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The Determinants of Intergovernmental Transfer in China

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I. Introduction

There has been an increasing interest on the intergovernmental transfer system in China in recent years, among other issues. Nonetheless, compared with other aspects of the economy, intergovernmental transfer system is one of the few topics receiving relatively less attention, partly owing to the unavailability of the data.

Literatures on transfer system in China mainly dwelt on the role of transfers in achieving the objective of equalization across localities (Martinez and Zhang, 2002; Persson and Eriksson, 2005); and whether different layers of sub-national government structures enforce or offset the goal of the central governments (Bahl and Wallace, 2002; Martinez and Timofeev, 2006). The question we are interested in is, what factors determine how much transfers each locality receives? In another word, what criteria does the central government or higher level government follow in allocating transfers to lower level government? Are those Nationally Designated Poverty Counties (NDPCs) receiving transfers based on factors different from those for non-NDPCs?[1]

Not until recently the literature started to explore the transfer system in this direction. However, the limited researches seem to put the emphasis on the political factors instead of economic factors. For example, Persson and Eriksson (2005) owe the trend of transfers becoming equalized to the desire of central government to equalize the income disparity in order to achieve social stability. Wang (2005) also sees the transfers as tools available to Chinese politicians to please their constituents or to neutralize potential threats.[2]

However, besides the political concerns, the economic conditions should also play very important roles, usually more significant than the political ones. Especially China has been adopting the market economy mechanism, and the relevant reforms conducted in various sectors, including the fiscal relations have put more and more emphasis on economic aspects instead of political aspects. That's why it is comparative to analyze the determinants of transfers in China from the economic perspective.

Most of the literature on transfer system in China has been restricted to the provincial data, mainly due to the data availability. Now with our dataset, we are able to extend the analysis to county level in 1997-2003. We are hoping that the county level dataset could facilitate us to capture more of the variations in transfers across counties, and explain the determinants of the transfer allocations or actual transfers with more precision.

Our empirical results show that, the total effect of the transfer is not equalizing, even though the transfer without the tax rebate is equalizing. The effects of the tax rebate, which is pro-rich, is dominating,. Even though china has set up the objective of equalization, the actual policy consequence shows the objective has not been fulfilled.

This paper is constructed in the following way. In the next section, we review the economics behind the

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[1] There are now 591 nationally designated poverty counties, based on the income level, status, and etc. Supposedly the center implements special fiscal policies towards these counties, in terms of more transfers and others.
[2] Traisman (1996) also explains the intergovernmental transfers in Russia by political factors (see Traisman, D., 1996. The politics of intergovernmental transfers in post-Soviet Russia. British Journal of Political Science 26, 299-335)

intergovernmental transfer: why higher level governments make transfers to lower level governments. Our special focus is on the transfer system in China: how it evolved over year and what are included in the current transfer system. In section III, we conduct empirical analysis, using our county-level dataset to examine how the transfers are allocated to each county. We do this using the total transfer as well as differentiating between the two broad categories of transfers. In section IV, we first divide our sample into two subgroups, NDPCs and non-NDPCs and see how things change between these two. Then we divide the whole sample into urban counties and rural counties. Finally we draw our conclusion.

II. Economics of Transfer and Transfer system in China

In countries with multiple level of governments, intergovernmental transfers have been one of the important instruments for higher level governments to correct for the horizontal and vertical imbalances among local governments. Local governments, due to the difference in their natural endowments, economic conditions as well as demographic characteristics, would have different capacities in raising revenues and also differ in their public expenditure needs. This would inevitably result in horizontal imbalance in the need and capabilities. The assignments in revenues and expenditures could possibly put more responsibilities on lower level governments without giving them enough revenue sources, which would lead to vertical imbalance. Intergovernmental transfers from higher level government to lower level governments can mitigate both of these imbalances. Of course, when local governments are reluctant to provide some public services at adequate level due to the spillovers of the benefits, central government can correct this by issuing some kind of transfers. Or, when local governments implement some national programs on behalf of the central governments, the latter should at least provide fund in terms of intergovernmental transfers.

Intergovernmental transfers are present in almost all the counties. And depending on whether or not the transfers have specified purposes, usually transfers can be classified into two broad categories: conditional and unconditional. There are many types of transfers in China, generally can be fitted in these two categories.

The intergovernmental transfer system in China has been criticized for its lack of transparency, ad hoc, and discretionary instead of rule-based. In the presence of the huge disparities across regions and the mismatch between expenditure responsibilities and revenue sources, transfers have taken on very important roles in intergovernmental relations in China over the years. Local governments, especially those in poor regions, become relying on transfers from higher level governments more and more. From the following charts, we can see that local governments spend more than twice of that of the central government in most of the years.

