

## **School Equity in Rural China**

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## **1. Introduction**

There has been much recent outcry over growing disparities in the financing of rural education in China. As of year-end 2000, China had 440,284 rural primary schools with an enrollment of over 85 million children, accounting for 65 percent of all primary school students and nearly half of all enrolled students at all levels of schooling (NSB, 2001). Access to high quality primary education in rural China thus has direct implications for the future welfare of millions of Chinese citizens as well as for China's national development goals. This is especially so in light of the rapidly rising returns to education in China's increasingly globalized economy and a large body of international evidence on the high returns to primary education in particular. The quality of education is inextricably tied to the financing of educational expenditures. However, despite its obvious policy relevance, there is still very limited systematic empirical evidence on the current situation and changes in the equity of educational financing over time, especially in the late-1990s. This paper attempts to fill in some of these gaps, drawing upon unique, multilevel data.

Fiscal decentralization has been a key feature of China's economic reform, leading to the devolution of responsibilities over both revenue collection and public expenditures to lower levels of government—the province, county, township, and village. While a decentralized system improves incentives for local governments to generate revenues and to be responsive to local needs, it hampers efforts to meet goals of distributional equity. Given overall budget scarcity, it is not surprising that this led to increasing inequity in the provision of

public goods and services across regions through much of the reform period. In many poor areas, in particular, the lack of local government revenues or subsidies from upper levels of government has led to a fiscal crisis which has prevented local governments even from meeting salary obligations to government officials and teachers, let alone enabling them to finance high quality public services such as education (Park et al, 1996).

Beginning in 1988, the Chinese government also promoted the diversification of educational financing, with the state budget as the main source, supplemented by a variety of avenues for channeling financial resources towards education. Formalized into law in 1995 (Article 53 of Education Law), this reform in part was a response to the growing scarcity of fiscal resources, which made diversification attractive as a way to stabilize educational financing (Wang, 2002).

These changes have had a pronounced effect on the equity of public educational expenditures, typically one of the largest budgetary items of local governments (Tsang, 1994; Tsang, 1996; West, 1997). The highest provincial primary educational expenditures per student, in Shanghai, are now ten times greater than the lowest, and this ratio has roughly doubled in the past decade (Tsang, 2002). Case studies in specific regions have found very large differences in educational expenditures within provinces, and even within counties (West, 1997, Saith, 2001). The government itself has recognized the policy importance of reversing these trends, and especially in the late 1990s has allocated targeted funds to reduce growing inequities and emphasized the importance of paying teachers' wages and reducing excessive local fees and

other farmer burdens. There is little evidence about the effects of these more recent initiatives.

This paper makes several new contributions to the understanding of patterns of school equity in rural China. First, we examine for the first time inequities at each level of public expenditures, specifically differences among provinces, among counties within provinces, and among villages within counties. These comparisons are facilitated by published provincial and county educational expenditure data, and primary survey data collected by the authors from over 130 primary schools in 20 different counties in one of China's poorest provinces, Gansu, in 2000. This is the first study of which we are aware that looks at national county-level data in different years to systematically assess trends in inequality over time. Second, the school-level data enable us to look separately at all of the sources and uses of funds in rural schools. Of particular value is our ability to look at village-level financing of education. Official educational statistics do not provide such detail down to the individual school level, and published data provide only budgetary spending data at the county level, ignoring nonbudgetary sources of finance. The survey data thus enable us to study the extent to which other sources of financing exacerbate or ameliorate disparities, and to examine how specific types of school expenditures are distributed across schools and regions. Third, the school data also allow us to examine direct indicators of school quality, such as infrastructure and teacher quality, and compare differences in these observable measures of quality to differences in educational expenditures.

