



Working Paper No. 219

**Regional Decentralization and Fiscal Incentives:
Federalism, Chinese Style¹**

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This Version: July 2004



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¹ We would like to thank Alberto Alesina, Bill Evans, Roger Gordon, John McMillan, Peter Murrell, Barry Naughton, Gerard Roland, Seth Sanders, Robert Schwab, Andrei Shleifer, Shang-Jin Wei, David Wildasin, Alwyn Young, Heng-fu Zou, and the participants at the Fifth Nobel Symposium in Economics held in Stockholm in 1999 for helpful comments and discussions and the Center for Research on Economic Development and Policy Reform at Stanford for financial support.

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Abstract

Aligning the interests of local governments with market development is an important issue for developing and transition economies. Using a panel data set from China, we investigate the relationship between a provincial government's fiscal incentives and provincial market development. We report two major empirical findings. First, we find a much higher correlation, about four times, between the provincial government's budgetary revenue and its expenditure after the reform as compared to that before the reform, demonstrating that provincial governments faced much stronger *ex post* fiscal incentives. Second, we also find that stronger *ex ante* fiscal incentives, measured by the contractual marginal retention rate of the provincial government in its budgetary revenue, is associated with faster development of the non-state sector as well as more reforms in the state sector in the provincial economy, even controlling for the conventional measure of fiscal decentralization. We compare federalism, Chinese style, to federalism, Russian style.

JEL Classification: P35, P51, H77

I. Introduction

Reforming the government is a crucial component of both the transition from a planned to a market economy and economic development. Creating thriving markets in these economies typically requires transforming a highly centralized and interventionist government into one that supports the market and fosters decentralized economic activities. Democracy, separation of powers, and the rule of law are among the important institutions that allow citizens to hold the government accountable for its economic actions and to secure markets from arbitrary state intrusion. By devolving power from the central to local levels, federalism is another institution that helps implement a limited yet effective government conducive to market development.

Economic theories of federalism have traditionally emphasized allocative benefits of decentralization in the provision of public goods and services, such as education and health care. There are two related ideas. First, Hayek (1945) discussed the use of knowledge in society, emphasizing that local governments have better access to local information, which allows them to provide public goods and services that better match local preferences than the national government. Second, Tiebout (1956) introduced the inter-jurisdictional competition dimension and argued that such a competition provides a sorting mechanism to better match public goods and services with consumers' preferences. Drawing on these ideas, Musgrave (1959) and Oates (1972) built a theory of fiscal federalism, stressing among other things the appropriate assignment of taxes and expenditures to the various levels of government to improve welfare.

Our main concern in this paper is the relationship between fiscal incentives facing local governments and local government promotion of market development in the local economy. Recent

experiences of transition and developing economies have shown that a central barrier to economic development in these countries is from the governments, especially local governments, as their policies are often hostile to local business development. Local government policies, such as business regulation and levies, may have either favorable or adverse effects on the entry and expansion of local business enterprises. This leads to two types of government role that have been identified in the literature (Shleifer and Vishny 1998): The government either plays the role of the “grabbing hand” by restricting and preying on productive enterprises and protecting unproductive ones, or it plays the role of the “helping hand” by supporting productive enterprises and disciplining unproductive enterprises.

Our study of federalism centers around the question of how the central-local governmental relationship affects the local government's behavior toward business enterprises and market development. A crucial issue is what kind of federalism better aligns local government incentives with promoting markets and productive enterprises.³ Inter-jurisdictional competition can serve as an important incentive device, as emphasized by Tiebout and Brennan and Buchanan (1980): competition rewards local governments friendly to markets as factors of production move to their regions, while it punishes heavily interventionist local governments as they lose valuable factors of production. But this mechanism is not perfect, competition may result in the phenomenon known as “race to the bottom.”

Another mechanism, the focus of this paper, concerns the fiscal incentives of local government. This mechanism works when pro-business local government policy promotes local

³ The recent theory of “market-preserving federalism” studies the general question of how federalism can be structured to promote market development (e.g., McKinnon, 1997; Qian and Roland, 1998; Qian and Weingast, 1996; Weingast, 1995; Wildasin, 1997; and Zhuravskaya 2000).

business development, which rewards local governments by increasing the local tax revenue base. A critical aspect of this incentive, however concerns whether the local government is able to keep a significant portion of the increased tax revenue that results from their policy decisions. If so, they have strong fiscal incentives to support market development. On the other hand, if a local government's fiscal reward is unrelated to, or even worse, negatively related to its policy effort, it has no fiscal incentives to support local business.

Studies on China's transition to markets have long noticed the general local government support for local business development, especially in the non-state sector (e.g., Montinola, Qian, and Weingast, 1995). What are the reasons for the local governments in China to play the “helping hand” for local business development? Using a provincial panel data set, we conduct an empirical study on the Chinese style of federalism with a focus on provincial government's fiscal incentives.

We report two related empirical findings. The first finding concerns the change in fiscal incentives facing provincial governments after the reform. We find a strong correlation between the current provincial budgetary revenue and its expenditure for the period between 1982 and 1991 when the “fiscal contracting system” was implemented, about four times as large in the magnitude as the before reform period of 1970-79. Such a strong correlation remained in the post-1994 period when the “fiscal contracting system” was replaced by the “separating tax system.” The finding provides the evidence that provincial governments in China faced much stronger *ex post* fiscal incentives as a result of the reform.

Our second finding concerns the effects of fiscal incentives on provincial economic development and reform. A special feature of our data set is that it includes the *ex ante* marginal revenue retention rate of provincial governments for the period between 1982 and 1992, as specified

in the fiscal contracts between the central and provincial governments. The conventional, more readily available data of the *ex post* ratios of revenue retention over collection measures only the average realized revenue retention and is thus less suitable for the study of the effects of fiscal incentives on other economic variables. We use this *ex ante* marginal revenue retention rate as the measure of fiscal incentives faced by provincial government. We find that stronger fiscal incentives are associated with faster development of non-state enterprises in terms of the employment growth rates in rural enterprises and in all non-state enterprises, even controlling for the conventional measurement of fiscal decentralization. Similarly, stronger fiscal incentives are also associated with greater reform in state-owned enterprises, as measured by the increased shares of contract workers in the total state employment and bonuses in total employee wages.

With these results in mind, we compare federalism, Chinese style, with federalism, Russian style. Studies of Russia's transition stress the problematic role of the government in reform. Shleifer (1997) and Frye and Shleifer (1997), for example, provide evidence that local governments in Russia have been playing the role of “grabbing hands” that retard private business development. Zhuravskaya (2000) finds that the existing revenue sharing schemes between the Russian regional and local governments provide the latter with no fiscal incentives to increase their tax base: increases in local government revenues were almost entirely exacted by the regional government. The lack of fiscal incentives in part explains why local governments in Russia prey on private businesses.

