

# **The Political Economy of China's Fiscal Reforms A Game-Theoretic Analysis of Central-Local Interaction**

**Jing Vivian ZHAN, Ph.D.**

**Assistant Professor  
Department of Government and Public Administration  
321 TC Cheng Building  
The Chinese University of Hong Kong  
Shatin, N.T.  
Hong Kong  
Phone: (852) 2609 7545  
Fax: (852) 2603 5229  
[zhan@cuhk.edu.hk](mailto:zhan@cuhk.edu.hk)**

## **Abstract**

Fiscal reforms since the early 1980s have caused fluctuating distribution of fiscal power between the Chinese central and local governments. Why would the central government first initiate the decentralization of fiscal revenue and later reclaim the fiscal control? How could local governments gain more fiscal power under the constraint of central authority? This paper explains the central-local interactions in the reform era through a game-theoretic model. It argues that the central government controls the agenda of the budgetary system, while local governments took advantage of the extra-budgetary system to strategically respond to centrally initiated reforms.

**Key words:** China, fiscal reforms, central-local interaction, game theory

## Introduction

The ability to extract fiscal revenue is essential for the existence of any state. The extractive power is often indicated by the government's control of national revenue. For countries with multiple-level governments, the division of fiscal revenue among different levels of governments usually reflects the distribution of fiscal power. Since China started fiscal reforms in the early 1980s, the central government has seen considerable fluctuation in its control of fiscal revenue, including both budgetary and extra-budgetary revenue. On the one hand, the central share of budgetary revenue has been on a roller coaster, sliding from 41 percent in 1984 to merely 22 percent in 1993, and then bouncing back to around 50 percent after 1994. On the other hand, the central share of extra-budgetary revenue declined sharply from around 40 percent throughout the 1980s and the early 1990s to less than 10 percent in the early 2000s.<sup>1</sup>

The sliding central share of fiscal resources, especially in the early 1990s, depicted a worrisome picture that the Chinese party-state was losing control of its subordinates and China might disintegrate as some other post-Communist countries did. Scholars and policymakers heatedly debated on whether the central state was losing ground to local governments in the battle for fiscal as well as political control. Some saw the declining central share of fiscal revenues as an indicator of a weakening state capacity (Wang, 1994; Wang and Hu, 2001), the loss of a traditional tool for macroeconomic control by the government (Yang, 1994), the institutional decay of the political system (Walder, 1995), and declining governability of the country (Pei, 1997). The loss of fiscal control, therefore, had both political and economical consequences. On the political side, the decline of the center's fiscal power led in an unintended way to the center's loss of political initiative and intensified pattern of bargaining, in which the center came increasingly to react to

---

<sup>1</sup> Unless otherwise indicated, all the statistics used in this paper come from *Zhongguo Caizheng Nianjian (Finance Year Book of China) 1992-2007* (Beijing: China Finance Journals Press, 1992-2007).

initiatives from below instead of setting the political agenda (Pei 1997). On the economic side, the central government largely lost its traditional tool of macro-economic control through direct investment due to its declining share of fiscal revenues (Yang 1994).

However, it is the central government that initiated all the fiscal reforms and had the ultimate policymaking power. Why would the central government allow local governments, its subordinates, to gain increasing power in the fiscal arena? And if it were true, as many scholars argued, that the central government was losing its political control over the localities, how should we explain the 1994 Tax Reform through which the central government reclaimed substantial fiscal control over the local governments and significantly enhanced its share of the budgetary revenue?