We briefly summarize our main findings. First, somewhat surprisingly, we do not find strong evidence of increasing inequality in rural spending on primary education across counties nationwide from 1993 to 2000, suggesting that either growing inequality occurred primarily in the pre-1993 period or that recent fiscal reforms that strengthened central control over resources has helped arrest the trend toward greater inequality that is well-documented for the early reform period. Second, we do find that the extent of non-budgetary financing and the level and inequality of recurrent operating expenses increased from 1993 to 1997, likely reflecting greater decentralization and diversification, but that these trends had been fully reversed by 2000. Third, the extent to which community income level differences lead to disparities in educational expenditures per student is significantly less among villages in the same county than among counties within the same province, which in turn is less than among provinces. Fourth, we find that school operating expenditures are much more unequally distributed than wage spending and more strongly associated with income per capita differences. Similarly, local sources of educational finance, such as revenue from school businesses, collective contributions, and student fees are more unequal than government budgetary contributions, so that extra-budgetary finance exacerbates rather than ameliorates the inequality problem. Finally, looking directly at school quality outcomes in a poor province, inequality in infrastructure associated with income levels is significant, but not differences in teachers wages.

## 2. Data and Definitions

Chinese statistical categories for sources and uses of educational finance are summarized in Table 1, which includes the Chinese terminology. The sources of funds are divided into five main categories: government finance, funds from schools established by social groups or individuals, collective or community contributions, administrative revenue mainly from school fees, and other sources. Government finance is divided between budgetary (*yusuannei*) and extra-budgetary (*yusuanwai*) sources. The latter include special educational fees assessed on rural households, enterprise funds used for enterprise-run schools, and school-generated revenues. Expenditures include recurrent expenditures and spending on infrastructure construction. Recurrent expenditures are divided into two types—personnel (wages and bonuses), and operating, or public (*gongyong*), expenses.

In this paper our analytical focus is the financing of rural primary education, the most decentralized and probably poorest understood level of the schooling system hierarchy. We draw primarily upon two data sources. One is provincial and county level data published in the China Educational Finance Yearbook (*zhongguo jiaoyu jingfei nianjian*). We examine data for three years, 1993, 1997, and 2000, to study changes over time. The years 1993 and 2000 are the earliest and latest years for which relatively complete data are available. The year 1993 is a good base year, because it precedes new fiscal reforms in 1994 that tried to centralize budgetary authority and coincides with the rapid period of growth that followed Deng's southern tour in 1992. The three

educational finance variables that are available for all years are the following: government finance for all recurrent expenditures on education (note: this excludes school construction), budgetary recurrent expenditures on education, and rural budgetary recurrent expenditures on primary education.

The second dataset is primary school data on sources of uses of funds from a survey we conducted of 132 primary schools in 20 counties in Gansu conducted in the year 2000, part of the Gansu Survey of Children and Families. Our categories are similar but not exactly the same as the official statistical categories above. Many primary school principals did not distinguish clearly between within budget government spending (1A in Table 1) and funds from educational fees assessed by local township governments (1B1 in Table 1), since both types of funds flow through township governments. In our primary school data, these two categories are lumped together in what we call “government spending.” Because this measure includes one category of extrabudgetary funds, it is not directly comparable to the published county data on within-budget rural administrative expenditures on primary schooling. We also collect data on funds generated by school commercial activities (1B3), from collective or social contributions (3), student contributions (4), and other sources (5). The school sample does not contain any village-run or enterprise-run schools, so that sources 1B2 and 2 in Table 1 are zero for all schools.

### **3. National Trends**

Table 2 summarizes changes in the sources and uses of rural primary school funds in China for the years 1993, 1997, and 2000. Interestingly, many of the trends from 1993 to 1997 are reversed from 1997 to 2000. The importance of government within-budget finance in total rural primary school financing fell from 60.4 percent in 1993 to 55.8 percent 1997, but increased to 66.5 percent in 2000. The initial fall is in line with diversification of financing sources, while the reversal after 1997 may reflect increased government commitment to paying teachers adequate salaries and reducing excessive local fees and extractions. Educational fees had grown from 14.1 percent in 1993 to 16.8 percent in 1997, but then fell to 12.4 percent in 2000. The category that fell most sharply was community and collective contributions, which dropped from 11.3 percent in 1997 to only 3.5 percent in 2000. Such contributions were often made mandatory and their reduction may have been part of an attempt to reduce farmers burdens, which received considerable attention in the late 1990s (Bernstein and Lu, 2002). The share of school-generated funds also fell by half, from 2.7 percent in 1997 to 1.4 percent in 2000, and the share of other government finance also virtually disappeared by 2000. This suggests that the move to diversification codified in 1993 had reversed sharply from 1997 to 2000.