Our perspective suggests that the distorted incentives faced by local governments in part explains the disappointing performances of the Russian reforms. Interestingly, Russia has done more than China in terms of privatization of state-owned enterprises and liberalization of markets (Shleifer, 1997; Frye and Shleifer, 1997; de Figueiredo and Weingast 2001; Lavrov, Litwack, and

Sutherland 2000; and OECD 2000). But apparently it has failed to provide local governments with appropriate fiscal incentives to pursue local prosperity. Our perspective suggests the critical importance of government fiscal incentives for successful reform. Liberalization and privatization without altering government incentives are insufficient to produce meaningful economic reform.

The remainder of the paper is organized as follows. Section II describes the changing fiscal system in China during the reform. Section III develops our theoretical perspective. Section IV describes the data and the construction of variables. Section V presents evidence on the change of fiscal incentives for provincial governments before and after the reform. Section VI presents evidence on the effects of fiscal incentives on provincial development and reform. Our conclusions follow.

II. Fiscal Relations Between the Central and Provincial Governments in China

China's fiscal system has five hierarchical levels of government: (1) central; (2) provincial; (3) prefecture; (4) county; and (5) township.⁴ In this paper, we will focus on the central-provincial fiscal relations. The central-provincial fiscal relations have evolved over time in three distinct phases: the pre-reform phase prior to 1979, the transitional phase of 1980-93, and the post-1994 phase.

Prior to the reform of 1979, the fiscal relations between the central and provincial governments are best described as the one of “unified revenue collection and unified spending”

⁴ Below the township level, the village is an informal level of government. A municipality can be one of the levels of a province, prefecture, or county; most municipalities are at the prefecture level.

(*tongshou tongzhi*). Basically, the provincial governments collected most of revenue generated from within the province, on average over 80 percent, which included taxes and (mostly) profits from state-owned enterprises. Then the central government made a plan of spending for each province. This system earned a nickname “eating from one big pot” (*chi daguofan*), which captured its essence.

Starting 1980, the central-provincial fiscal relations altered in a dramatic way. Between 1980 and 1993, the institution governing the central and provincial fiscal relations is the so called “fiscal contracting system” (*caizheng chengbao zhi*), also known by its nickname “eating from separate kitchens” (*fenzao chifan*). Under the fiscal contracting system, provincial governments entered into relatively long-term fiscal contracts (typically five years) with the central government. Because of their experimental nature, the contractual arrangements varied across provinces and over time. The fiscal contracting system worked as follows (Wong, 1997; Bahl, 1999): First, “central fixed revenue” was defined to include custom's duties, direct tax or profit remittance from the central government supervised state-owned enterprises (SOEs), and some other taxes. All other revenue falls under the heading “local revenue.” On average, the local revenue accounted for about 66% of total government budgetary revenue over these years. Second, the local revenue was then divided between the central and provincial governments according to pre-determined sharing schemes. For example, between 1980 and 1987, Guangdong province agreed to remit a fixed amount per year, and between 1988 and 1993, it agreed to remit an amount that increased by a fixed 9 percent per year. Guizhou province agreed to receive subsidies that increased by a fixed 10 percent per year. On the other hand, Jiangsu province agreed to remit a fixed share of revenue to the central government. Over time, many provincial governments retained 100 percent of the total local revenue at the margin, which effectively made them residual claimants over the local revenue.

The actual (*ex post*) expenditure of local government did not necessarily match that from the sharing scheme for several reasons. After the division of local revenue according to the sharing scheme, some extra remittance and transfer payments took place between the central government and the provinces. For example, the central government sometimes “borrowed” funds from the provinces. On the other hand, the central government also made additional transfer payments (not specified in the sharing schemes) to provinces, which generally fell into two categories: earmarked subsidies (*zhuanxiang butie*), such as price subsidies for urban residents compensating them for food price increases, and matching grants (*peitao buokuan*), such as funds for highway building. Clearly, the larger this type of *ex post* redistribution, the less important the pre-determined revenue sharing schemes.

Starting 1994, the “fiscal contracting system” was replaced by “separating tax system.” Under the new system, “local revenue” has been redefined as revenues from local taxes and the local portion of the shared taxes (Bahl, 1999). The major local taxes are now the income taxes from all enterprises other than central government enterprises, business tax from the sales of services, and personal income tax. The most important shared tax is the value added tax (VAT), of which 25% belongs to the provincial government, uniform across provinces. The post-1994 phase has eliminated the variations of the revenue sharing rules from the 1980-93 phase.

In addition to the budgetary revenue, another category of revenue exists called “extra-budgetary revenue,” which consists of tax surcharges and user fees levied by central and local government's agencies, as well as some earnings from SOEs. The extra-budgetary revenue emerged in the 1950s but only became institutionalized after the reform. Unlike the budgetary local revenues, the extra-budgetary local revenues are not subject to sharing with the central government. In 1978,

total extra-budgetary revenue was about 10 percent of the GDP while total budgetary revenue was about 31 percent. In 1993, the extra-budgetary revenue was up to 16 percent of the GDP and the budgetary revenue was down to 16 percent of the GDP (*Statistical Yearbook of China, 1995*). While about three-quarters of the extra-budgetary funds are earnings retained by SOEs and by their supervisory government agencies at the central and local levels, about 30 percent of the extra-budgetary funds are used for government expenditures to supplement the budgetary funds (Fan, 1996).

III. Fiscal Incentives and Economic Development

How do fiscal incentives of local government contribute to the local economic development? As Hayek stressed, decentralization of authority has the benefits of more efficient use of dispersed local knowledge possessed by the local government. In contrast, centralization of government authority is costly because information transmission from local to central government is often distorted and incomplete. But decentralization of authority is meaningless if the central government takes away all revenue generated in the local economy as a result of local government's action. This suggests a link between fiscal incentives of local government and local development which is a function of local government's policy.

Consider the following very simple model for the purpose of illustration. Let $Y(e)$ be the value created by the local business development, which is a function of local government's "effort" e . This effort is related to local government's policies concerning local productive enterprises, such

as the non-state enterprises. These policies could reduce excessive regulation and controls over business entry, speed up of approval of projects and permits, eliminate of onerous fees imposed on firms, or fight against unfavorable ideology toward the development of non-state firms. This effort is also related to reform efforts in non-productive state enterprises in order to reduce their losses. Because effort here is interpreted as policies rather than public goods provisions such as those in education and health care, its effect on the local economy is immediate. Higher local government effort means more favorable local business environment and thus higher value of the local economy $Y(e)$, which means a larger government revenue base.

We also assume that the revenue generated y is positively related to local economy Y . Then the relationship $y(Y(e))$ implies that total revenue generated $y(e)$ is an increasing function of e . Note that in our interpretation e is not revenue collection effort by the local government, rather, it is the local government's policy effort in supporting productive business in its locality. On the other hand, effort e has a cost to local government $C(e)$, which is also increasing in e . Such a cost could be the forgone bribes received by the local government officials, or more generally, the costs spent to facilitate local business development.

