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Fiscal Decentralization and Economic Growth,  
Evidence from Chinese Prefectures

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Li Zhang

China Academy of Public Finance and Public Policy, CUFPE  
Peking University – Lincoln Center

Xinye Zheng

School of Economics, Renmin University of China  
Peking University – Lincoln Center

Quan Zhang

School of Economics, Renmin University of China  
Peking University – Lincoln Center

Leo KoGuan Building, Suite 508, Peking University, Beijing 100871, China

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**Fiscal Decentralization and Economic Growth,  
Evidence from Chinese Prefectures**

Li Zhang

zhangl@cufe.edu.cn

China Academy of Public Finance and Public Policy, CUFU

PKU-Lincoln Center

Xinye Zheng

zhengxinye@ruc.edu.cn

School of Economics, Renmin University of China

PKU-Lincoln Center

Quan Zhang

quanzh@ruc.edu.cn

School of Economics, Renmin University of China

PKU-Lincoln Center

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## **Abstract**

In the vast literature of fiscal decentralization, many studies have tried to test empirically the relationship between fiscal decentralization and economic growth. With different measurements of fiscal decentralization and data sets, the studies seem inconclusive on that. Our study takes prefecture level governments in China, one of the important decision making agents as our targets. Our empirical results show that, more fiscal resources allocated to sub-prefecture level governments would contribute negatively to economic growth. Centralization instead of decentralization of fiscal resources to the prefecture level governments is preferred for economic growth. From this aspect, we argue that removing prefecture level governments is not a sensible choice for the sake of economic growth.

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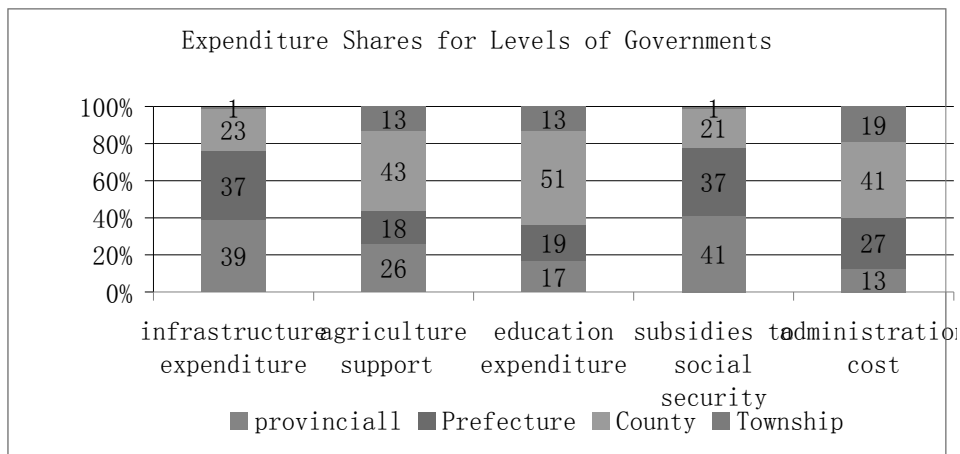
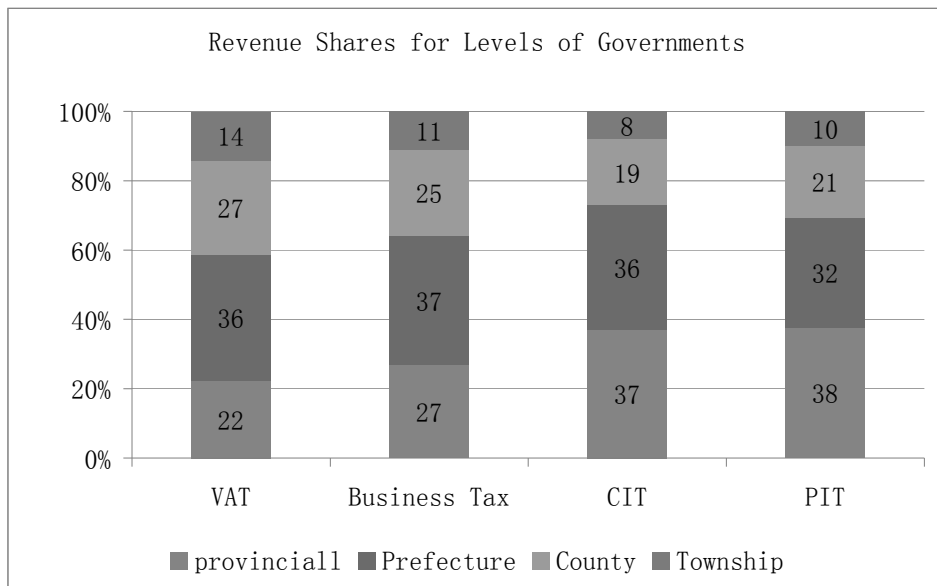
## **Introduction**