Division of Expenditure Responsibilities for Central and Local Governments in China
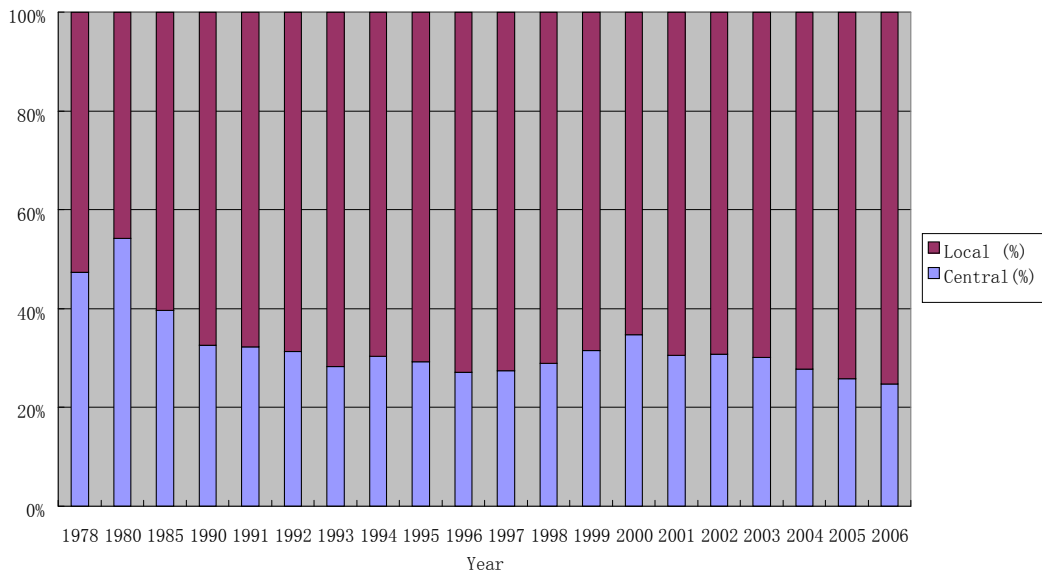
While when looking at the revenue allocation, we can find out that the center is taking up higher and higher shares in total revenue and leaving less and less to local governments, especially after 1994 tax reform. With such low revenue shares while being responsible for more public services, intergovernmental transfers are certainly in great need.

Division of Revenue between Central and Local Governments in China
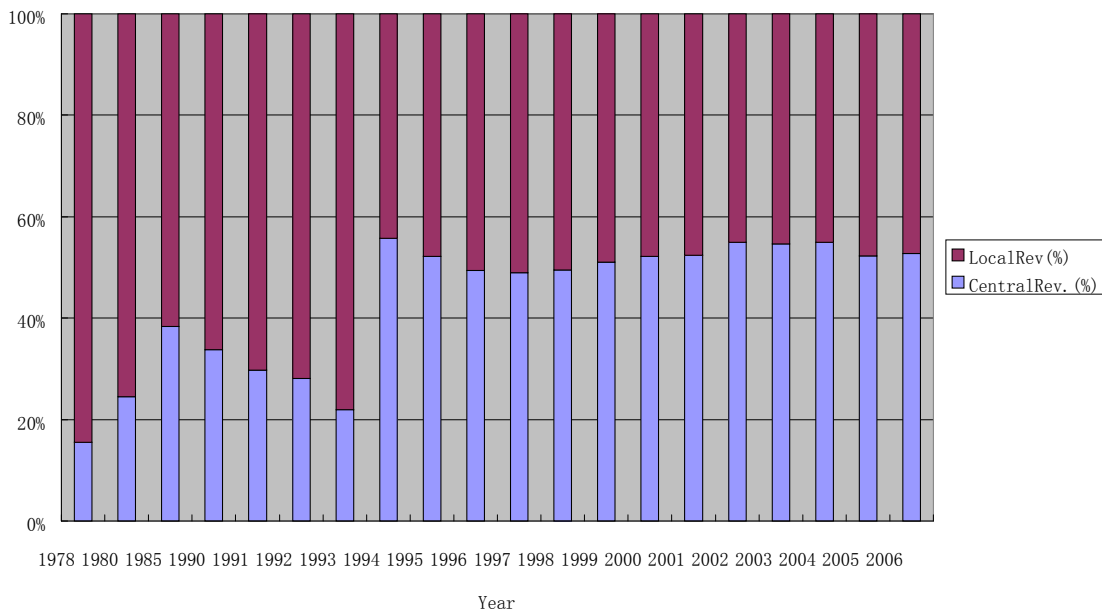
Currently there are many types of transfers in China. Even though they can be grouped into either conditional or unconditional, they have specific names and are generally for different purposes. According to the classification of the Ministry of Finance (MOF) in China, there are four major categories: tax rebates,

institutional transfers, equalization purpose transfers and special transfers.3 There are some subcategories in each of those. For example, equalization purpose transfers include general-purpose transfer, transfer for minority regions, transfer for wage adjustments for civil servants, transfers for agricultural tax reform, etc. Only from these names, it is obvious that most of these have specific purposes. Basically only general-purpose transfer is an unconditional one. But all of these are either to address the vertical imbalance or to help poor regions, and can be roughly grouped into transfers for equalization purpose. For our goal of looking at the equalization effects, we divide the total transfers into only two parts, one is tax rebates, and the other is equalization transfers, which include the equalization purpose transfer and also the remaining two categories.