The first step in the fiscal contracting system is the designation of "central revenue" and "local revenue." For simplicity we assume that out of the total revenue generated y , vy is designated as "local revenue" and $(1-v)y$ as "central revenue." The second step specifies the marginal provincial revenue retention rate which we denote as z ; the province may also pay the center a fixed remittance (or subsidy) R . The provincial government's revenue retention is then given by $zvy(e) - R$. In the third step, the central government makes transfers T to local government. Therefore, the final local government's expenditure is determined by $zvy(Y(e)) - R + T$.

We assume that local government maximizes local expenditure net of cost of effort by choosing effort level e :

$$(3.1) \quad \max \{zvy(e) - R - c(e) + T\}.$$

Under the usual assumptions of concavity of $y(e)$ and convexity of $c(e)$, the optimal effort level e^* , as well as the local economy $Y(e^*)$, is an increasing function of revenue retention rate z :

$$de^*/dz > 0,$$

and

$$(3.2) \quad dY(e^*)/dz > 0,$$

assuming that v is constant. That is, the larger the marginal fraction of revenues a local government is allowed to keep, the stronger the local government's incentives to increase its revenue base, which in turn means better government policy to pursue local economic prosperity. This implies that strong links between local expenditures and local revenue help align the interests of local governments to local development.

In the above model, the central government delegates the tasks of supporting local business development to local governments because the latter have better local knowledge. The central government cannot dictate local effort level e because local effort is not easily observable or measurable. For example, even if the central government could announce a nationwide policy to support productive enterprises, it is still up to the local government to enforce such a policy. During

enforcement, local circumstances play important role. Therefore, the above model already incorporates the assumption about the importance of local information. Hence the central government is limited to using the revenue retention rate, z , to motivate local governments by aligning the interests of local government with local prosperity.

This implication of the above simple model differs in an important way from the conventional perspective on revenue sharing between the central and local governments. While arguing for the benefits of decentralization of expenditure, the conventional fiscal federalism view does not consider a strong linkage between local governments' own revenue and their expenditures desirable. This view instead focuses on allocative distortions under decentralized revenue collection. It therefore recommends a centralized revenue collection together with decentralized expenditure system, allowing sizeable transfers from the central to local governments to fill the local revenue-expenditure gap. The traditional view therefore implies no necessary relationship between local expenditure and local revenue generated. In contrast, the above model stresses the importance of local governments' incentives in pursuing prosperity in the local economy which serves as the local revenue base. For that purpose, it is natural to emphasize the potential benefit of linking local governments' revenue with their expenditure.

Our model is especially relevant for transition and developing economies for several reasons. For transition economies, the pervasive revenue redistribution practice under central planning had long distorted local governments' incentives, and correcting this distortion has been an urgent need. Developing countries generally have excessive regulation over business development, and local governments in these countries also have more discretions affecting the well being of local business. Therefore, for these countries, aligning the fiscal incentives of local governments with local

prosperity would have stronger effects on the local economy. In contrast, for developed countries, such a justification for local fiscal incentives may be weaker, because the formal legal environment is generally more hospitable to business.

Based on the above discussion, we conjecture that the higher the marginal proportion of revenue retained by the local governments, the faster development of the productive part of the local economy and more reform of the non-productive part of the local economy. Because onerous restrictions on enterprises reduce their revenue, lower governments facing stronger fiscal incentives are likely to impose fewer economic restrictions on and give more support for productive enterprises. However, local governments may fail to respond to fiscal incentives. Alternatively, these incentives may result in protecting the local economy rather than expanding it. Therefore, empirical testing is required to determine the validity of the hypothesis.

IV. Data and Variables

We use a panel data set of 29 provinces from 1970 to 1999, with a particular focus for the time period from 1982 to 1992.⁵ We obtained our data from the official Chinese government publications at the national and subnational levels, including *China Statistical Yearbook* in various years published by the National Statistical Bureau. Table 1 presents summary statistics of major variables.

⁵ The data excludes Tibet. Hainan obtained a provincial status only in 1989, and we treat Hainan as a separate province throughout the sample period.

Measurement of provincial and central government expenditures is standard. However, we make one adjustment to the fiscal expenditure data because the original data has an inconsistency: price subsidies were netted out from revenue and expenditure before 1986 but added to both revenue and expenditure afterward. Most of the price subsidies are the central government's earmarked transfers to local governments (Wong, 1997). To make the data consistent throughout the sample period, we exclude the price subsidies from the government expenditure data after 1986. Because explicit provincial data on their price subsidy expenditures are unavailable, we use the following method to estimate them. First, we apply the central and local shares of price subsidies nationwide (Hofman, 1993) to calculate the total local expenditures of the price subsidies for each year. Because the price subsidies are exclusively for urban residents and they are provided more or less uniformly across provinces, we then use the provincial share of urban residency in the country to allocate price subsidies to each province.

We investigate the marginal fiscal incentives facing local governments from both *ex post* and *ex ante* perspectives. To examine the *ex post* marginal fiscal incentives, we look at realized provincial *budgetary revenue* and *budgetary expenditure* separately. As explained in section II, provincial budgetary revenue is the revenue generated in the province, excluding those revenues designated as the central government's fixed revenue. Provincial budgetary expenditure is the actual provincial government spending, after contractual obligations are fulfilled and renegotiation takes place. We also consider provincial *extra-budgetary revenue* and *extra-budgetary expenditure*. Although no sharing arrangements cover extra-budgetary revenue, the central government might extract a portion of these funds.⁶

⁶ All provincial budgetary and extra-budgetary data are consolidated figures within a province.

We measure *ex ante* marginal fiscal incentives, defined as the contractual marginal retention rate of local revenue collection by provincial governments, as those determined by the fiscal contracts between the central and provincial governments. In contrast to the ratio of local to central government expenditure, the fiscal incentive variable measures how local governments are rewarded (or punished) *at the margin* from an increase (or decrease) in local revenue collection. Therefore, it is the right variable that should be used to the study on the effects of fiscal incentives.

We exclude the data of 1993 because it is distortionary due to the anticipation of a major change in the fiscal system in 1994. For example, one provision of the 1994 reform, announced in the fourth quarter of 1993, compensated local governments based on their 1993 figures of local expenditure. This provision gave an incentive for local governments to inflate the local expenditure figures toward the year end.⁷

The provincial marginal revenue retention rates involve one complication. Starting in 1986, several large cities became fiscally independent from their provinces, directly contracting with the central government (they are known as "separately listed cities"). We have tried to incorporate the information on these city contracts into the provincial contracts by constructing an average provincial marginal retention rate using city revenue and provincial revenue (excluding the relevant city) as

⁷ We collected the information about provincial marginal retention rates in the fiscal contracts from Chen (1988), Oksenberg and Tong (1991), and Bahl and Wallich (1992). In cases where there are several marginal retention rates for different revenue brackets, we use the rate for the highest revenue bracket because the data reveals that all the provinces in fact ended up with that bracket. Furthermore, we use the 1992 data with caution, because in that year four provinces were selected for the experiment of a new tax system to be implemented nationwide in 1994. Therefore, these provinces were not officially on the fiscal contracting system any more. Dropping off these four data points has little effect on our results.

weights.⁸ Figure 1 plots the average of the provincial marginal revenue retention rates and the share of provinces with 100 percent marginal retention rates.