In examining trends in the use of funds, Table 2 shows that the relative share of expenditures spent on personnel wages and bonuses fell from 66.7 percent in 1993 to 60.2 percent in 1997, but increased to 73.1 percent in 2000. Meanwhile, the share of school operating expenses exhibited an opposite pattern, rising from 21.5 percent in 1993 to 25.0 percent in 1997, then falling to

22.9 percent in 2000. Construction expenditures followed a similar pattern but the drop in spending from 1997 to 2000 was substantial (14 to 4 percent). These trends again are consistent with a story in which diversification helped local areas mobilize funds for non-personnel expenditures, but in the most recent period, the personnel costs became the focus of spending, with the budget providing most of the finance. This change could be due to greater scarcity of funds, a commitment to paying higher salaries or reducing wage arrears which had become fairly common by the late 1990s, or a conscious attempt to reduce extrabudgetary or non-budgetary sources of revenue generation which were increasingly viewed to be ad hoc and highly extractive.

#### **4. Provincial Inequality**

We first examine inequality in rural primary school expenditures across provinces, based on published data from various years of the Educational Finance Statistical Yearbooks. First, we look at broad regional differences by calculating per student expenditures in central and western China as a share of expenditure levels in coastal China (Table 3). The categorization of provinces to regions is based on those used by the Ministry of Education in the ninth Five-Year Plan to prioritize goals for educational improvement. We look at total expenditures per student as well as the three main expenditure categories—personnel, operating expenses, and infrastructure construction. We also look separately at expenditures from all sources, and budgetary expenditures. Like the national trends, there appear to be changing patterns in regional rural primary

expenditure differences. Overall, regional disparities appear to have widened from 1993 to 2000 despite some improvement in some spending categories from 1993 to 1997. The ratio of central to coastal total spending per student fell from 0.600 in 1993 to 0.576 in 2000, and the western to coastal ratio fell from 0.639 to 0.629 over the same period. The increase in regional differences were even sharper for budgetary expenditures.

Another interesting pattern revealed in Table 3 is that for western provinces, disparities with the coast are much larger for total expenditures than for budgetary expenditures, suggesting that western regions have greater difficulty in raising extrabudgetary and non-budgetary funds. For the central provinces, on the other hand, there is not a substantial difference in gaps in total versus budgetary expenditures. Overall, however, gaps with the coast are slightly larger for central provinces compared to western provinces, in large part to much larger budgetary financing gaps. Western provinces relatively stronger budgetary support may be due to official efforts to improve educational outcomes in the poorest areas, or because of higher costs of schooling per student in remote locations with low population densities. Budgetary support for infrastructure construction in western provinces is particularly large, relative to either central or coast regions, although total construction funding is similar for western and coastal provinces, which are both below that of coastal provinces (except in 1997). The one type of expenditure that western provinces are clearly behind central and coastal provinces is recurrent operating expenses, which

makes sense if such expenditures rely significantly on extrabudgetary or nonbudgetary financing.

Next, we use the provincial data to calculate inequality measures for different types of rural primary school educational expenditures over time. Results are presented in Table 4. We calculate three different inequality measures: the gini coefficient, the Theil entropy measure, and the variance of logs. All three measures find that provincial inequality fell from 1993 to 1997 but by 2000 it had increased and surpassed the 1993 inequality level. Overall, there is a modest increase in provincial inequality in total rural primary school expenditures per student. However, different types of expenditures exhibit different patterns. Inequality in budgetary expenditures changes relatively little, with two of three inequality measures finding slightly lower inequality over time. Provincial inequality in recurrent personnel expenditures increases, while that of recurrent operating costs declines fairly substantially. Inequality in construction expenditures also falls over time. Thus, the overall inequality increase is driven compositionally by increasing differences in personnel costs across regions, with greater equity in budgetary resources helping to reduce inequity in recurrent operating costs and infrastructure construction costs.