In the hierarchical structure of political system in China, there are five different layers of governments: the center, provinces, prefectures, counties and townships. Each level of government is composed of a whole set of public agencies and service departments. The tremendous public sector necessarily entails huge economic resources, even to support public employees in these many layers of governments. The big outlays in public administration, the corruptions and bureaucracies, the problems inherent in the coordination between different layers of governments, make some scholars and policy makers think it imperative to reduce layers of governments. There have been heated debate on whether or not layers of governments should be reduced and if yes, which level should be chosen. Prefecture level of governments has been the target for some time. In order to evaluate the legitimacy of eliminating prefecture level governments, we need to balance the benefits against the costs of doing so. Our empirical results show that, the centralization of fiscal resource at the prefecture level governments is conducive to local economic growth. Therefore, at least for the sake of economic growth, removing prefecture level governments might not be a sensible choice.

In the middle of the five-layer hierarchy, the centralization of economic resource from county

and lower level government to the prefecture governments can also be interpreted as the decentralization of resources from prefecture governments to the counties and townships. Therefore, we are going to conduct our analysis in the context of fiscal decentralization. Our study is the first to exploit prefecture level data in fiscal decentralization literature in China. Looking at the relationship between fiscal decentralization and economic growth with prefecture level data in China would have the advantages of mitigating the heterogeneity with cross country data.

In addition, as an important decision making government, prefecture level governments are in charge of important resources. In another word, significant economic resources are concentrated at the prefecture level governments. As illustrated by the following two charts, prefecture level governments are collecting significant revenue sources and taking important responsibilities in providing public services.



Our paper is organized into five sections. In the following section, we review the literature on

fiscal decentralization, and also the relationship between fiscal decentralization and economic growth. Then we pay a closer look at the measurements of fiscal decentralization in the literature, with special focus on the measures used in previous studies on fiscal decentralization in China. In section four, we introduce our data and methodology, and our empirical results are presented. We draw the conclusions in the last section.

## **Fiscal Decentralization**

Fiscal decentralization has long been in the policy agenda for many countries. Devolving the authority of collecting revenue and spending on different expenditure projects from the central government to local governments has been regarded as one way of improving efficiencies, by the developed economies as well as the developing countries. The center is in a relatively disadvantageous position in providing public services since the center is at a distance to the local residents, and thus is often unable to be aware of the true preferences of local residents and providing public goods and services accordingly. Decentralizing the power to local governments has the advantage of better accommodating the preferences of local residents since not only local governments are closer to the local residents, but also the local officials, who are elected by the local residents, have the incentive to please the local elector and cater to their needs. This argument is originated from Tiebout (1976) and Oates (1972). For example, Oates' Decentralization Theorem (Oates, 1972) states that, without considering interjurisdictional externalities and the cost savings from economy of scale by centralized provision of public goods and services, fiscal responsibilities should be decentralized. This argument assumes implicitly that the center is only capable of implementing uniform policies, and is unresponsive to preference heterogeneity across different localities. Under these assumptions, the fiscal decentralization can achieve more efficient allocation of public goods and therefore improve efficiency.

There are also arguments from the perspective of political economy for the advantages of fiscal decentralization. This line of analysis is originated from Brennan and Buchanan (1977, 1980), which believe that decentralized governments are more tamable compared to the centralized revenue maximizing "Leviathans" and therefore better for improving economic efficiency.

There has been a vast literature on fiscal decentralization. Different studies have been looking

at the relationship between fiscal decentralization and public goods provisions, governance, poverty alleviation, and others. For example, Huther and Shah (1998) and Enikolopov and Zhuravskaya (2003) use cross-section and time series data for a large set of countries and find that decentralization contributed to improvements in the provision and delivery of public goods. De Mello and Barenstein (2001) concluded that tax decentralization was positively associated with improved quality of governance using cross-country data.

Because of the assumptions in the decentralization theorem, the advantages of fiscal decentralization might not be achieved under certain conditions.<sup>1</sup> Specifically, when the provision of local public goods fails to take interjurisdictional spillovers into consideration, it will result in under-provision of public services and inefficiently low distribution. Therefore, as far as redistribution is concerned, centralization instead of decentralization is preferred (Musgrave, 1971; Zodrow and Mieszkowski 1986; Brown and Oates 1987). From this aspect, fiscal decentralization would involve trade-off between efficiency and equity (Shelker, 2005).