The non-state sector in urban and, especially, rural areas is widely regarded as the engine of China's growth. We use two variables to measure the development reflecting the entry and expansion of non-state enterprises: *growth of rural enterprise employment*, which covers all non-agricultural activities in the rural areas, and *growth of non-state non-agricultural employment*, which includes both urban and rural non-state industry and services.

We study the reform within the state sector by examining two variables: the changes in the *share of contract workers in total state employment* and in the *share of bonuses in total state employee wages*. Prior to 1992, China did not privatize any state enterprise. Nonetheless state-owned enterprises underwent modest reforms. For example, many changed their employment practices by hiring workers on a contractual basis rather than giving them permanent positions. They also increasingly used bonuses as a form of payment in addition to fixed salary. Both reforms were intended to improve workers' incentives. Groves et al. (1994) used the similar variables as their major measurements of state-owned enterprise reform in China, and their data came from the enterprise level survey in four provinces.

⁸ The incorporated information on "separately listed cities" include Wuhan (1986-92) in Hubei; Chongqing (1986-92) in Sichuan; Shenyang (1988-92) in Heilongjiang; Ningbo (1988-92) in Zhejiang; and Qingdao (1991-92) in Shandong. Information sources are the provincial and city statistical yearbooks.

V. Empirical Results: How Did Fiscal Incentives for Provincial Governments Change?

How did reform strengthen the fiscal incentives of provincial governments? We first provide evidence showing a strong link between (*ex post*) provincial marginal revenue collection and marginal expenditure. To that end, we look at the correlations between provincial *ex post* realized revenue and expenditure. We run the following fixed effect model:

$$(5.1) \quad (\text{Local Expenditure})_{it} = \alpha_i + \gamma_t + \beta (\text{Local Revenue})_{it} + \mu_{it},$$

where $(\text{Local Expenditure})_{it}$ is province i 's local expenditure in year t , $(\text{Local Revenue})_{it}$ is province i 's local revenue in year t , the α_i 's are provincial fixed effects, γ_t 's are the year dummies, and μ_{it} 's are the disturbance terms. These tests are designed to examine the link between local expenditures and local revenues, after controlling for provincial inherent characteristics and nationwide changes over time.

Panel B of Table 2 reports the results for data from 1982 to 1991, in which row (1) shows a coefficient of 0.752 on provincial budgetary revenue in its budgetary expenditure equation. It means that, on average, a one *yuan* increase in provincial budgetary revenue results in about three-quarters *yuan* of provincial budgetary expenditure. Considering the fact that during this period the local budgetary revenue is on average about two-thirds of the total budgetary revenue, the results demonstrate that, in terms of budgetary revenue and expenditure, the fiscal system in China's reform has produced a strong link between local expenditure and local revenue generation. Further, row (2) shows an even larger coefficient -- 0.971-- for the extra-budgetary expenditure equation, that is, the

relationship for extra-budgetary revenue and expenditure becomes almost one to one.⁹ This provides additional fiscal incentives for local governments.

[insert Table 2 here]

To put the above results in perspective, we run the similar regression for the pre-reform period. Using data from 1970 to 1979, row (1) of Table 2 in Panel A reveals a very small coefficient on provincial budgetary revenue in the budgetary expenditure equation, 0.172. This result shows that, prior to economic reform, the central government extracted revenue from high revenue provinces while subsidizing low revenue provinces. Indeed, a coefficient of 0.172 indicates that, prior to the reforms, the central government, on average, extracted over 80 percent of any increase in local revenue.

One has to be careful in attempting to compare the above numbers from the pre-reform and post-reform periods because the definition of “local revenue” changed somewhat between the two periods. Indeed, after the 1980 reform, some revenues previously designated as “local revenue” were later designated as “central revenue,” mainly because some previously local government supervised state-owned enterprises were taken over by the central government and their revenues subsequently became central revenue. One way to think of this is to consider the value v in equation (3.1). Reclassification of some local revenue into central revenue after the 1980 reform reduces v , assuming that it reduces the local revenue proportionally to a fraction of the original revenue.¹⁰ To

⁹ Using the three year data of 1983, 1987, and 1990 individually, Knight and Li (1999) also found that the correlations between local extra-budgetary revenue and expenditure were generally higher than those between local budgetary revenue and expenditure, and the latter increased over time.

¹⁰ However, other possibilities of reclassification may not induce a bias as large as this. For example, if a reclassification decreases local revenue by a fixed amount (same for all provinces) but does not change v , then the estimated coefficients β for the two periods are comparable.

the extent that this occurred in practice it implies that, when we regress “local expenditure” on “local revenue,” the estimated coefficient would be larger simply because v becomes smaller.

Examining our data reveals that such an effect is not quantitatively significant. The average share of local budgetary revenue in total government budgetary revenue is 84 percent for the period of 1970-79 (with the maximum of 88 percent in a single year) as compared to 66 percent for the period of 1982-91 (with the minimum of 59 percent in a single year). These figures imply that, on average, the 1982-91 period local revenue share is about 0.79 times the share of the 1970-79 period. Therefore, due purely to the effect of reclassification of local revenues after the reform and not attributed to any improvement in incentives, the estimated correlation coefficient β after the reform could have been boosted by about $1/0.79 = 1.27$ times (or by 1.48 times if the maximum and minimum values are used) on comparable basis. In other words, the comparable coefficient for the pre-reform period could be 0.218 instead of 0.172 (or 2.55 if the maximum and minimum values are used). Our estimated correlation during the reform, 0.752, is still 3.4 times that before the reform, instead of 4.4 times if reclassification of revenue is completely ignored. Therefore, the modest reclassification of revenues does not undermine our interpretation of the drastic improvement of local incentives after reform.

We also run the regression using the data from 1995 to 1999 to see how the fiscal incentives of local governments might have changed for the post 1994 period when “fiscal contracting system” was replaced by “separating tax system.” Row (1) of Table 2 in Panel C shows a coefficient of 0.998 on provincial budgetary revenue in its budgetary expenditure equation. To make the results of the post-1994 period and the 1982-91 period comparable, we need to consider the change in the definition of “local revenue.” Starting 1994, “local revenue” has been defined as revenues from local

taxes and the local portion of the shared taxes (Bahl, 1999). As a result of this change, the local revenue share as the total revenue shrank from 66% for 1982-91 to 50% for 1995-99, still a very high level. This implies that the average local revenue share for 1995-99 is about 0.76 times the share for the 1982-91 period. Because the marginal incentive of the local revenue for the 1995-99 period is approximately 1, when we take into consideration the effect of the reduced scope of local revenue for this period, the estimated correlation coefficient β is still be comparable to 0.752 as for the 1982-91 period.

