Ford Foundation and the Swedish International Development Cooperation Agency and partly funded by the Grant in Aid for Scientific Research of the Japan Society for the Promotion of Science (JSPS), and Hitotsubashi University. The author is grateful for their generous support.
- ³ See Sato, Li, and Yue (2006) and Sato, Li, and Yue (forthcoming) for detailed introduction of the taxation reform.
- ⁴ The per capita size of village expenditure in pre-reform villages is larger than post-reform villages. This is because the tax-for-fee reforms were more likely to be launched where the need for reform was higher, that is, where the level of the tax burden was heavier, but where the amount of public service provision was small compared with the level of the tax burden. See Sato, Li and Yue (2006) and Sato, Li, and Yue (forthcoming) for detailed discussion.
- ⁵ Logit-transformed variable r is defined as $\ln(r/(1-r))$.
- ⁶ See Appendix B for the descriptive statistics of variables used in the estimation.
- ⁷ Note that all the county fiscal statistics used here are deflated to 1998 prices using the rural consumer price index at the province level.