If fiscal decentralization can improve economic efficiency, people would inevitably relate fiscal decentralization to economic growth. There have been few literatures dealing with the mechanism through which fiscal decentralization contributes to economic growth. Martinez and McNab (2003) try to explain the relationship between fiscal decentralization and economic growth in terms of both “consumer efficiency” and “producer efficiency”. According to them, when fiscal decentralization provide public goods and services better catering to local residents’ preferences, “consumer efficiency” is improved; when fiscal decentralization induces competition among local governments and thus reducing costs of providing public goods and services, the improvements in “producer efficiency” is achieved. When one or both of these efficiencies are improved, it will contribute to economic growth.

Most of the research on fiscal decentralization and economic growth try to test empirically the relationship. And with different measures of fiscal decentralization, and also different data samples, scholars have not yet reached consensus on whether or not fiscal decentralization enhance or hamper economic growth. Using state level data for the US, Akai and Sakata (2002) concluded that fiscal decentralization contributed positively to economic growth. Zhang and Zou

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<sup>1</sup> When when interjurisdictional competition results in low efficiencies, or local governments are unable to take advantage of economy of scale in public goods provision, etc., the improvements in economic efficiency would be unattainable.

(1997) confirmed the same results for regional growth in India. Thiessen (2000) also found a positive relationship between decentralization and economic growth for panels of high income, Western European and middle-income countries. On the contrary, using different data sets, Davoodi and Zou (1998) and Xie, Zou and Davoodi (1999) found that decentralization was associated with slower growth. Some other studies find that the impact of decentralization on growth is inconclusive, for example, Martinez-Vazquez and McNab (2003).

## **The Measurement of Fiscal Decentralization**

As we mentioned, there have been many literature trying to test empirically the relationship between fiscal decentralization and economic growth. Some conclude that the relationship is positive, i.e. fiscal decentralization promotes economic growth; while others obtain the opposite results. Different studies use different measures of decentralization. The main idea is to try to capture the extent of sub national government exerts discretion over the local revenue collection and expenditure responsibilities. Ideally, measures of fiscal decentralization should assess the real autonomy local governments possess.<sup>2</sup> From the revenue side, some taxes are locally raised, with rate structures determined locally, thus local government would have full discretion over the tax revenues. Some taxes are determined by the center, or are shared with higher level governments, and then the revenues would not give local government complete autonomy. From the expenditure side, if local governments have more discretion on what project to invest and how much to expend on certain projects, no matter the funds are from own revenue or grants from higher level government, we say that the system is more decentralized. Therefore, fiscal decentralization should be a multidimensional measure that should cover different aspects of the economy. With better data, researchers can obtain more accurate measure. For example, Stegarescu (2004) provides six different measures of fiscal decentralization based on the tax autonomy of subnational governments, with data from OECD countries. Other researchers also try to come up with better measure, for example. However, due to data availability, most of the studies are confined to use the share of sub national revenue or expenditure in total revenue or expenditure to measure fiscal

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<sup>2</sup> Decentralization is multi-dimensional, including political decentralization, administrative or regulative decentralization and fiscal decentralization. Even when we only consider fiscal decentralization, we would need to capture whether or not local officials are elected and to what extent local decisions are made locally, etc. Due to the difficulties in measuring those unmeasurables, usually we use fiscal data to construct measures of fiscal decentralization.

decentralization.

When it comes to the measurement fiscal decentralization in China, things become more complicated. Even if we don't question the quality of the fiscal data publicly available, due to the existence of budgetary items, extra-budgetary items and also off-budgetary items, it's extremely difficult to come up with an appropriate measure that can capture the real autonomy local governments enjoy. In realizing this, studies on fiscal decentralization in China have tried different measures. Zhang and Zou(1998) measure fiscal decentralization by 6 different ratios, including provincial expenditure over central expenditure both in total and per capita term; provincial (extra-) budgetary expenditure over central (extra-) budgetary expenditure in total and per capita term. Ma (1997) uses the average share of government budgetary revenue retained by a province as a proxy of the degree of fiscal decentralization. Lin and Liu (2000) measure the degree of fiscal decentralization by a marginal retention rate, that is, the rate provincial governments retain their revenue increments. These measures are by no means precise. Nonetheless, these measures signify the efforts that scholars have made to better quantify the extent of fiscal decentralization in China. In our current study, we are focusing on fiscal decentralization at the prefecture level, and our composite dataset prevents us from adopting measurements more applicable to the realities in China. Therefore, we are going to follow the primary measures used in the literature, namely, the revenue at prefecture level over total revenue in the prefecture, which we denote by  $II$ , and also prefecture level expenditure over total expenditure in the prefecture, which we denote by  $EI$ . As Akai and Sakata (2002) pointed out, the revenue measure and expenditure measure of decentralization actually are two extreme case of fiscal decentralization, if we consider the role grants from higher level governments play. For instance, if the grants have no special purpose, they will only enlarging local governments' revenue tank, thus raising the extent of decentralization. On the contrary, if the grants are earmarked for certain purpose, then even though the funds are allocated to local governments, they don't have discretion on it, therefore would not contribute to decentralization. Thus, we follow their method and include the third measure, i.e. the average of  $EI$  and  $II$ , which we call  $EII$  in the paper. Therefore, we are going to use three different measures of fiscal decentralization, and see whether or not fiscal decentralization is conducive to economic growth at the prefecture level in China. The cross country data would inevitably have heterogeneity problem due to the difference in the political and economic features across different