Tax rebates started from the 1994 tax reform, when the central governments wanted to give incentive to local governments so that they would accept the tax reform. It guaranteed the interests of local governments as of 1993 intact, and was basically the compromise of interests of the center and the local governments. In other words, local governments can at least keep their interests after the 1994 tax reform.4 Therefore, it is pro-rich at the beginning: rich provinces would obtain more in tax rebate while poor provinces would obtain less tax rebates. The institutional transfers and the special transfers are not always for equalization purposes, and including these two parts in our equalization transfer class would undoubtedly exaggerate the extent of equalization outcomes of the transfer system. Nonetheless, even with this inflated equalization transfers, we can see that it still can not outweigh the effects of the tax rebates. As illustrated from the following chart, until 2004, even though the share has been decreasing over years, tax rebate has been taking on the highest share in total transfers.

Transfer Categories over Years

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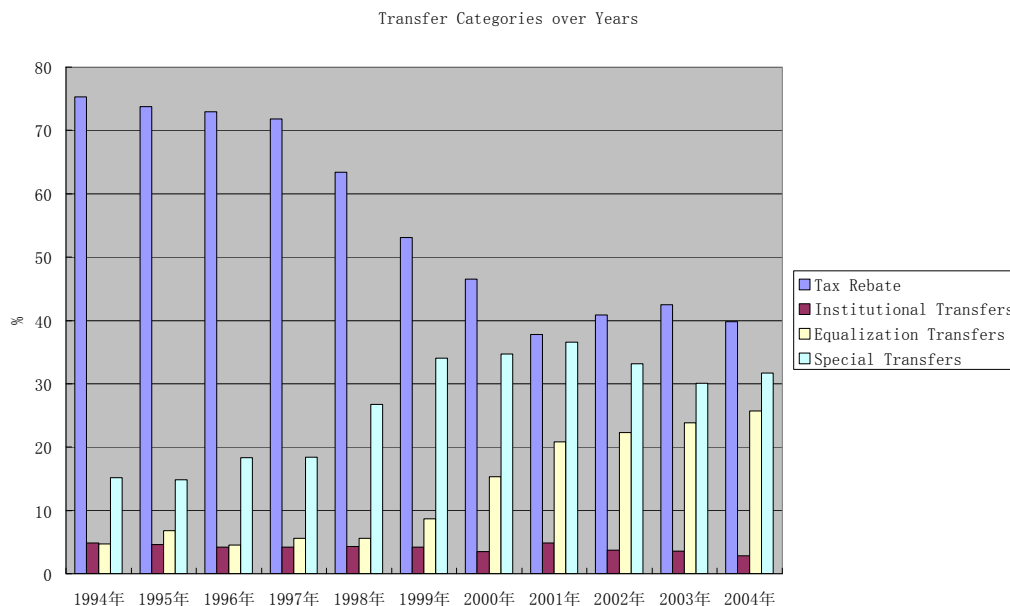
3 According to the international definition, tax sharing is part of the intergovernmental transfer. However, the definition adopted by the Chinese government usually does not include the tax sharing. We in this paper follow the Chinese definition thereafter.
4 There is detailed explanation of the history as well as formula for tax rebates in Zhang and Martinez (2002).

III. The Economic Factors Determining Transfers in Chinese Counties

We conduct our empirical analysis based on the sum of all categories of transfers, and also divide it into tax rebate and all other transfers, mostly for the purpose of equalization.[5] We conduct fixed-effects regressions, and the results are in the following table (see Table 1). From this table we can see that, for all other transfers, the higher the per capita GDP level, the lower the per capita transfers a county gets. However, the higher the per capita GDP, the higher the tax rebates. For total transfers, the relationship is again positive, which means the effects of the tax rebate dominant the effects of the equalization transfers. All results are highly significant.

Similarly, we can see this from another variable, the own revenue in per capita term: the coefficients are positive for both tax rebates and the total transfer, but negative for equalization transfers; with all results are significant at 1% level. The amounts of per capita equalization transfers counties get are negatively correlated with per capita own revenue, while the per capita own revenue is positively correlated with the tax rebates in per capita term. Sum up these two counteracting forces, the effects of tax rebates are again dominant.

On the contrary, when we look at the lag of per capita expenditure, things are reversed. The lag of per capita expenditure is positively correlated with transfers whether or not we take into consideration of the tax rebates: the higher the expenditure in last period, significantly the higher the transfers are allocated to the county this period. However, when it comes to tax rebates in per capita term, the relationship becomes negative and significant. Since the tax rebates are calculated based on the formula we denoted above, this negative relationship shouldn't be interpreted as the lower the expenditure last year, the higher the rebate this year.