In this paper, I aim to provide a holistic reading of China's fluctuating central-local fiscal relations through a game-theoretic model. I argue that earlier discussions overestimated the central loss of control over the formal, budgetary sector of China's fiscal system, but underestimated the significance of the informal, extra-budgetary system and the local control of it. The central and local government enjoyed disparate institutional positions within the two systems. In the budgetary arena, despite frequent bargaining with the localities, the central government retained a rather firm grip on the fiscal agenda. In accordance to the varying contingencies, it launched fiscal reforms from time to time to maximize its interests. It first resorted to fiscal decentralization to shed its financial responsibility for local expenditures and to encourage local fiscal efforts, which generated remarkable economic and fiscal growth; when the time came to reap the harvest, the center reclaimed the fiscal control it once gave out and substantially increased its share of the growing tax pool. However, the center faced a tradeoff: when it tightened fiscal control on the budgetary system, it encouraged local maneuvering of the extra-budgetary system. In reaction to increased central share of tax revenue, local governments increased the collection of extra-budgetary revenue to

bypass the central control. It is in the extra-budgetary system, which many existing discussions ignore, that the center had inherent difficulty in taking control.

The rest of the paper is organized as follows. The next section briefly describes China's fiscal system in transition, based on which the third section constructs a formal model of central-local interplay. The fourth and fifth sections solve the game and discuss the implications of the model against empirical evidence. The last section concludes.

### **China's Fiscal System in Transition**

China's fiscal system comprises two major parts, budgetary system and extra-budgetary system.<sup>2</sup> Budgetary system manages mainly tax revenues under the budgetary planning and auditing by fiscal departments. Extra-budgetary system, by contrast, operates outside the formal budgetary process. Extra-budgetary revenue (EBR) refers to various sorts of non-tax revenues collected by government agencies. For example, Bureau of Personnel (*Renshi Ju*) can charge fees for granting professional certificates, and State Drug Administration (*Yaopin Jiandu Ju*) can charge fees for authorizing the production and sales of drugs. It is worth noting that EBR differs from the non-tax revenue illegally collected by governments and their agencies outside both the budgetary and extra-budgetary management systems. EBR is legal, and is documented in official statistics in similar fashions as tax revenues.

#### ***Budgetary System***

China's post-Mao fiscal reforms have largely taken place within the budgetary system. From 1980 to 1993, numerous fiscal regimes were tried out, which were all together called the fiscal contract system (*caizheng baogan*). Under this system, the provinces (including nine cities that had direct fiscal relations with the center) signed individually with the central government revenue-

---

<sup>2</sup> Some scholars also use the term 'off-budget management' to mean the system outside budgetary management (*yusuan wai*). I adopt the official translation in Chinese sources and use the term "extra-budgetary".

sharing contracts that specified the amount/rate of fiscal revenues to be remitted to the center, and the contracts would last for several years. Essentially the fiscal contracts established regressive sharing rates and gave the provinces enormous benefits and economic incentives, because the more they produced the higher retention rate they enjoyed (Shirk, 1993). However, the impact on central finance was mixed. On the one hand, the contract system helped the central government shed the heavy financial burden it had shouldered prior to the reform onto the provinces; on the other hand, the central government shared shrinking portion of fiscal revenue generated in the thriving local economy.

The turning point came in the year of 1994 when a new tax-sharing system was enacted, which specified three categories of taxes: central taxes (accrue to the center), local taxes (accrue to the localities), and shared taxes (shared between the center and localities). Essentially the tax revenues are shared between the center and localities at fixed rates. After the implementation of the new tax-sharing system, the central share of national budgetary revenue jumped from 22 percent in 1993 to 56 percent in 1994 and remained around 50 percent in the following years (see Figure 1). With more fiscal resources in hand, the center no longer relied on local governments for fiscal revenue as it did under the fiscal contract system. Instead, local governments become dependent on central fiscal transfers to meet local financial needs. This switch of fiscal sharing system greatly enhanced the center's fiscal control over the localities.