nations. Our prefectural level data would tend to minimize this problem. Our current research is trying to reconcile the existing controversy in the decentralization literature and also provide evidence for the reform of political system in China.

## **Data and Methodology**

The Chinese governments are comprised of five different layers. These many layers of governments undoubtedly make the public sector in China too big compared with other countries. When a new policy is to be implemented, or a transfer fund from the center goes to the grass root governments, almost everything has to go through these many layers of governments, which, not only make things more complicated, but also give the intermediate level governments opportunity to involve, either passively or actively (Martinez, Qiao and Zhang, 2008). Partly for the purpose of improving the governance efficiency, there has been heated debate on the role played by this particular layer of prefecture government and some advocate to eliminate it. Our empirical results tell us that, if more fiscal resources are devolved to the prefecture level governments, it will be conducive to economic growth. Therefore, as far as economic growth is concerned, eliminating prefecture level government might not be a good idea.

In order to test whether or not fiscal decentralization is good for economic growth, we use the standard growth model adopted from the Solow Growth Model. We include in the model fixed asset investment in per capita term as a proxy for physical capital, also population and education level to measure human capital. To capture the general economic conditions in different prefectures, we include measures of openness and unemployment rate. For our purpose of examining the role of fiscal decentralization, we add different measures of fiscal decentralization explained earlier. Localities that start with poor conditions may grow faster than localities that have been growing fast for some time. We call this convergence. On the other hand, localities with better economic conditions may grow faster than ordinary localities and in this sense we call it divergence. In light of this, we incorporate in our model the initial economic conditions. Specifically, our model takes the following form:

$$\text{grate}_i = \text{deci} + \text{pop}_i + \text{invi} + \text{edui} + \text{open}_i + \text{uemp}_i + \text{icon}_i + \text{ei}$$

where  $\text{grate}_i$  is the GDP growth rate in locality  $i$ . In our cross section dataset, we have economic indicators for the period of 2000-04, but only have demographic data for 2000, so we

use the average growth rate of prefecture GDP per capita over the 2000-04 period as our dependent variable. *deci* is the measure of fiscal decentralization that we introduced earlier. We use *EI*, *II* and *EII* calculated from 2000 data. *invi* is fixed asset investment in per capita in year 2000, which is the indicator of physical capital. *edui* is literacy rate, which is used to indicate the education level. Together with *popi*, which is population in 2000, the quality of human capital in the prefecture can be approximated. *openi* is openness, which is measured by FDI inflows into the region in per capita term. *uempi* is the rate of unemployment. These two variables are aimed at denoting the general economic conditions. *iconi* represents the initial economic condition, which we measure by per capita GDP in 2000, the starting year for our average growth rate.

In this paper, we are trying to use a unique data set, which combine fiscal and economic indicators for prefecture level governments and demographic data from population census data. Specifically, our data are from various issues of Prefecture Statistics Yearbooks, the Fifth Population Census data, and Fiscal Statistics for Prefecture, City, and County. We are the first to attempt to combine these different datasets together, and this unique data set enable us to look at whether the fiscal decentralization at the prefecture level governments is good for economic growth. On the other hand, putting data from different sources together also impose restrictions on us, which make us unable to perform panel data analysis and can only work with cross section data. The detailed variables used and corresponding sources are list in the appendix. In order to see the regional variations, we also include some regional dummies in the regressions for comparison. We divide the whole country into 6 different regions, southeast, southwest, bohaibay, northeast, northwest and middle region. We take the middle region as our reference region.<sup>3</sup>

The following table gives summary of statistics used in our regression.