In addition, the population variable has negative sign except for rebates, but none of them is significant. However, the share of rural population in total is positive and significant for equalization transfers, meaning that the higher the proportion of rural population, the more equalization transfers are allocated. This confirms that equalization transfers are pro-poor. But the effects are not present in the case of tax rebates; in regression (4) the sign even becomes negative. Fortunately, this time the pro-poor feature from the equalization transfer is dominant since for total transfers, the rural population share is again positive and significant.

From the time dummies, we can see the amounts of the equalization transfer and total transfer are both increasing over years, while the tax rebate did not exhibit increasing trend until 2002.

Table 1 Transfers results for the whole sample

	(1)	(2)	(3)	(4)	(5)	(6)
All in Per Capita Term	Equalization Transfer	Equalization Transfer	Tax Rebate	Tax Rebate	Total Transfer	Total Transfer
Per Capita GDP	-0.001	-0.001	0.007	0.006	0.006	0.006
	(2.21)**	(2.75)***	(46.61)***	(44.54)***	(19.54)***	(17.90)***
Population	-0.221	-0.220	0.045	0.115	-0.176	-0.106
	(1.54)	(1.57)	(0.63)	(1.64)	(1.13)	(0.69)

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[5] For this reason, we use "equalization transfers" for all other transfers without tax rebates.

Lag of Per capita Exp	0.241	0.244	-0.019	-0.011	0.221	0.233
	(39.91)***	(40.15)***	(6.27)***	(3.70)***	(33.73)***	(35.37)***
Share of Rural Population	1.323	1.214	0.090	-0.129	1.412	1.086
	(4.68)***	(4.29)***	(0.63)	(0.91)	(4.59)***	(3.54)***
Share of Public Employee/Pop		591.989		1,428.969		2,020.958
		(3.89)***		(18.90)***		(12.27)***
Per Capita Own Revenue	-0.035	-0.039	0.172	0.164	0.137	0.126
	(5.28)***	(5.75)***	(51.16)***	(49.14)***	(18.83)***	(17.24)***
y98	-231.754	-232.098	-19.486	-20.802	-251.241	-252.900
	(44.54)***	(44.65)***	(7.43)***	(8.05)***	(44.32)***	(44.92)***
y99	-207.597	-205.218	-24.435	-20.173	-232.032	-225.391
	(41.64)***	(41.24)***	(9.72)***	(8.16)***	(42.72)***	(41.82)***
y00	-160.795	-159.270	-27.493	-24.621	-188.288	-183.891
	(33.65)***	(33.34)***	(11.41)***	(10.37)***	(36.17)***	(35.54)***
y01	-78.004	-76.811	-36.732	-34.464	-114.737	-111.275
	(16.96)***	(16.70)***	(15.84)***	(15.08)***	(22.90)***	(22.34)***
y02	-29.098	-28.795	4.315	4.794	-24.783	-24.001
	(6.72)***	(6.66)***	(1.98)**	(2.23)**	(5.26)***	(5.12)***
Fiscal Dependents Total	-0.000		0.001		0.000	
	(0.65)		(2.03)**		(0.35)	
Constant	174.474	159.247	3.802	-22.236	178.276	137.010
	(7.32)***	(6.72)***	(0.32)	(1.89)*	(6.86)***	(5.34)***
Observations	14433	14433	14433	14433	14433	14433
Number of ID	2703	2703	2703	2703	2703	2703
R-squared	0.45	0.45	0.46	0.48	0.52	0.53

Therefore, from the results of our regressions, the central government does try to engage in the equalization efforts, as exemplified by the equalization transfers. However, due to the existence of the tax rebates, this equalization effort has been more than offset. The overall effect of the transfer system becomes pro-rich. The objective of the policy has not been fulfilled.

III. Extension

(1) The Transfers to NDPCs and non-NDPCs

In this section, we divide the whole sample into two sub-groups: the Nationally Designated Poverty Counties (NDPCs) and those non-NDPCs. We run the regressions separately for these two groups and the results are in the following Table 2.

From this table we can see that, for NDPCs, things are significantly different from the case with the whole sample. First, the per capita GDP doesn't exhibit any systematic relationship to the two parts of transfers as well as the total transfer. The signs of the coefficients of the equalization transfers and tax rebates are the same as in the whole sample; however, the sum of the two effects takes the sign of the equalization transfers instead of the tax rebates, which means the former dominant in the case of the NDPCs. The share of rural population also shows the effects of the equalization transfers overrule that of the tax rebates. In addition, the lower the per capita own revenue, the higher the share of rural population, the more transfers an NDPC county gets.