(Figure 1 about here)

### ***Extra-Budgetary System***

Compared to the budgetary system, the extra-budgetary system is far less institutionalized and regulated by existing laws. The extra-budgetary management was first introduced as a supplement to the budgetary management and remained insignificant in terms of amount and function for a long time. However, in the early 1980s, accompanying the fiscal decentralization

reforms, extra-budgetary revenue (EBR) became an important funding source to government agencies at both the central and local level. A direct reason for the existence of extra-budgetary arrangements was the financial imperatives of government agencies. Under either the fiscal contract system or the tax-sharing system, budgetary revenue could not provide sufficient funds for government agencies, especially at local levels. To alleviate the fiscal distress, the State Council and the Ministry of Finance as well as provincial governments allowed some government agencies and social organizations to collect administrative fees, funds and extra charges to meet their financial needs. Local administrative departments all could impose levies and fees on enterprises and individuals (He and Liu, 1998).

The increase of extra-budgetary fund was often due to the encroachment on budgetary revenue, directly or indirectly. For instance, certain charges on enterprises according to their volume of sales or resource consumptions were frequently levied on pre-tax incomes. It is estimated that at least one third of such levies pertained to budgetary revenue. Besides, there was no clear distinction between budgetary and extra-budgetary revenues when collected locally. Quite a number of extra-budgetary levies had exactly the same targets and scopes as certain taxes. For example, local development and construction funds collected by local tax bureaus were actually EBR for local governments. Moreover, some localities even transferred tax revenues to extra-budgetary management for their own purposes (He and Liu, 1998).

### **Strategic Game between Central and Local Governments**

In view of all these transitions in China's fiscal system since the early 1980s, one would naturally wonder how we can understand the interactions between the central and local governments. Scholars have suggested some correlations between the changes in the budgetary and the extra-budgetary systems (Zhou, 2006). To further the exploration, I construct a formal model to explain the central and local government's behaviors.

This model assumes a two-level state with a national-level government (hereafter referred to as central government or center) and subnational governments (hereafter referred to as local government or locality), both as rational actors who try to maximize their self-interests. In this game I assume the central government interacts with each of the local governments individually and independently of other local governments. Admittedly, when making fiscal policies, the center actually considers local welfare and interregional equality. But for purpose of this study, I focus on the relationship between the central government and individual localities and internalize the center's consideration for regional equalization and coordination into the center's maximization of fiscal control. Thus I will model the interaction between the central government and one single local government.

The major purpose of this game is for the central and local governments to divide a local fiscal pool ( $T$ ), which is generated by the locality and contains two parts: tax revenue and extra-budgetary revenue ( $E$ ). The center decides the revenue-sharing scheme under which it extracts from the local fiscal pool. It can take part or all of the local fiscal revenue  $T$ .  $T$  can be understood as the result of local fiscal efforts: if the locality works hard to increase its productivity,  $T$  will increase; otherwise,  $T$  can remain stagnant or even decline. I assume  $T \geq E \geq 0$ .

Given the tax base  $T$ , the central government decides which kind of revenue-sharing scheme to adopt in dividing  $T$ . This model assumes the center adopts a sharing scheme of  $R + s \cdot T$ , where  $R$  is a fixed quota for local tax remission to the center, while  $s$  is a fixed central sharing rate. According to the recount of China's fiscal history, the center chooses from two types of revenue-sharing schemes: taking a fixed amount as under the fiscal contract system, and taking fixed proportion of local revenue as under the tax-sharing system. Hence  $R$  and  $s$  assume one of two possible sets of values:

1.  $R < T, s = 0$ , meaning the center extracts a fixed amount of remittance, while the locality retains the rest ( $T - R$ ). I assume  $R < T$ , because the center does not extract more than the local fiscal capacity. And  $R$  could be negative, because the center can subsidize certain localities.<sup>3</sup>
2.  $R = 0, 0 < s < 1$ , meaning the center shares local fiscal revenue at a fixed rate  $s$ . I assume  $s < 1$  because the center does not extract everything from the locality.<sup>4</sup>