We also examine the first difference version of model (5.1) by regressing the change of local expenditure over one year on the change of local revenue over one year, still including the year dummies. Row (3) of Table 2 shows a coefficient of 0.481 on provincial budgetary revenue in its budgetary expenditure equation for the data of 1982-91 in Panel B, a drop from 0.752 the fixed effect model estimation. This coefficient is 0.057 for the data of 1970-79 in Panel A, a even bigger proportional drop from 0.172 as in the fixed effect model estimation. It is 0.942 for the data of 1995-99 in Panel C, somewhat smaller than 0.998 as in the fixed effect model. However, the estimations from the first difference model may be biased toward zero since it may suffer from an error-in-variable or a misspecification problem.

We compare our findings on China with the related investigations of post-reform Russia. Zhuravskaya (2000) examined the fiscal incentives of local (i.e., city) governments in the regional local fiscal relationship in post-reform Russia, showing a striking pattern which she interpreted as predation. Using the data from 35 cities for the period 1992-1997 and regressing the change in the “shared revenue” between the regional and city governments on the change of the city’s “own revenue,” she finds that the coefficient is -0.90. She interprets this result as evidence that increases

in a city's revenue are almost entirely offset by decreases in shared revenues from the region to the city. This implies that an increase in 1 ruble in city government's own revenue will result in only increase of 0.1 ruble in net revenue of the city government. Exaction of this magnitude destroys cities' incentives to increase their tax base.

Our above results suggest that, for the budgetary revenue and extra-budgetary revenue individually, the Chinese central government's post-reform treatment of provinces provides provincial governments with strong fiscal incentives.¹¹ Our data set from China does not allow us to perform the comparable investigations on province-city or prefecture-county fiscal relationships. However, studies on China's local fiscal reform document two aspects relevant for this discussion (Bahl and Wallich, 1992, Wong, 1997): first, throughout the 1980s, the fiscal contracting practice extended to all subnational levels of provinces, cities/prefectures, counties and townships; and second, the subnational fiscal contracting usually mimicked the center-province fiscal contracting applied to their province. To the extent that the subnational level inter-governmental fiscal relationships resemble that between the center and provinces, local government incentives within the provincial setting should parallel those we find at the central-provincial level. Further research is needed to obtain subnational level results on China in order to make direct comparisons with the results on Russia.

¹¹ In a separate regression we also find that in China, increases in extra-budgetary revenue (roughly corresponds to "own revenue" in Russia) has little negative effect on the change of budgetary expenditure (roughly corresponds to "shared revenue" in Russia) as observed in Russia. The coefficient is actually positive, which in part reflects the fact that budgetary and extra-budgetary revenues have similar tax bases.

VI. Empirical Results: How Did Provincial Governments Respond to Fiscal Incentives?

To investigate the effects of fiscal incentives on the local economy, we investigate the following model:

$$(6.1) \quad Y_{it} = \alpha_i + \gamma_t + \delta'Z_{it} + \sigma'W_{it-1} + u_{it}.$$

In equation (6.1), Y_{it} is a vector of variables measuring the development of the non-state sector and reform in the state sector in a province, and Z_{it} includes the variable of (*ex ante*) provincial marginal revenue retention rate which measures fiscal incentives as well as the variable of fiscal decentralization. The α_i 's represent the provincial specific effects, which we assume are constant for each province, implying that our specification is a fixed effect model. The γ_t 's are the year dummies, which are intended to capture the effects of nationwide macroeconomic fluctuation. As a common practice, we include W_{it-1} , the lagged per capita GDP, for the purpose of controlling for the level of development. The u_{it} 's are the disturbance terms. Our fixed effect model implies that any correlations between Y and Z cannot be attributed to inherent provincial characteristics.

Table 3 presents our results on the effects of fiscal decentralization and fiscal incentives on the development of non-state enterprises. The dependent variable in Panel A of Table 3 is the growth of rural enterprise employment, a narrower measure of non-state sector development; the dependent variable in Panel B is the growth of non-state-non-agricultural employment in both urban and rural areas, a broader measure.

[Insert Table 3 here]

The two panels give similar results. Column 1 of Table 3 reveals that fiscal decentralization has positive effects on the development of non-state enterprises.¹² Column 2 shows that fiscal incentives also have positive and significant effects on the development of non-state enterprises. Is this possible that the fiscal incentives variable simply picks up the effect from fiscal decentralization? Column 3 shows that this is not the case: the effect of fiscal incentives remain significant even after controlling for fiscal decentralization. This implies that fiscal decentralization alone is insufficient to explain the growth of the non-state sector, fiscal incentives have additional explanatory power. Quantitatively, if the marginal revenue retention rate in a province increases by 10 percentage points, then the growth rate of non-state enterprises in that province would increase by 1.01 percentage points, when it is measured for rural enterprises only; and 0.97 percentage points, when measured for both rural and urban non-state enterprises. Because the average growth rate of employment in rural enterprises is 6 percent and that of all non-state enterprises is 9 percent during this period, the estimated effects are economically quite significant.

One may worry about the reliability of our data on marginal revenue retention rates. To check the robustness of our estimations, we ran parallel regressions replacing the continuous marginal retention rate variable with a dummy variable. This is a kind of aggregation, intended to reduce the impacts of the possible error-in-variable problem in the measurement of the underlying variable. The dummy fiscal incentive variable takes value 1 if the marginal retention rate is 100 percent and 0 otherwise. The results of using the dummy fiscal incentive variable are reported in

¹² A previous study by Zhang and Zou (1998) reported a negative and significant effect of fiscal decentralization on provincial GDP growth during China's reform (but Lin and Liu (2000) reported a positive effect). We found that such negative effect would disappear and actually would turn into a positive effect if the set of annual time dummy variables is included in their regressions. This suggests that their findings perhaps resulted from the failure to filter out economy-wide cyclic effect.

columns (4) and (5) of Table 3. In both regressions, the signs and significance of all our estimated coefficients of the dummy fiscal incentive variable remain the same. The evidence demonstrates that the error-in-variable problem, if it exists, is not serious enough to distort our qualitative results.

We carry out a similar investigation for the reform of state-owned enterprises. Panel A of Table 4 reports our results on the change of the share of contract workers in total state employment and Panel B on the change in the share of bonuses in total employee wages. In contrast to permanent workers, who are under the traditional socialist labor conditions of “iron rice bowls,” contract workers do not have tenure and are more likely subject to market conditions. More contract workers relative to permanent workers mean that enterprises are better restructured to market orientation. Bonuses, as compared to fixed wages, represent a compensation form that is more closely linked to workers performance, a higher share of bonuses in total employee wages implies enterprise workers are better motivated.