For non-NDPCs, things are almost the same as in the whole sample, except for the share of rural population in total population. Here significantly higher tax rebates go to non-NDPCs with lower rural population shares. This relationship is so strong that it outweighs the positive and significant relationship between rural population share and the equalization transfers, therefore the positive and significant results shown for the whole sample as in NDPCs case don't replicate here.

Therefore, our results show that the central government does try to implement different policies for the NDPCs, making transfers more pro-poor. However, since China has only 590 NDPCs nationwide, only taking up 20% of the total number of counties, the overall effects become pro-rich instead.[6]

Table 2 Results for NDPCs and Non-NDPCs

	(1)	(2)	(3)	(4)	(5)	(6)
	NDPCs			Non-NDPCs		
	Total	Equalization	Rebate	Total	Equalization	Rebate
Per Capita GDP	0.001	0.001	0.000	0.005	-0.001	0.006
	(0.83)	(0.67)	(0.83)	(16.40)***	(2.40)**	(37.92)***
Population	-0.120	-0.105	-0.014	-0.122	-0.255	0.132
	(0.66)	(0.58)	(0.43)	(0.66)	(1.51)	(1.45)
Lag of Per capita Exp	0.862	0.845	0.017	0.208	0.215	-0.007
	(51.42)***	(49.83)***	(5.41)***	(29.01)***	(32.89)***	(1.95)*
Share of Rural Population	2.076	2.145	-0.069	0.367	0.823	-0.456
	(4.97)***	(5.07)***	(0.89)	(1.03)	(2.54)**	(2.61)***
Share of Public Employee/Pop	-35.172	-61.411	26.238	2,018.946	533.217	1,485.729
	(0.15)	(0.26)	(0.60)	(10.70)***	(3.10)***	(16.05)***
Per Capita Own Revenue	-0.518	-0.640	0.122	0.142	-0.019	0.161
	(10.79)***	(13.19)***	(13.79)***	(18.19)***	(2.75)***	(42.20)***

[6] Not only in terms of numbers the NDPCs only take up one fifth of the total counties, but also these poor counties are much less important in terms of overall economics conditions compared with those non-NDPCs.

y98	-115.837	-106.972	-8.866	0.000	0.000	0.000
	(14.12)***	(12.89)***	(5.84)***	(.)	(.)	(.)
y99	-130.471	-119.324	-11.146	31.702	32.136	-0.435
	(16.95)***	(15.32)***	(7.82)***	(5.11)***	(5.69)***	(0.14)
y00	-67.302	-55.315	-11.988	61.835	67.376	-5.540
	(9.19)***	(7.46)***	(8.84)***	(10.07)***	(12.05)***	(1.84)*
y01	27.329	40.399	-13.070	119.504	136.934	-17.430
	(4.06)***	(5.93)***	(10.49)***	(19.23)***	(24.19)***	(5.72)***
y02	9.755	8.366	1.389	215.272	186.391	28.881
	(1.67)*	(1.42)	(1.29)	(33.76)***	(32.08)***	(9.24)***
y03	0.000	0.000	0.000	240.441	217.072	23.369
	(.)	(.)	(.)	(35.66)***	(35.33)***	(7.07)***
Constant	-66.645	-90.952	24.307	-67.004	-44.273	-22.732
	(1.72)*	(2.33)**	(3.40)***	(2.30)**	(1.67)*	(1.59)
Observations	3326	3326	3326	11268	11268	11268
Number of ID	590	590	590	2124	2124	2124
R-squared	0.81	0.79	0.30	0.50	0.39	0.48

(2) The Transfers to Rural Counties vs. Urban Counties

In this section, we divide the whole sample into rural counties and urban counties. The criterion we use is the share of rural population over total population at 85%: if rural population over total population exceeds 85%, we denote the county a rural county; if the share is lower or equal to 85%, we denote it an urban county. We run the regressions separately for the rural counties and urban cities and the results are in the following table.[7]

We can see from Table 3 that for urban counties, things are almost the same as for the whole sample. However, for rural counties, we can see from per capita GDP that the total transfer has the same sign as that of the equalization transfer, which means it is pro-poor, instead of the sign of tax rebate, which is pro-rich.

Table 3 Results for Rural Counties and Urban Counties

	(1)	(2)	(3)	(4)	(5)	(6)
	Rural Counties			Urban Counties		
	Total	Equalization	Rebate	Total	Equalization	Rebate
Per Capita GDP	-0.004	-0.007	0.003	0.004	0.001	0.003
	(3.77)***	(7.11)***	(15.99)***	(11.02)***	(1.88)*	(17.09)***
Population	-3.420	-2.605	-0.816	0.198	-0.339	0.537
	(2.85)***	(2.16)**	(3.24)***	(0.73)	(1.42)	(3.62)***
Lag of Per capita	0.547	0.510	0.037	0.199	0.222	-0.023

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[7] We choose this 85% as our criterion due to the special situations in China, even though it is high.