In the second stage of the game, the locality decides how much EBR ( $E$ ) to collect. Since EBR is solely local revenue and not subject to central sharing, it is essentially a way for the locality to shield part of its revenue from central sharing. But under the fiscal contract system, since the locality always turns in a fixed remittance  $R$  to the center and keeps the rest, the value of  $E$  does not directly influence the central extraction from the local tax base  $T$ .<sup>5</sup>

EBR must be collected with the consent of the center.<sup>6</sup> Thus in the third step of the game the center decides whether to acquiesce or intervene in the local collection of  $E$ . Acquiescence means

---

<sup>3</sup> The value of  $R$  varies from province to province and is determined by negotiations between the center and provinces as well as historical conditions ( $R$  was set to ensure the center and each province would receive no less budgetary revenue than they did in the prior year). This model only assumes  $R < T$  but does not discuss its exact value because it does not affect the argument I aim to make.

<sup>4</sup> The value of  $s$  depends on tax rates on different industries and local industrial compositions. Like  $R$ ,  $s$  is also determined by central-local negotiations and historical conditions. As its exact value does not affect the argument and validity of the model, I will not discuss how it is determined.

<sup>5</sup> Some may argue that even under the fiscal contract system the EBR may indirectly influence the central sharing of local tax pool. For example, after the local government diverts a certain amount of fiscal revenue into extra-budgetary management, budgetary revenue will decrease (Wang, 1995). Seeing lower local tax revenue, the central government may set a lower level of remittance  $R$  in the fiscal contract. But there is no evidence that shows local remittance quotas were reset downwards for this reason. Instead, central extractions were often adjusted upwards during the years of the fiscal contract system. Under the assumption that  $R$  is an exogenous variable determined through central-local negotiation, I will not take  $E$ 's impact on  $R$  into consideration, and will assume that  $E$  does not influence the amount of fiscal revenue the center can extract from local tax base under the fiscal contract system.

<sup>6</sup> Here I am only concerned about the lawful fees and charges by the local government and I assume the center is fully aware of such revenues. Admittedly, there exist substantial illicit levies without

the center does nothing to stop the local collection of EBR; intervention includes two possibilities. First, the central government can simply abolish the locally established extra-budgetary levies and forbid the locality from collecting the revenue in the future; second, the center can reclassify the EBR as budgetary revenue and allow the locality to continue collecting the revenue under the supervision of the budgetary management system, which essentially institutionalizes the ad hoc taxation into formal taxation.<sup>7</sup> Both practices have been adopted by the center in reality, but there are practical reasons for the second to be used more often. Considering local financial needs, the center usually provides the locality with alternatives when it rules out certain funding sources. It will, for example, normally set up new taxes or raise tax rates in other areas to make up for the financial loss caused by the abolished extra-budgetary levies. This is one of the primary principals of the “tax-for-fee” reform experimented since the late 1990s (Teng, 2003). Thus, for simplicity of analysis I assume that the center will reclassify EBR as tax and shares it with the local government when it intervenes in the local collection of EBR.

Therefore, in the third step of the game, if the center accepts the local collection of E, it will share a smaller tax base  $T - E$  with the locality; if it intervenes in the local collection of E, the center will share the original tax base  $T$ . But such intervention will generate dissatisfaction among local officials as they lose some fiscal autonomy and directly disposable financial resources, which may lead to the malfunctioning of local bureaucracy and under-provision of local public goods. These problems impose a cost  $\sigma$  ( $\sigma > 0$ ) on the center when it disallows local collection of E.<sup>8</sup>

---

the consent of the center, but I will not discuss them in this project (e.g. see Lü, 1997; Bernstein and Lü, 2000).

<sup>7</sup> In fact, the central government also tried to discourage the collection of extra-budgetary revenue by impose taxes on it, but this method did not have much effect in reality (Wang, 1997). So I will not consider it in this model.