## **5. County Inequality**

Following the provincial data analysis, for each of the years 1993, 1997, and 2000, we calculate three inequality indices--the Gini coefficient, the variance of log, and Theil index, for four county educational expenditure variables: 1) rural

primary school recurrent budgetary expenditures per student, 2) the share of (1) spent on operating expenses, 3) recurrent budgetary expenditures (on all school levels) per person, and 4) all recurrent expenditures per person. All indices are calculated using appropriate population weights. We limit the sample to only those counties which have complete data in all three years.

Several interesting results jump out of Table 5. First, there is no conclusive evidence of rising inequality in rural primary school recurrent budgetary expenditures per student. The gini coefficient is nearly identical in all three years, while there are slight but statistically insignificant increases in the variance of logs and Theil index. However inequality in the share of these rural primary school expenditures that are spent operating costs increases over time. Remarkably, inequality in total government-financed educational expenditures per person (including urban primary schools, secondary schools, and higher education) falls relatively sharply over the same period. The gini coefficient falls from 0.320 in 1993 to 0.249 in 2000 while the Theil index falls by more than half, from 0.244 to 0.112. There is an even sharper reduction in inequality in all recurrent educational expenditures per person.

In order to see how these patterns in county inequality in educational expenditures are related to economic conditions in the counties, we combine the educational finance data with annual county economic variables collected by the National Statistical Bureau. The economic variables we focus upon are total budgetary expenditures (including non-education related spending), total budgetary revenues, and rural income per capita. Unfortunately, we do not have

NSB data for 2000. We therefore make a number of calculations for 1993 and 1999, the earliest and latest year for which both educational finance and economic data are both available. Inequality measures for 1993 and 1999 are presented in Table 6. All of the basic patterns in inequality of educational financing described in Table 5 are found here as well. But now we also have inequality measures for the economic data. In addition, using a subset of counties in provinces for which we data on at least 20 counties per province, we decompose the Theil index into within province and between province components.

We find that there are reductions in the inequality of rural incomes, budget revenues per capita, and budget expenditures per capita, which might help explain the falling inequality of educational expenditures per person. For total education spending, the share of inequality due to between province differences increased sharply from 40 percent in 1993 to 55 percent in 1999, even though there is much less change, and in some cases change in the opposite direction, for total budget expenditures, total budget revenues, and rural income per capita. This suggests that the allocation of budgetary dollars to education became more equalizing over time. In 1999, inequality in educational expenditures per student is less than inequality in county budget expenditures per capita, the opposite of the pattern found in 1993. One possible explanation for this change is that poorer counties were given more pressure to spend a greater share of funds on education.

Rural budgetary expenditure inequality is about equally divided into within-province and between-province components in both years, and this inequality is larger than for total recurrent educational expenditures in 1999 but less in 1993. This suggests that the falling inequality in total educational expenditures is due to changes in allocations of secondary and higher education and in urban education.

Next, we examine the regressivity of rural primary school expenditure levels per student. This helps us explain the extent to which inequality is related to differences in community wealth (e.g., poverty), versus other factors. To examine this question, we estimate log-log regressions of rural within-budget primary expenditures per student on county rural income per capita. We estimate the relationship across all counties, within provinces (by including provincial dummy variables) and between provinces (by regressing provincial means). Our results, presented in Table 7, show that regressivity was less in 1999 than in 1993 (elasticities of 0.406 and 0.384 in 1993 and 1999). This was true both within provinces and between provinces. Regressivity, however, remains much greater across provinces than within provinces, suggesting that redistribution is more easily realized within provinces.