Exp						
	(30.16)***	(28.04)***	(9.70)***	(27.34)***	(34.60)***	(5.86)***
Share of Rural Population	1.123	1.132	-0.009	0.631	0.208	0.423
	(0.68)	(0.69)	(0.03)	(1.42)	(0.53)	(1.74)*
Share of Public Employee/Pop	-729.463	-798.691	69.228	6,542.811	3,183.153	3,359.658
	(3.43)***	(3.75)***	(1.55)	(22.93)***	(12.63)***	(21.49)***
Per Capita Own Revenue	0.014	-0.004	0.018	0.149	-0.123	0.272
	(1.42)	(0.40)	(8.65)***	(14.20)***	(13.24)***	(47.26)***
y99	7.688	10.880	-3.191	37.112	37.140	-0.028
	(1.13)	(1.59)	(2.23)**	(5.16)***	(5.85)***	(0.01)
y00	50.675	55.290	-4.615	72.356	78.294	-5.938
	(7.36)***	(8.01)***	(3.19)***	(10.18)***	(12.48)***	(1.53)
y01	114.774	122.782	-8.009	147.822	167.297	-19.475
	(15.79)***	(16.85)***	(5.25)***	(20.78)***	(26.63)***	(5.00)***
y02	165.832	151.397	14.436	239.957	210.847	29.110
	(20.81)***	(18.94)***	(8.63)***	(32.84)***	(32.68)***	(7.27)***
y03	176.719	163.516	13.203	264.585	244.399	20.186
	(19.83)***	(18.29)***	(7.05)***	(34.31)***	(35.90)***	(4.78)***
Constant	94.001	41.042	52.959	-224.839	-62.499	-162.340
	(0.58)	(0.25)	(1.55)	(6.59)***	(2.07)**	(8.68)***
Observations	6357	6357	6357	8076	8076	8076
Number of ID	1385	1385	1385	1769	1769	1769
R-squared	0.50	0.45	0.25	0.59	0.48	0.58

(3) The Impact of Rural Tax-for-Fee Reform

Another issue we are interested in is the impact of the rural Tax-for-Fee reform on the components of transfers. The reform initiated in Anhui province in 1999 and extended to all other provinces in 2002 and has been the most profound reform since the tax sharing reform in 1994. The objective of the reform is to alleviate the farmers' heavy burdens, reducing and finally eliminating the agriculture related taxes. In order to capture this impact, we use a dummy variable, which takes the value of 1 when a specific region starts the rural reform in that year, 0 otherwise. When the value of the transfer for rural reform is greater than zero in a region in a certain year, we take it to mean that the reform started in this region, and therefore the dummy takes the value of 1. We don't have the complete list of when and where the reform started and extended. We use the presence of a special form of transfer as a criterion: the transfer for rural reform.[8] We also include the impact of rural

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[8] In Anhui province where the reform initiated as early as in 1999, there were no such transfers before 2002, when the reform was broadened to many other provinces. We have a list of counties where the experiment was first

reform, constructed by interacting share of rural population in total population with the reform dummy in some of the specifications, in order to look at the impacts of the reform on the rural population.

First we look at the whole sample in Table 4 below. As we can see from this table, in general the results have had little changes compared with the results without the reform dummies. The total transfer is pro-rich even though the equalization is pro-poor. For the first three regressions, when the impact measure is not included, we can see from the coefficients on reform dummy that the impact of reform on equalization transfer is positive and significant, while negative and significant for the tax rebate. These counteracting components make the impact of the reform negative but insignificant on the total transfer. But in the three regressions (4) through (6), when the impact of reform on rural population is included, the reform dummy in general becomes negative and significant both for tax rebate and total transfer, while the impact on rural population is significantly positive for the equalization transfer as well as the total transfer.

Table 4 the Impact of Tax-for-Fee Reform for Different Components of Transfers
(All observations included)

	(1)	(2)	(3)	(4)	(5)	(6)
	Total	Equalization	Rebate	Total	Equalization	Rebate
Per Capita GDP	0.006	-0.001	0.006	0.006	-0.001	0.006
	(17.88)***	(2.70)***	(44.66)***	(17.99)***	(2.54)**	(44.58)***
Population	-0.108	-0.214	0.106	-0.111	-0.217	0.106
	(0.71)	(1.52)	(1.52)	(0.73)	(1.54)	(1.52)
Lag of Per capita Exp	0.232	0.246	-0.014	0.232	0.246	-0.014
	(35.14)***	(40.40)***	(4.67)***	(35.16)***	(40.42)***	(4.67)***
Share of Rural Population	1.087	1.211	-0.125	0.993	1.112	-0.119
	(3.54)***	(4.28)***	(0.89)	(3.22)***	(3.90)***	(0.85)
Share of Public Employee/Pop	2,028.516	571.847	1,456.668	2,033.910	577.542	1,456.367
	(12.31)***	(3.76)***	(19.37)***	(12.34)***	(3.80)***	(19.37)***
Per Capita Own Revenue	0.124	-0.036	0.160	0.125	-0.036	0.160
	(17.02)***	(5.32)***	(48.07)***	(17.07)***	(5.27)***	(48.06)***
Reform Dummy	-11.873	31.642	-43.516	-35.962	6.208	-42.170
	(1.49)	(4.30)***	(11.95)***	(2.93)***	(0.55)	(7.53)***
Impact of Reform				31.350	33.101	-1.751
				(2.58)***	(2.96)***	(0.32)