<sup>8</sup> Some may argue that the central government bears a political cost when allowing local collection of EBR, for excessive exaction may arouse popular discontent and social unrest. But in this model I do not consider this political cost because it is the excessive collection of EBR that is problematic,

In the last step of the game, the locality decides how to spend its retained revenue. The local government faces a choice between consumption and construction, with priority on the former. As the phrase “*yi yao chifan, er yao jianshe*” (e.g. *People’s Daily*, 1982; Jiang, 2000; Yang, 2000) indicates, the local government has to first spend part of its revenue (or even the entirety in areas with financial difficulties) on the payment to public officials and other administrative expenditures associated with the operation of the local bureaucracy. It can then invest the rest of the revenue in infrastructure, agricultural development, and capital construction etc. All these investments can help promote local economic development and generate more fiscal revenue in the future. Suppose the local government takes out a portion  $i$  of its retained revenue for constructive investment. I assume  $0 \leq i \leq 1$ . The investment enjoys a return rate of  $\lambda$  ( $\lambda > 0$ ). Normally one would expect  $\lambda > 1$ , which means the investment will bring more revenue the next period (e.g. year), but it does not have to be true for this model. Due to reasons such as inflation, payoff from the next period is discounted by a time discount factor  $\delta$  ( $0 < \delta < 1$ ).

All the choice variables and exogenous parameters are listed in Table 1:

(Table 1 about here)

The game is set up as in Figure 2. It is a sequential game with perfect information.

(Figure 2 about here)

As shown in Figure 2, there are four possible outcomes. Under each outcome, the payoffs are from both the current period and the forthcoming period. The center’s payoff includes its share of the fiscal revenue collected from the locality and a cost  $\sigma$  if it rejects the local proposal for

---

not EBR itself. For the public, extra-budgetary charges and taxes often are undistinguishable. If there is any popular discontent against E, that is because the total exaction T is perceived to be too high. Therefore, I do not assume a central cost for simply allowing the collection of E. As to the political cost associated with overall taxation, it deserves careful discussion in a whole new project.

collecting EBR. For the locality, its payoff is the tax revenue it retains as well as the EBR it collects.

The central and local payoffs are as following in the four outcomes.

1. When  $R < T, s = 0$  (i.e. the fiscal contract system), and the center allows the locality to collect E, the central payoff is:

$$U_{C1} = R + R \cdot \delta \quad (1)$$

The local payoff is:

$$U_{L1} = (T - R) \cdot (1 - i) + [T + (T - R) \cdot i \cdot \lambda - R] \cdot \delta \quad (2)$$

2. When  $R < T, s = 0$ , and the center intervenes in the local collection of E, the central and local payoffs in the two periods are:

$$U_{C2} = R - \sigma + (R - \sigma) \cdot \delta \quad (3)$$

$$U_{L2} = (T - R) \cdot (1 - i) + [T + (T - R) \cdot i \cdot \lambda - R] \cdot \delta \quad (4)$$

3. When  $R = 0, 0 < s < 1$  (i.e. the tax-sharing system), and the center allows the locality to collect E, the central and local payoffs are

$$U_{C3} = s \cdot (T - E) + s \cdot (T + [(1 - s) \cdot (T - E) + E] \cdot i \cdot \lambda - E) \cdot \delta \quad (5)$$

$$U_{L3} = [(1 - s) \cdot (T - E) + E] \cdot (1 - i) + [(1 - s) \cdot (T + [(1 - s) \cdot (T - E) + E] \cdot i \cdot \lambda - E) + E] \cdot \delta \quad (6)$$

4. When  $R = 0, 0 < s < 1$ , and the center intervenes in the local collection of E, the central and local payoffs are:

$$U_{C4} = s \cdot T - \sigma + (s \cdot [T + (1 - s) \cdot T \cdot i \cdot \lambda] - \sigma) \cdot \delta \quad (7)$$

$$U_{L4} = (1 - s) \cdot T \cdot (1 - i) + (1 - s) \cdot [T + (1 - s) \cdot T \cdot i \cdot \lambda] \cdot \delta \quad (8)$$

### **Solution of the Game**

In this section, I will solve the game by backward induction and find out how the central and local governments interact with each other in theory. I will discover under what conditions the central and local governments will, respectively, adopt what kinds of strategies.