## **6. School Inequality**

In Table 8, we summarize the school finance data from the Gansu survey, breaking down means by income group (low income, medium income, and high income). There are clearly large differences in spending levels across rural

primary schools in the province; per student administrative expenditures are 474 yuan in the rich income group and only 294 in the low income group. Data for the rich group also differs sharply from the others in the composition of both sources and uses of funds. Richer areas have far greater amounts of non-government revenue, especially from student fees, school-generated revenues, and collective or community contributions. Meanwhile government spending is relatively equal, with schools in the three income groups getting 238, 287, and 295 yuan per student. Richer areas also have considerably more funds available for operating expenses (172 yuan per student on average) compared to middle income and poor income areas (49 and 43 yuan per student). This suggests that non-budgetary finance and local village finance for which data is not often systematically collected, are highly disequalizing.

Next, we estimate the relationship between educational spending and community per capita income levels. Table 9 presents elasticities estimated from linear and log-log specifications of primary school spending overall and broken down by sources and uses. The findings largely verify the patterns seen in the cross-tabs presented in Table 8. First, government spending has a much lower elasticity with respect to rural income per capita than overall spending, while other sources of funds have much higher elasticities. Similarly for fund use categories, wage expenditures are much less associated with income differences (elasticity of 0.213) than for operating expenses (elasticity of 0.715).

Another important finding from Table 9 is that none of the expenditure categories have a statistically significant relationship with village income levels

when comparing schools within the same county. However the between-county elasticities are uniformly higher than the overall elasticities, in most cases about double, suggesting that much of income-related rural inequality in educational spending in Gansu is associated with between-county differences rather than within county differences.

Our final exercise in this paper is to study the extent to which direct indicators of school quality are associated with differences in community wealth. We focus attention on three school quality indicators: the percentage of qualified teachers, where to be qualified a primary school teacher must have graduated from at least a middle level teacher training school, the percentage of dilapidated classrooms in the school, and the percentage of students with desks and chairs. In the full sample of primary schools, the sample means are 72 percent qualified teachers, 17 percent dilapidated classrooms, and 96 percent students with desks and chairs.

Following our previous exercise, we estimate the relationship between these outcomes and village income per capita. For the full sample, we find statistically significant effects in the expected direction for qualified teachers and dilapidated classrooms, but not for the percent of students with desks and chairs. We expect this last result to be the result of so many schools being clustered around 100 percent (Table 10). As for educational spending, we find that between county differences associated with community income levels are large and statistically significant, but within county differences are not statistically significant. One exception is that differences in the percent of dilapidated

classrooms is strongly associated with income levels, even within counties. We suspect this is because this indicator is influenced by infrastructure investments which are not considered administrative expenses. Such investments may rely more heavily on local mobilization of funds rather than county budgets. Unfortunately, because large school investments occur only one in many years, our sample is not large enough to statistically evaluate the distribution of investment spending resources across schools.

## **7. Conclusions**

This paper provides empirical analysis of the nature of disparities in educational spending and school quality in rural China. We find that from 1993 to 2000 provincial and county-level inequality in rural primary school expenditures per student did not change appreciably, with perhaps a slight increase in provincial inequality. Inequality in school spending among schools in the same county is not great, while inequalities among counties in the same province are substantial, and inequality across provinces even greater still. This suggests that equalization of resources is more difficult at higher administrative levels is more difficult, suggesting an important role for national government leadership.

The empirical evidence suggests that diversification and decentralization did result in increases in non-budgetary revenue sources and greater spending on operational expenses from 1993 to 1997, but that this trend was reversed sharply by 2000. School-level data from 2000 in Gansu show that the level non-

budgetary revenue, recurrent operational expenditures, and infrastructure construction have a strong positive association with income per capita levels, exacerbating inequality. In contrast, personnel expenditures per student and budgetary expenditures in general tend to be more equitably distributed across schools. Greater restrictions on alternative school funding sources, thus may reduce overall inequity, but could exacerbate inequality in operating expenditures and make it difficult for schools in poor areas to fund minimum-level operating costs (e.g., school supplies) that could affect the quality of learning in schools.

There are indications from the data and from announced recent initiatives that the Chinese government is playing a more prominent role in equalizing educational resources across regions, but the gaps remain large and merit priority attention.