[Insert Table 4 here]

We find that the degree of fiscal decentralization has no significant effects on both measures of reform (column 1). However, fiscal incentives have positive and significant effects in the specification for the change of the share of contract workers in total state employment (column 2, Panel A), such effects remain even after controlling for fiscal decentralization (column 3, Panel A). A 10 percentage point increase in the marginal revenue retention rate in a province is associated with a 0.50 percentage point increase in the share of contract workers. As for the change of the share of bonuses in total employee wages, incentives still have positive and significant effects (column 2, Panel B), except that the statistical significance is lost after controlling for fiscal decentralization (column 3, Panel B). Again, we replaced fiscal incentive variable with the corresponding dummy

variable and reports the results in columns 4 and 5. Fiscal incentives still have positive and significant effects for the change of the share of contract workers in total state employment (column 4, Panel A), even after controlling for fiscal decentralization (column 5, Panel A), but not for the change of the share of bonuses in total employee wages (columns 4 and 5, Panel B).

We now turn to investigate the possibility of endogeneity problems. The marginal retention rates are treated as a predetermined variable in our model. The central government and the provinces renegotiate the fiscal contract rates every 3-5 years, and they remain rather stable within the intervals. The marginal retention rates either stay the same or are increased over time; none are adjusted downward, as Figure 1 demonstrates this feature in aggregate terms. This suggests some underlying momentum in the negotiation process. Indeed, the contractual arrangements started as an “experiment” and only expanded and strengthened over time. For one reason, both the central and provincial governments were not sure if they would work or how effectively they would work. For another reason, the experiment was also constrained by exogenous factors such as an ideology against high marginal retention rates (which was viewed as too capitalistic), and such a constraint was only relaxed over time.

One may worry that in the process of the experiment, the central government sets higher marginal retention rates for high growth and greater reform provinces. If this is the case, we cannot interpret the higher growth and greater reforms as a result of higher marginal retention rates. An unbiased estimation might be obtained by instrumenting the marginal retention rate variable. Lacking such an instrument, we go for the second best solution: instead of looking for unbiased estimations, we check to see if our estimations are biased upward, in such a case, our interpretation of the results would be problematic. To this end, we regress marginal retention rates on the lagged

growth rates of the non-state sector and on the lagged reform variables in the state sector respectively. Table 5 reports the results with the marginal retention rate as the dependent variable, while Table 6 with the dummy fiscal incentive variable. In both tables, we found negative rather than positive coefficients, some of them are even statistically significant. That is to say, on average, high growth provinces are more likely to receive lower rather than higher marginal retention rates. Therefore, if our estimates are biased due to the endogeneity problem, it is more likely biased against our hypothesis, that is, we might have underestimated the claimed effect.

[Insert Tables 5 and 6 here]

VIII. Conclusions

This paper studies the changing local government fiscal incentives and their impacts on market development. Many anecdotes suggest the importance of fiscal incentives in the previous studies on China's reforms. The econometric results in this paper provide some systematic evidence on the economic significance of fiscal incentives. We find that the reforms considerably strengthened the fiscal incentives of provincial governments, and they are generally conducive to provincial economic development and reform. These results point to the important link between local government's fiscal incentives and local economic development.

Comparisons of local government's behavior toward local economic development between China and Russia are striking. Our study of federalism, Chinese style, and the other studies on federalism, Russian style (Zhuravskaya, 2000, and de Figueiredo and Weingast, 2001), indicate that one crucial difference concerns the fiscal incentives provided for local governments to pursue market-supporting activities. Of course, in addition to the fiscal incentives, there are other

differences in the local government incentives between the Chinese and Russian federalism, especially political incentives (Blanchard and Shleifer, 2000; Maskin, Qian and Xu, 2000; and Li and Zhou, 2003). But this is beyond the focus of this paper.

Our perspective yields an important insight about how federalism works in promoting economic development; namely, there exists a positive relationship between the strength of fiscal incentives faced by lower-level governments and local economic performance. Countries with strong fiscal incentives for local governments are expected to experience healthier local business development while those with low fiscal incentives are expected to experience the opposite. Instead of decentralization per se, we emphasize the importance of strong fiscal incentives. Whether this prediction holds empirically in other countries awaits further work.

Table 1. Summary Statistics of Major Variables (1982-92)

	Mean	Minimum	Maximum	Standard Deviation
Ratio of local expenditure to central expenditure in a province	1.78	0.61	7.11	1.32
Provincial marginal revenue retention rate	0.84	0.11	1.00	0.23
Provincial marginal revenue retention rate (dummy)	0.57	0	1	0.50
Provincial growth of rural non-agricultural employment	0.06	-0.04	0.26	0.05
Provincial growth of non-state-non-agricultural employment	0.09	-0.11	0.56	0.11
Share of contract workers in total state employment in a province	0.09	0.00	0.33	0.06
Share of bonuses in total wage in state enterprises in a province	0.15	0.06	0.45	0.05

Table 2. The Correlations Between Local Revenue and Expenditure

		Panel A: 1970-79		Panel B: 1982-91		Panel C: 1995-99	
		β	R ²	β	R ²	β	R ²
Fixed Effect							
(1)	Budgetary expenditure on budgetary revenue	0.172 (6.172)	0.930	0.752 (19.73)	0.968	0.998 (18.95)	0.986
(2)	Extra-budgetary expenditure on extra-budgetary revenue			0.971 (32.25)	0.991		
First Difference							
(3)	Budgetary expenditure on budgetary revenue	0.086 (3.840)	0.448	0.481 (8.767)	0.707	0.942 (11.44)	0.481
(4)	Extra-budgetary expenditure on extra-budgetary revenue			0.803 (12.53)	0.674		

Note: (1) Each regression includes a full set of year dummies.
(2) Huber-White robust t-statistics are in parentheses.

Table 3. Fiscal Incentives and the Development of the Non-State Sector

Panel A. Dependent Variable: Growth of Rural Enterprise Employment					
Independent Variable	(1)	(2)	(3)	(4)	(5)
Ratio of local expenditure to central expenditure in a province	0.051 (1.729)		0.038 (1.376)		0.047 (1.639)
Provincial marginal revenue retention rate		0.141 (2.145)	0.114 (1.837)		
Provincial marginal revenue retention rate (dummy)				0.056 (2.677)	0.051 (2.493)
Per capita GDP ₋₁	0.004 (0.064)	0.043 (0.724)	0.023 (0.392)	0.040 (0.684)	0.020 (0.342)
Adjusted R ²	0.734	0.742	0.736	0.740	0.771
Panel B. Dependent Variable: Growth of Non-State-Non-Agricultural Employment					
Independent Variable	(1)	(2)	(3)	(4)	(5)
Ratio of local expenditure to central expenditure in a province	0.050 (2.265)		0.039 (1.829)		0.048 (2.179)
Provincial marginal revenue retention rate		0.131 (2.714)	0.104 (2.309)		
Provincial marginal revenue retention rate (dummy)				0.042 (2.449)	0.038 (2.298)
Per capita GDP ₋₁	-0.024 (0.486)	0.023 (0.464)	-0.006 (0.122)	0.017 (0.349)	-0.012 (0.235)
Adjusted R ²	0.757	0.763	0.761	0.759	0.791

Note: (1) Each regression includes a full set of provincial dummies and year dummies.
(2) Huber-White robust t-statistics are in parentheses.
(3) Sample size is 319.