**Table 1 Summary of Statistics**

Variable	Obs	Mean	Std.Dev.	Min	Max
<i>pergdprate04</i>	205	0.102	0.042	-0.003	0.200
<i>EI</i>	205	0.359	0.160	0.034	0.794
<i>II</i>	205	0.349	0.185	0.024	0.868

EII	205	0.354	0.169	0.032	0.823
literacy	205	0.918	0.030	0.820	0.977
popu2000	205	105.784	104.737	17.530	896.490
perfix	205	4225.428	3429.600	255.899	25370.670
perfdi	205	647.100	1407.411	0.199	14030.950
pergdp	205	13865.300	10388.510	2091.041	89214.910
unemploy	204	0.020	0.006	0.009	0.038

From the summary of statistics we can see that, the three measures of fiscal decentralization give us similar scale of local government autonomy, even though with expenditure measure, the mean is the highest, while with revenue measure, the mean is the lowest. With these different measures, we are going to see whether or not, the fiscal decentralization at the prefecture level is good for economic growth.

Our simple cross section regressions gives us results that the more fiscal resources are decentralized to prefecture level governments, the faster the economic grows. As we can see from the appendix table, no matter which measure of fiscal decentralization we use, we obtain similar results: the fiscal decentralization measure is positive to economic growth, and the effect is highly significant.

Other control variables also give us similar results. Population at initial level gives positive and significant coefficients, meaning that the more labor will help economic growth. But the other measures of human capital, the literacy rate usually give us insignificant results, which might signify that the quality of the labors, the education level are not playing an important role. Per capita GDP, or the initial economic condition gives positive signs, and the results are highly significant, which reflect the divergence of economic growth: localities with high economic growth will continue to grow faster, and therefore deepen the economic disparity. The results show that the fixed capital investment in per capita term and unemployment rate have no statistically significant effects on economic growth at the prefecture level. The measure of openness, per capita FDI into the prefecture is significant only when we include the regional dummies. But with negative signs, it is hard to explain.

**Table 2 Regression Results**

	(1)	(2)	(3)	(4)	(5)	(6)
	GDPgrate	GDPgrate	GDPgrate	GDPgrate	GDPgrate	GDPgrate
EI	0.041 (2.04)**	0.059 (2.74)***				
II			0.044 (2.55)**	0.049 (2.74)***		
EII					0.046 (2.38)**	0.057 (2.83)***
Literacy	-0.014 (0.13)	0.059 (0.56)	-0.001 (0.01)	0.068 (0.64)	-0.008 (0.07)	0.065 (0.62)
pop2000	0.000 (4.52)***	0.000 (3.43)***	0.000 (4.17)***	0.000 (3.25)***	0.000 (4.31)***	0.000 (3.31)***
perfix	0.000 (1.19)	0.000 (0.34)	0.000 (1.03)	0.000 (0.27)	0.000 (1.11)	0.000 (0.27)
Perfdi	-0.000 (0.75)	-0.000 (2.62)***	-0.000 (0.77)	-0.000 (2.47)**	-0.000 (0.77)	-0.000 (2.57)**
PerGDP	0.000 (2.22)**	0.000 (2.90)***	0.000 (2.04)**	0.000 (2.66)***	0.000 (2.11)**	0.000 (2.73)***
unemploy	-0.277 (0.48)	0.326 (0.43)	-0.269 (0.50)	0.458 (0.64)	-0.314 (0.56)	0.341 (0.46)
southeast		0.021 (2.12)**		0.019 (2.01)**		0.021 (2.10)**
bohaibay		0.014 (1.73)*		0.013 (1.68)*		0.014 (1.73)*
northeast		-0.020 (1.59)		-0.017 (1.41)		-0.018 (1.48)
southwest		0.024		0.023		0.023

		(2.52)**		(2.44)**		(2.46)**
northwest		0.003		0.004		0.004
		(0.36)		(0.36)		(0.38)
Constant	0.079	-0.009	0.069	-0.014	0.074	-0.012
	(0.84)	(0.09)	(0.74)	(0.14)	(0.80)	(0.13)
Observations	204	204	204	204	204	204
R-squared	0.20	0.27	0.20	0.27	0.20	0.27

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

## Conclusions

Our results tell us that, when more fiscal resources are decentralized to the below prefecture level governments, economic growth is jeopardized. On the contrary, more resources concentrated to prefecture level governments would enhance the economic growth in the prefecture. When we consider the public goods are those with positive externalities, assigning the responsibilities of providing these public goods to prefecture level governments can correct for some of the discrepancies in the provision and benefits of some public goods and services, and therefore is good for economic growth. Based on our results, it is not advisable to decentralize decision making power and economic resources to below prefecture level governments. Therefore, as far as economic growth is concerned, instead of eliminating the prefecture level of governments, more public goods should be provided by the prefecture level of governments.

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