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**Table 1**  
**China's Educational Funding: Source and Use Categories**

<u>Sources</u>	
1. Government finance	<i>guojia caizhengxing jiaoyu jingfei</i>
A. Budgetary	<i>yusuannei</i>
B. Extra-budgetary	<i>yusuanwai</i>
1. Special educational fees assessed on rural households	<i>jiaoyu shuifei fuja</i>
2. Enterprise funds used for enterprise-run schools	<i>qiye ban xue</i>
3. School-generated revenues	<i>xuexiao chuangshou</i>
2. Funds from schools established by social groups or individuals	<i>shehui tuanti he gongmin geren banxue jingfei</i>
3. Collective or community contributions	<i>shehui juanzu he jizi banxue jingfei</i>
4. School fees and other administrative revenue	<i>shiye shouru: zhuyao wei xuezafei</i>
5. Other sources	<i>qita jiaoyu jingfei</i>
<u>Uses</u>	
1. Recurrent expenditures	<i>jiaoyu shiyefei zhichu</i>
A. Personnel	<i>geren bufen</i>
B. Operating costs	<i>gongyong bufen</i>
2. Infrastructure construction.	<i>jijian feiyong zhichu</i>

**Table 2**  
**Sources and Uses of Rural Primary School Funds, 1993, 1997, and 2000**

	1993	1997	2000
<u>Sources</u>			
Government budget	0.604	0.558	0.665
Educational fees (households)	0.141	0.168	0.124
School-generated	0.028	0.027	0.014
Other government finance	0.003	0.003	0.000
Collective and community	0.117	0.113	0.035
School fees from students	0.090	0.101	0.104
Other	0.016	0.030	0.058
<u>Uses</u>			
Recurrent-personnel	0.667	0.602	0.731
Recurrent-operating	0.215	0.250	0.229
Infrastructure construction	0.110	0.140	0.040
Budget balance	0.008	0.009	0.000
<u>Uses of budgetary funds</u>			
Recurrent-personnel	0.935	0.900	0.932
Recurrent-operating	0.055	0.078	0.058
Infrastructure construction	0.011	0.022	0.011

Note: Units are share of total sources, uses, and uses of budgeted funds.

**Table 3**  
**Regional Rural Primary Expenditures Per Student**  
(as share of coastal expenditures)

	All expenditures			Budgetary expenditures		
	1993	1997	2000	1993	1997	2000
<u>Central provinces</u>						
Total Expenditures	0.600	0.702	0.576	0.614	0.635	0.583
Recurrent-personnel	0.622	0.616	0.587	0.632	0.619	0.620
Recurrent-operating	0.496	0.740	0.535	0.401	0.741	0.298
Infrastructure construction	0.716	1.171	0.645	0.325	1.641	0.186
<u>Western provinces</u>						
Expenditures	0.639	0.667	0.629	0.824	0.789	0.696
Recurrent-personnel	0.717	0.655	0.656	0.821	0.758	0.694
Recurrent-operating	0.442	0.537	0.514	0.745	0.840	0.693
Infrastructure construction	0.645	1.089	0.911	1.701	4.103	0.789

Notes: Regional classifications based on those used by the Ministry of Education. Coastal provinces include Beijing, Guangdong, Jiangsu, Jilin, Liaoning, Shandong, Shanghai, Tianjin, Zhejiang; central provinces include Anhui, Fujian, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangxi, and Shanxi; and western provinces include Chongqing, Gansu, Guangxi, Guizhou, Inner Mongolia, Ningxia, Qinghai, Shaanxi, Sichuan, Tibet, Xinjiang, and Yunnan. Ratios calculated from regional means that weight provincial data by student population.