conducted in 1999, and since it was extended to the whole province in 2000, we let the dummy take the value of 1 for all the counties in Anhui in 2000 and 2001. This way of constructing the dummy may not be precisely accurate, however, this is the best we could do with the current information and it should serve our purpose.

y98	-264.556	-201.035	-63.521	-264.558	-201.037	-63.521
	(27.41)***	(22.58)***	(14.43)***	(27.42)***	(22.59)***	(14.43)***
y99	-236.997	-174.287	-62.710	-237.040	-174.332	-62.708
	(24.99)***	(19.92)***	(14.49)***	(25.00)***	(19.93)***	(14.49)***
y00	-195.436	-128.502	-66.934	-196.512	-129.638	-66.873
	(20.95)***	(14.93)***	(15.73)***	(21.05)***	(15.05)***	(15.70)***
y01	-122.713	-46.330	-76.383	-123.994	-47.682	-76.312
	(13.39)***	(5.48)***	(18.27)***	(13.51)***	(5.63)***	(18.23)***
y02	-25.871	-23.811	-2.061	-26.293	-24.255	-2.037
	(5.33)***	(5.32)***	(0.93)	(5.42)***	(5.42)***	(0.92)
Constant	148.905	127.547	21.358	155.954	134.990	20.964
	(5.54)***	(5.15)***	(1.74)*	(5.78)***	(5.42)***	(1.70)*
Observations	14433	14433	14433	14433	14433	14433
Number of ID	2703	2703	2703	2703	2703	2703
R-squared	0.53	0.45	0.49	0.53	0.45	0.49

We also try to investigate the difference of impacts on urban counties and rural counties, following what we did in Table 3 previously, except now the reform dummy is included. The results are in Table 5-1.

Table 5-1 Different Impacts on Urban and Rural Counties

	Urban Counties			Rural Counties		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total	Equal	Rebate	Total	Equal	Rebate
Per Capita GDP	0.004	0.001	0.003	-0.004	-0.007	0.003
	(11.12)***	(1.84)*	(17.43)***	(3.80)***	(7.11)***	(15.90)***
Population	0.194	-0.320	0.514	-3.464	-2.639	-0.826
	(0.72)	(1.34)	(3.49)***	(2.89)***	(2.19)**	(3.28)***
Lag of Per capita Exp	0.198	0.224	-0.026	0.542	0.506	0.036
	(27.16)***	(34.80)***	(6.48)***	(29.79)***	(27.73)***	(9.39)***
Share of Rural Population	0.544	0.124	0.420	1.032	1.045	-0.013
	(1.22)	(0.31)	(1.73)*	(0.63)	(0.63)	(0.04)
Share of Public Employee/Pop	6,561.944	3,148.614	3,413.330	-720.656	-795.453	74.796
	(22.98)***	(12.50)***	(21.93)***	(3.39)***	(3.73)***	(1.68)*
Per Capita Own Revenue	0.147	-0.117	0.265	0.014	-0.003	0.018
	(13.84)***	(12.50)***	(45.63)***	(1.46)	(0.35)	(8.64)***

Reform Dummy	-31.320	7.807	-39.128	-69.944	-44.789	-25.155
	(2.15)**	(0.61)	(4.92)***	(2.75)***	(1.76)*	(4.73)***
Impact of Reform	29.342	36.540	-7.198	57.017	43.401	13.617
	(1.71)*	(2.42)**	(0.77)	(2.57)**	(1.95)*	(2.93)***
y99	37.106	36.896	0.210	7.728	10.914	-3.186
	(5.16)***	(5.82)***	(0.05)	(1.13)	(1.60)	(2.23)**
y00	71.745	76.999	-5.254	48.920	53.943	-5.022
	(10.08)***	(12.26)***	(1.35)	(7.07)***	(7.78)***	(3.47)***
y01	147.384	165.781	-18.397	113.103	121.485	-8.382
	(20.68)***	(26.37)***	(4.73)***	(15.51)***	(16.60)***	(5.49)***
y02	249.232	186.138	63.094	183.009	157.086	25.923
	(23.52)***	(19.92)***	(10.92)***	(13.31)***	(11.39)***	(9.00)***
y03	276.787	213.555	63.232	195.542	169.796	25.746
	(22.29)***	(19.50)***	(9.34)***	(12.93)***	(11.19)***	(8.12)***
Constant	-219.017	-58.337	-160.680	105.347	51.319	54.028
	(6.39)***	(1.93)*	(8.61)***	(0.65)	(0.32)	(1.59)
Observations	8076	8076	8076	6357	6357	6357
Number of ID	1769	1769	1769	1385	1385	1385
R-squared	0.59	0.48	0.59	0.50	0.45	0.26