### ***Under the Fiscal Contract System***

Under the fiscal contract system, since the central government always receives a fixed remission from the locality, no matter how much EBR the local government collects and keeps from sharing with the center, it does not affect the center's payoff. Thus the center acquiesces in the local collection of E ( $U_{C1}, U_{L1}$ ).

For the locality, because it remits a fixed remittance to the center, it does not matter whether the remaining part is counted as extra-budgetary or budgetary revenue. So the model does not tell us anything about local collection of E. However, for reasons not necessarily reflected in this model, such as the convenience of autonomous collection and management of the money without supervision or intervention from the center, the local government may have incentive to divert tax revenue into extra-budgetary management.

The other choice variable for the locality is investment rate  $i$ , which directly influences the local payoff. Taking the first derivative of  $U_{C1}$  with respect to  $i$ .

$$\frac{\partial U_{L1}}{\partial i} = (T - R)(\lambda \cdot \delta - 1) \quad (9)$$

I assume  $R < T$ , and thus  $T - R > 0$ . The sign of the first derivative solely depends on  $\lambda \delta - 1$ .

When  $\lambda \cdot \delta > 1$ ,  $\frac{\partial U_{L1}}{\partial i} > 0$ . It indicates that when the investment return rate times time discount factor is high enough, the locality will have incentive to maximize the investment rate  $i$ ,

and  $i$  should approach 1.<sup>9</sup> When  $i=1$ , which means the locality invests all the revenue it retains, the maximized local utility in the two periods is

$$\max U_{L1} = (T - R) \cdot (1 + \lambda) \cdot \delta \quad (10)$$

Consequently, the central payoff is

$$U_{C1} = R \cdot (1 + \delta) \quad (11)$$

When  $\lambda \cdot \delta \leq 1$ ,  $\frac{\partial U_{L1}}{\partial i} \leq 0$ . It indicates that when the investment return rate is not high enough and/or there is much uncertainty about the future (time discount factor is low) the locality will be disinclined to invest. Rather it will use all the revenue for current consumption, i.e.  $i=0$ . In this case, the maximized local utility is

$$\max U_{L1} = (T - R) \cdot (1 + \delta) \quad (12)$$

The central payoff is

$$U_{C1} = R \cdot (1 + \delta) \quad (13)$$

In summary, under the fiscal contract system, if investment return rate is high and there is high certainty about future revenues ( $\lambda \cdot \delta > 1$ ), the locality will maximize investment. The center will get the payoff  $U_{C1} = R \cdot (1 + \delta)$ , and the maximum local utility is  $\max U_{L1} = (T - R) \cdot (1 + \lambda) \cdot \delta$ . Otherwise, if the locality has weak incentive to invest ( $\lambda \cdot \delta \leq 1$ ), the center will get the payoff  $U_{C1} = R \cdot (1 + \delta)$ , and the maximum local utility is  $\max U_{L1} = (T - R) \cdot (1 + \delta)$ .

### ***Under the Tax-Sharing System***

---

<sup>9</sup> In reality,  $i$  cannot be 1 because the local government must devote certain amount of money to meet the imperative needs like paying the salaries of officials, maintaining the proper functioning of the bureaucracy etc. But for simplicity of this model, I will assume  $i$  can be 1.