**Table 4**  
**Provincial Inequality in Rural Primary School Expenditures Per Capita**

		1993		1997		2000	
		estimate	s. e.	estimate	s. e.	estimate	s. e.
Total	Gini	0.190	0.024	0.171	0.027	0.198	0.024
	Theil	0.060	0.014	0.055	0.015	0.069	0.017
	Varlogs	0.109	0.026	0.096	0.028	0.114	0.025
Budgetary	Gini	0.219	0.025	0.217	0.025	0.210	0.020
	Theil	0.080	0.019	0.090	0.023	0.084	0.017
	Varlogs	0.149	0.031	0.138	0.028	0.128	0.024
Recurrent personnel	Gini	0.184	0.022	0.193	0.022	0.200	0.023
	Theil	0.056	0.012	0.066	0.018	0.073	0.019
	Varlogs	0.104	0.022	0.112	0.025	0.121	0.025
Recurrent operating	Gini	0.275	0.053	0.233	0.041	0.232	0.044
	Theil	0.139	0.044	0.098	0.029	0.104	0.032
	Varlogs	0.242	0.083	0.179	0.063	0.158	0.056
Infrastructure construction	Gini	0.318	0.045	0.244	0.040	0.273	0.028
	Theil	0.168	0.045	0.105	0.029	0.122	0.023
	Varlogs	0.383	0.115	0.470	0.195	0.269	0.068

Notes: Standard errors are estimated by bootstrapping. Inequality measures weight provincial data by student population. Data for Chongqing in 1997 and 1999 are included in Sichuan totals.

**Table 5**  
**County Educational Expenditure Inequality, 1993, 1997, and 2000**

		1993		1997		2000		
		Coef	S.E.	Coef	S.E.	Coef	S.E.	
Recurrent budgetary on rural primary schools (per student)	Gini	0.310	0.008	0.309	0.009	0.309	0.007	
	Theil	0.154	0.008	0.164	0.014	0.158	0.009	
	Varlogs	0.330	0.018	0.326	0.023	0.349	0.029	
	N	1113		1113		1113		
	Gini			0.307	0.009	0.304	0.006	
	Theil			0.168	0.014	0.153	0.007	
	Varlogs			0.311	0.020	0.327	0.025	
	N			1578		1578		
	Share of (1) for operating costs	Gini	0.492	0.012	0.505	0.011	0.555	0.011
		Theil	0.422	0.023	0.434	0.020	0.541	0.026
	Varlogs	1.403	0.097	1.473	0.091	1.741	0.108	
	N	898		898		898		
	Gini			0.513	0.011	0.575	0.010	
	Theil			0.446	0.020	0.582	0.023	
	Varlogs			1.563	0.090	1.970	0.092	
	N			1378		1378		
Recurrent budgetary on all schools (per population)	Gini	0.320	0.020	0.230	0.006	0.249	0.009	
	Theil	0.244	0.040	0.089	0.006	0.112	0.014	
	Varlogs	0.266	0.023	0.169	0.011	0.194	0.012	
	N	1113		1113		1113		
	Gini			0.221	0.005	0.236	0.008	
	Theil			0.082	0.004	0.099	0.011	
	Varlogs			0.156	0.007	0.176	0.010	
	N			1578		1578		
	All recurrent on all schools (per population)	Gini	0.330	0.022	0.257	0.033	0.243	0.010
		Theil	0.257	0.047	0.239	0.147	0.108	0.013
Varlogs		0.279	0.026	0.181	0.016	0.172	0.012	
N		1113		1113		1113		
Gini				0.236	0.019	0.228	0.008	
Theil				0.185	0.089	0.094	0.009	
Varlogs				0.159	0.011	0.153	0.009	
N				1578		1578		