These results show that the impact of the tax reform is significantly negative on equalization transfer, tax rebate and total transfer for rural counties. It also negatively affects tax rebate and total transfer for urban counties, but not on equalization transfers. When the interaction of reform dummy and rural population share is included, the impact on rural population generally shows positive and significant effects except for the tax rebate for urban counties, which is negative but insignificant. These results seem to suggest that the tax reform negatively affect the transfers received by counties where rural tax reform is implemented in relative term, but the impacts on the counties with higher rural population share are relatively smaller. The results conform to the reality since the center allocates more transfers for the rural reform to compensate for the loss in agriculture taxes. Counties with higher rural population share suffer from higher loss in agriculture taxes, and therefore they are entitled to higher transfers in compensation.

Table 5-2 Different Impacts on Urban and Rural Counties (W/o Impact)

	Urban Counties			Rural Counties		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total	Equal	Rebate	Total	Equal	Rebate
Per Capita GDP	0.004	0.001	0.003	-0.004	-0.007	0.003
	(11.07)***	(1.75)*	(17.48)***	(3.80)***	(7.11)***	(15.89)***

Population	0.191	-0.324	0.515	-3.419	-2.604	-0.815
	(0.71)	(1.36)	(3.50)***	(2.85)***	(2.16)**	(3.24)***
Lag of Per capita Exp	0.198	0.224	-0.026	0.547	0.510	0.037
	(27.16)***	(34.79)***	(6.48)***	(30.16)***	(28.04)***	(9.70)***
Share of Rural Population	0.624	0.224	0.401	1.151	1.135	0.016
	(1.41)	(0.57)	(1.66)*	(0.70)	(0.69)	(0.05)
Share of Public Employee/Pop	6,558.912	3,144.839	3,414.073	-724.028	-798.019	73.991
	(22.96)***	(12.48)***	(21.93)***	(3.41)***	(3.74)***	(1.66)*
Per Capita Own Revenue	0.147	-0.118	0.265	0.014	-0.004	0.018
	(13.82)***	(12.53)***	(45.64)***	(1.39)	(0.40)	(8.56)***
Reform Dummy	-12.914	30.730	-43.643	-13.256	-1.639	-11.617
	(1.31)	(3.52)***	(8.09)***	(1.05)	(0.13)	(4.40)***
y99	37.177	36.985	0.192	7.682	10.879	-3.197
	(5.17)***	(5.83)***	(0.05)	(1.13)	(1.59)	(2.24)**
y00	72.503	77.943	-5.440	50.694	55.293	-4.599
	(10.20)***	(12.43)***	(1.40)	(7.36)***	(8.01)***	(3.19)***
y01	148.089	166.660	-18.570	114.814	122.787	-7.974
	(20.81)***	(26.54)***	(4.79)***	(15.80)***	(16.85)***	(5.24)***
y02	249.960	187.044	62.916	177.417	152.829	24.588
	(23.61)***	(20.02)***	(10.90)***	(13.06)***	(11.22)***	(8.64)***
y03	277.285	214.176	63.110	189.341	165.076	24.265
	(22.33)***	(19.55)***	(9.33)***	(12.67)***	(11.02)***	(7.75)***
Constant	-223.987	-64.526	-159.461	91.428	40.724	50.704
	(6.56)***	(2.14)**	(8.57)***	(0.56)	(0.25)	(1.49)
Observations	8076	8076	8076	6357	6357	6357
Number of ID	1769	1769	1769	1385	1385	1385
R-squared	0.59	0.48	0.59	0.50	0.45	0.25

(Alternatively, if we don't include the interaction term, the results are in Table 5-2. We can see that the reform dummy is insignificant for total transfer to urban counties, even though it is significantly positive on equalization transfers and negative on tax rebate, same as in the case for the whole sample. While for rural counties, even the impacts are negative in all three regressions, only the tax rebate has significant result.)

Why does the rural Tax-for-Fee reform have such negative impacts on transfers, and even more significant for rural counties? One possible explanation lies in the relationship between different layers of governments in China. The data we are using are county level data. It's possible that the higher level government, be that

provincial governments or even prefecture governments, under the pressure from the central government to implement the rural tax reform and ensure the special transfers for tax reform, reduce the amount of other part of transfer to the counties.

IV. Conclusions

The total transfer is pro-rich; however, it is due to the effects of the tax rebate. If we look at the equalization transfer, we can see that this part of transfer is indeed trying to equalize, especially for the poor areas and rural areas.

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