Under the tax-sharing system, the situation is more complicated. For the local government, its utility is decided by both EBR and investment rate  $i$ . When the center doesn't intervene in E, the local utility is

$$U_{L3} = [(1-s) \cdot (T-E) + E] \cdot (1-i) + [(1-s) \cdot \{T + [(1-s) \cdot (T-E) + E] \cdot i \cdot \lambda - E\} + E] \cdot \delta \quad (6)$$

The locality can choose an optimal investment rate  $i$  to maximize its utility. Take the first derivative of  $U_{L3}$  with respect to  $i$ .

$$\frac{\partial U_{L3}}{\partial i} = [(1-s) \cdot (T-E) + E] \cdot [\lambda \cdot (1-s) \cdot \delta - 1] \quad (14)$$

Because  $(1-s)(T-E) + E > 0$  (the revenue retained by the locality in the current period must be greater than 0), the sign of the derivative depends on  $\lambda \cdot (1-s) \cdot \delta - 1$ .

If  $\lambda \cdot (1-s) \cdot \delta > 1$ ,  $\frac{\partial U_{L3}}{\partial i} > 0$ . It indicates that when the investment return rate and the time discount factor are high, and at the same time the local retention rate is high enough, it is in the locality's interests to invest as much of the revenue as possible, and  $i$  approaches 1.<sup>10</sup> When  $i = 1$ , the maximum local utility is

$$\max U_{L3} = [(1-s) \cdot T + s \cdot E] \cdot [1 + \lambda \cdot (1-s)] \cdot \delta \quad (15)$$

If  $\lambda \cdot (1-s) \cdot \delta \leq 1$ ,  $\frac{\partial U_{L3}}{\partial i} \leq 0$ . It indicates that when the investment return rate is not high enough, and/or there is much uncertainty about the future, and/or the local retention rate is too low, the local government will tend to use all its revenues for current consumption. When  $i = 0$ , the maximum local utility is

$$\max U_{L3} = [(1-s) \cdot T + s \cdot E] \cdot (1 + \delta) \quad (16)$$

However, if the center intervenes in the local collection of E, the local utility will be

---

<sup>10</sup> Again in reality  $i$  cannot be 1 because of imperative consumption needs of the local government.

$$U_{L4} = (1-s) \cdot T \cdot (1-i) + [T + (1-s) \cdot T \cdot i \cdot \lambda] \cdot (1-s) \cdot \delta \quad (8)$$

Take the first derivative of  $U_{L4}$  with respect to  $i$ .

$$\frac{\partial U_{L4}}{\partial i} = (1-s)T[\lambda(1-s)\delta - 1] \quad (17)$$

It is exactly the same as discussed above when the center approves the local collection of EBR. Thus the same conditions apply: If investment return rate and time discount factor are high, and the local retention rate is high enough ( $\lambda \cdot (1-s) \cdot \delta > 1$ ),  $i$  approaches 1. If  $i = 1$ , the maximum local utility is

$$\max U_{L4} = (1-s) \cdot T \cdot [1 + \lambda \cdot (1-s)] \cdot \delta \quad (18)$$

If investment return rate and time discount factor are low, and/or local tax retention rate is not high enough ( $\lambda \cdot (1-s) \cdot \delta \leq 1$ ),  $i$  tends to be 0. When  $i = 0$ , the maximum local utility is

$$\max U_{L4} = (1-s) \cdot T \cdot (1 + \delta) \quad (19)$$

Now, I will discuss under what condition the center will acquiesce or intervene in the local collection of E. If the locality has strong incentive to invest ( $\lambda \cdot (1-s) \cdot \delta > 1$ ),  $i = 1$ , according to Equation (5), if the center accepts the EBR, its payoff is

$$U_{C3} = s \cdot (T - E) + s \cdot \{T - E + [(1-s) \cdot (T - E) + E] \cdot \lambda\} \cdot \delta \quad (20)$$

if the center rejects E, then according to Equation (7), the central payoff is

$$U_{C4} = s \cdot T - \sigma + [s \cdot T - \sigma + s \cdot (1-s) \cdot T \cdot \lambda] \cdot \delta \quad (21)$$

In order for the center to accept E, the center's payoff must be higher than if it rejects E. Solve the

inequality  $U_{C3} > U_{C4}$ , and I get  $E < \frac{\sigma \cdot (1 + \delta)}{s \cdot (1 + \delta - s \cdot \lambda \cdot \delta)}$ . This means as long as locally raised EBR

does not exceed a certain level that is determined by the parameters  $\sigma$ ,  $\delta$ ,  $\lambda$ , and  $s$ , the center will approve it. Otherwise, the center will not tolerate its loss of share of fiscal revenues and will disallow the EBR.