Table 4. Fiscal Incentives and the Reform of the State Sector

Panel A. Dependent Variable: Change in the Share of Contract Workers in Total State Employment					
Independent Variable	(1)	(2)	(3)	(4)	(5)
Ratio of local expenditure to central expenditure in a province	0.165 (0.257)		-0.366 (0.675)		0.048 (0.082)
Provincial marginal revenue retention rate		5.465 (1.714)	5.625 (1.914)		
Provincial marginal revenue retention rate (dummy)				1.549 (1.919)	1.545 (1.705)
Per capita GDP ₋₁	-0.540 (0.218)	0.165 (0.079)	0.343 (0.163)	0.078 (0.037)	0.563 (0.025)
Adjusted R ²	0.026	0.081	0.078	0.047	0.198
Panel B. Dependent Variable: Change in the Share of Bonuses in Total Employee Wages					
Independent Variable	(1)	(2)	(3)	(4)	(5)
Ratio of local expenditure to central expenditure in a province	0.433 (0.772)		0.251 (0.665)		0.415 (0.796)
Provincial marginal revenue retention rate		1.877 (1.705)	1.700 (1.641)		
Provincial marginal revenue retention rate (dummy)				0.329 (0.473)	0.292 (0.319)
Per capita GDP ₋₁	-0.976 (0.667)	-0.580 (0.535)	-0.688 (0.629)	-0.733 (0.605)	-0.882 (0.687)
Adjusted R ²	0.445	0.450	0.449	0.443	0.518

Note: (1) Each regression includes a full set of provincial dummies and year dummies.
(2) Huber-White robust t-statistics are in parentheses.
(3) Sample size is 319.

Table 5. The Endogeneity Problem: Provincial Marginal Revenue Retention Rate

Panel A. Dependent Variable: Provincial Marginal Revenue Retention Rate				
Independent Variable	(1)	(2)	(3)	(4)
Growth of rural enterprise employment _{t-2}	-0.017 (1.654)	-0.018 (1.738)		
Growth of non-state-non-agricultural employment _{t-2}			-0.007 (0.903)	-0.008 (1.087)
Per capita GDP _{t-2}	-0.208 (2.384)		-0.215 (2.432)	
Adjusted R ²	0.847	0.835	0.846	0.834
Panel B. Dependent Variable: Provincial Marginal Revenue Retention Rate				
Independent Variable	(1)	(2)	(3)	(4)
Change in the share of contract workers in state employment _{t-2}	-0.086 (0.484)	-0.093 (0.503)		
Change in the share of bonuses in total employee wages _{t-2}			-0.922 (2.169)	-1.043 (2.481)
Per capita GDP _{t-2}	-0.140 (1.506)		-0.173 (2.021)	
Adjusted R ²	0.838	0.841	0.849	0.839

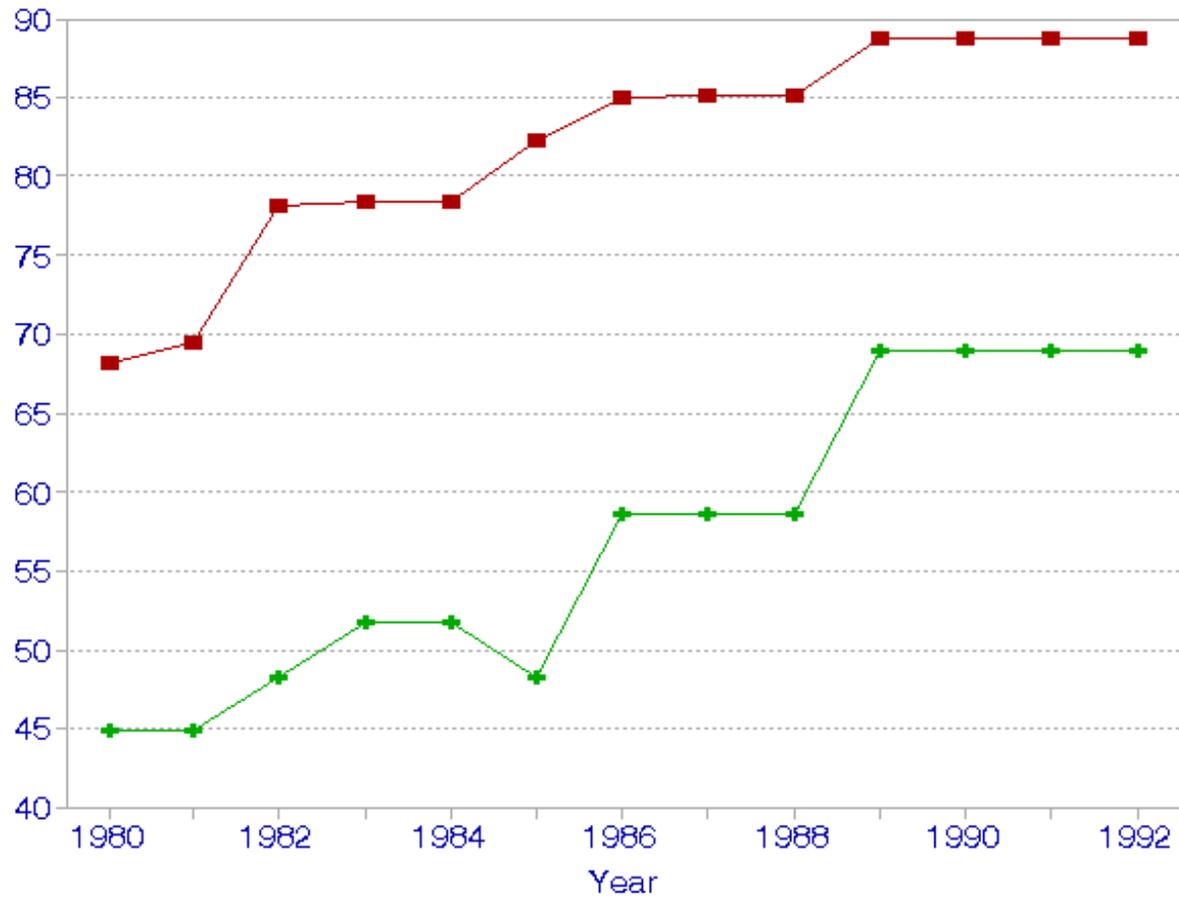
Note: (1) Each regression includes a full set of provincial dummies and year dummies.
(2) Huber-White robust t-statistics are in parentheses.
(3) Sample size is 307 (Panel A) and 298 (Panel B).