**Table 6**  
**County Educational Spending Inequality, 1993 and 1999**

	Gini	Varlog	1993 Theil	Theil Within Province	Theil Between Province	Gini	Varlog	1999 Theil	Theil Within Province	Theil Between Province
Rural budgetary recurrent exp. on primary schooling	0.304 (0.0064)	0.317 (0.0146)	0.150 (0.0062)	48%	52%	0.305 (0.0082)	0.305 (0.0195)	0.160 (0.0097)	48%	52%
Total recurrent budgetary. exp. on educ.	0.325 (0.0181)	0.332 (0.0279)	0.245 (0.0361)	62%	38%	0.278 (0.0091)		0.139 (0.0100)	38%	62%
Total recurrent exp. on educ.	0.334 (0.0181)	0.350 (0.0293)	0.255 (0.0365)	60%	40%	0.247 (0.00924)		0.111 (0.0105)	45%	55%
Total govt. budgetary expenditures	0.299 (0.0088)	0.255 (0.0126)	0.168 (0.0132)	66%	34%	0.277 (0.0123)	0.210 (0.0159)	0.154 (0.0172)	71%	29%
Total govt. budgetary revenues	0.406 (0.0119)	0.492 (0.0220)	0.312 (0.0252)	75%	25%	0.341 (0.0149)	0.350 (0.0230)	0.218 (0.0262)	82%	18%
Rural income per capita	0.246 (0.0073)	0.188 (0.0096)	0.103 (0.0073)	45%	55%	0.223 (0.0051)	0.175 (0.0079)	0.0806 (0.0037)	37%	63%

Notes: The sample of 1343 counties with complete data for both years. Numbers in parentheses are bootstrapped standard errors. Theil decompositions based on results for counties in provinces with data points for at least 20 counties.

**Table 7**  
**Elasticity of County Rural Within-Budget Administrative Expenditures**  
**Per Primary School Student with Respect to Rural Income Per Capita**

	All	Within Provinces	Between Provinces
1993	0.406***	0.205***	0.522***
1999	0.384***	0.161***	0.409***

Note: \*\*\* denotes that the coefficient is statistically significant at the 1 percent significance level. Elasticities are coefficients from log-log regressions.

**Table 8**  
**Gansu Primary School Administrative Expenditures Per Student**  
**by Income Group and by Sources and Uses of Funds, Year 2000**

Rural income per capita in village with School (A)	Low Income 405<A<1216	Medium Income 1216<A<2119	High Income A>2119	All
Number of schools	40	40	39	119
Admin. exp. per student	293.50	343.88	473.96	379.96
Of which:				
Government spending	238.34	287.00	295.49	277.78
Collective and community	7.18	3.23	14.32	8.41
Student fees	38.13	41.13	115.01	68.16
School-generated revenue	7.21	8.20	41.25	20.38
Other	2.63	4.33	7.88	5.23
Of which:				
Wages	250.79	294.71	302.03	286.26
Operating expenses	42.71	49.17	171.93	93.70

Source: Gansu Survey of Children and Families, 2000

**Table 9**  
**Elasticities of Gansu Primary School Expenditures and Revenues Per Student with Respect to Village Income Per Capita, Year 2000**

Dependent Variables		All	Within-county	Between-county
Linear	Admin. exp. per student	0.336***	-0.048	0.669***
	Government spending	0.249***	-0.098	0.549***
	Collective and community	0.747**	-0.460	1.794***
	Student fees	0.283	0.287	0.280
	School-generated revenue	1.252***	-0.178	2.49***
	Other	0.880**	0.776	0.971*
	Wages	0.238***	-0.093	0.525***
	Operating expenses	0.715***	0.128	1.224***
Logs	Admin. exp. per student	0.314***	-0.079	0.601***
	Government spending	0.249***	-0.020	0.490***
	Wages	0.213**	-0.147	0.481***
	Operating expenses	0.729***	0.201	1.130***

Notes: \*, \*\*, and \*\*\* denote that coefficient is statistically significant at the 10, 5, and 1 percent significance levels. For linear specifications, elasticities are calculated at sample means.

**Table 10**  
**Gansu Primary School Quality Indicators and Village Income Per Capita**

	All	Within-county	Between-county
% of qualified teachers	0.0066***	0.0040	0.0089***
% of dilapidated classrooms	-0.0199***	-0.0149**	-0.0236***
% of students with desks/chairs	0.0117	-0.0123	0.0326***

Note: \*\*, and \*\*\* denote that coefficient is statistically significant at the 5 and 1 percent significance levels. Estimation for % of dilapidated classrooms and % of students with desks and chairs are estimated using a Tobit model.