Table 6. The Endogeneity Problem: Provincial Marginal Revenue Retention Rate Dummy

Panel A. Dependent Variable: Provincial Marginal Revenue Retention Rate Dummy				
Independent Variable	(1)	(2)	(3)	(4)
Growth of rural enterprise employment ₂	-0.020 (0.475)	-0.021 (0.478)		
Growth of non-state-non-agricultural employment ₂			-0.067 (0.876)	-0.065 (0.763)
Per capita GDP ₂	-0.512 (2.821)		-0.499 (2.807)	
Adjusted R ²	0.843	0.815	0.845	0.817
Panel B. Dependent Variable: Provincial Marginal Revenue Retention Rate Dummy				
Independent Variable	(1)	(2)	(3)	(4)
Change in the share of contract workers in state employment ₂	-0.144 (2.405)	-0.075 (1.233)		
Change in the share of bonuses in total employee wages ₂			-0.007 (0.219)	-0.044 (1.235)
Per capita GDP ₂	-0.636 (3.119)		-0.524 (2.954)	
Adjusted R ²	0.845	0.815	0.842	0.815

Note: (1) Each regression includes a full set of provincial dummies and year dummies.
(2) Huber-White robust t-statistics are in parentheses.
(3) Sample size is 307 (Panel A) and 298 (Panel B).

Figure 1. Provincial Marginal Revenue Retention Rates (1980-92)



Note: The upper line is the average of marginal retention rates and the lower line is the share of the provinces with 100% marginal retention rates.

References

- Bahl, Roy. *Fiscal Policy in China: Taxation and Intergovernmental Fiscal Relations*. San Francisco: The 1990 Institute, 1999.
- Bahl, Roy, and Christine Wallich. "Intergovernmental Fiscal Relations in China," Working Papers, Country Economics Department, The World Bank, WPS 863, 1992.
- Blanchard, Olivier; and Andrei Shleifer. "Federalism with and without Political Centralization: China versus Russia." NBER Working Paper #7616, 2000.
- Brennan, Geoffrey, and James M. Buchanan. *The Power to Tax: Analytical Foundations of a Fiscal Constitution*. New York: Cambridge University Press, 1980.
- Chen, Rulong (ed.). *The Fiscal System in Contemporary China (Dangdai Zhongguo Caizheng)*, Beijing: China Social Science Press, 1988.
- de Figueiredo, Rui J. P. Jr., and Barry R. Weingast. "Pathologies of Federalism, Russian Style: Political Institutions and Economic Transition." Paper prepared for delivery at the Conference, "Fiscal Federalism in the Russian Federation: Problems and Prospects for Reform," Higher School of Economics, Moscow, Russia, January 29-20, 2001.
- Fan, Gang. "New Norms in Public Revenue and Expenditure," in Shuguang Zhang (ed.), *Case Studies in China's Institutional Change*, Shanghai People's Publishing House, 1996.
- Freinkman, Lev, and Plamen Yossifov. "Decentralization in Regional Fiscal Systems in Russia: Trends and Links to Economic Performance." Mimeo, the World Bank, 1998.
- Frye, Timothy, and Andrei Shleifer, "The Invisible Hand and the Grabbing Hand." *American Economic Review*, May 1997, 87, pp. 354-358.
- Groves, Theodore, Yongmiao Hong, John McMillan, and Barry Naughton. "Autonomy and Incentives in Chinese State Enterprises." *Quarterly Journal of Economics*, 1994, 109(1), pp. 183-209.
- Hayek, Friedrich A. "The Use of Knowledge in Society." *American Economic Review*, 35, pp. 519-30, 1945.
- Hofman, Bert. "An Analysis of Chinese Fiscal Data over the Reform Period." *China Economic Review*, 1993, 4(2), pp. 213-230.
- Knight, John; and Shi Li. "Fiscal Decentralization: Incentives, Redistribution and Reform in China." *Oxford Development Studies*, 1999, 27(1), pp. 5-32.

- Lavrov, Aleksei, John M. Litwack, and Douglas Sutherland. 2000. "Fiscal Federalist Relations in Russia: A Case for Subnational Autonomy." Working Paper, Organization of Economic Co-operation and Development (OECD), Paris, France.
- Li, Hongbin, and Li-An Zhou. "Political Turnover and Economic Performance: The Disciplinary Role of Personnel Control in China." Mimeo, Chinese University of Hong Kong, 2003.
- Lin, Justin Yifu, and Zhiqiang Liu. "Fiscal Decentralization and Economic Growth in China." *Economic Development and Cultural Change*, October 2000, 49(1), p. 1-21.
- Maskin, Eric, Yingyi Qian, and Chenggang Xu. "Incentives, Information, and Organizational Form." *Review of Economic Studies*, April 2000, 67(2), pp. 359-378.
- McKinnon, Ronald. "Market-Preserving Federalism in the American Monetary Union," in M. Blejer and T. Ter-Minassian (eds.), *Macroeconomic Dimensions of Public Finance: Essays in Honour of Vito Tanzi*. London: Routledge, 1997, pp. 73-93.
- Montinola, Gabriella, Yingyi Qian, and Barry Weingast. "Federalism, Chinese Style: The Political Basis for Economic Success in China," *World Politics*, October 1995, 48(1), pp. 50-81.
- Musgrave, Richard, *Theory of Public Finance: A Study in Public Economy*, New York: McGraw, 1959.
- National Statistical Bureau, *China Statistical Yearbook*, Beijing: China Statistical Publishing House, various years.
- Oates, Wallace. *Fiscal Federalism*, New York: Harcourt Brace Jovanovich, 1972.
- OECD. 2000. *OECD Economic Surveys: The Russian Federation*. Paris, France: Organization for Economic Co-operation and Development.
- Oksenberg, Michel, and Tong, James. "The Evolution of Central-Provincial Fiscal Relations in China, 1971-1984: The Formal System." *China Quarterly*, March 1991.
- Qian, Yingyi, and Gerard Roland. "Federalism and the Soft Budget Constraint," *American Economic Review*, December 1998, 88(5), pp. 1143-1162.
- Qian, Yingyi, and Barry R. Weingast. "China's Transition to Markets: Market-Preserving Federalism, Chinese Style," *Journal of Policy Reform*, 1996, 1, pp. 149-185.

- Shleifer, Andrei. "Government in Transition." *European Economic Review*, 1997, 41, pp. 385-410.
- Shleifer, Andrei, and Robert W. Vishny. *The Grabbing Hand: Government Pathologies and Their Cures*, Cambridge, MA: Harvard University Press, 1998.
- Tiebout, Charles. "A Pure Theory of Local Expenditures." *Journal of Political Economy*, 1956, 64, pp. 416-24.
- Weingast, Barry R. "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Growth," *Journal of Law, Economics, and Organization*, April 1995, 11, pp. 1-31.
- Wildasin, David E. "Externalities and Bailouts: Hard and Soft Budget Constraints in Inter-Governmental Fiscal Relations," mimeo, Vanderbilt University, 1997.
- Wong, Christine P.W. (eds.). *Financing Local Government in the People's Republic of China*. Hong Kong: Oxford University Press, 1997.
- Zhang, Tao, and Heng-fu Zou. "Fiscal Decentralization, Public Spending, and Economic Growth in China." *Journal of Public Economics*, 1998, 67, pp. 221-240.
- Zhuravskaya, Ekaterina V. "Incentives to Provide Local Public Goods: Fiscal Federalism, Russian Style." *Journal of Public Economics*, June 2000, 76(3), pp. 337-68.