Following the same logic, if the locality is disinclined to invest ( $\lambda \cdot (1-s) \cdot \delta \leq 1$ ),  $i$  tends to be 0, and the level of local EBR that can be tolerated by the central government is  $E < \frac{\sigma}{s}$ . If  $E$  exceeds this level, it will be banned by the center. Therefore,

$$E_{\max} = \begin{cases} \frac{\sigma \cdot (1+\delta)}{s \cdot (1+\delta - s \cdot \lambda \cdot \delta)}, & \text{when } \lambda(1-s)\delta > 1 \\ \frac{\sigma}{s}, & \text{when } \lambda(1-s)\delta \leq 1 \end{cases} \quad (22)^{11}$$

When the locality maximizes  $E$  to its upper limit allowed by the center, the center's payoffs of accepting and rejecting the proposal are actually the same. Therefore, under the fixed-rate tax-sharing scheme, the center's maximum payoff is

$$U_{C3} = U_{C4} = s \cdot T - \sigma + [s \cdot T - \sigma + s \cdot (1-s) \cdot T \cdot i \cdot \lambda] \cdot \delta, \quad i = \begin{cases} 1, & \text{when } \lambda(1-s)\delta > 1 \\ 0, & \text{when } \lambda(1-s)\delta \leq 1 \end{cases} \quad (23)$$

### ***Deciding Revenue-Sharing Scheme***

When local investment incentive is strong, moderate, or weak, the conditions under which the center switches from the fiscal contract system to the tax-sharing system are as follows:

1. When investment return rate is high, and people perceive high economic and policy stability ( $\lambda(1-s)\delta > 1$ , which guarantees  $\lambda\delta > 1$ ), the locality will have strong investment incentive and maximize investment rate ( $i = 1$ ) under both revenue-sharing schemes. Comparing the center's payoffs under the regressive sharing rate and fixed sharing rate (see Equations (11) and (23)), I can see that the center will benefit from transiting from the regressive tax-sharing scheme to a fixed tax-sharing scheme when the local tax capacity exceeds the threshold:  $T > \frac{(R + \sigma) \cdot (1 + \delta)}{s \cdot (1 + \delta) + s \cdot (1 - s) \cdot \lambda \cdot \delta}$ .

---

<sup>11</sup> It can be proved that  $\frac{\sigma \cdot (1 + \delta)}{s \cdot (1 + \delta - s \cdot \lambda \cdot \delta)} > \frac{\sigma}{s}$ .

2. When investment return rate is moderate, and people perceive only moderate economic and policy stability, and local retention rate is not high enough ( $\lambda(1-s)\delta \leq 1$ , but  $\lambda\delta > 1$ ), the locality has only moderate incentive to invest. Its investment behavior will be influenced by the tax-sharing scheme: it will maximize the investment rate ( $i = 1$ ) under the fiscal contract system while minimizing the investment rate ( $i = 0$ ) under the tax-sharing system. Comparing the central payoffs under the two systems (Equations (11) and (23)), I find out that for the center to adopt the tax-sharing system, local tax capacity must exceed the threshold:  $T > \frac{R + \sigma}{s}$ .

3. When investment return rate is low, and/or people suffer low economic and policy stability ( $\lambda\delta \leq 1$ , which guarantees  $\lambda(1-s)\delta \leq 1$ ), the locality will minimize investment rate ( $i = 0$ ) under both revenue-sharing schemes. Comparing the central payoffs (Equations (13) and (23)), I can see that when the local tax capacity exceeds the threshold  $T > \frac{R + \sigma}{s}$ , the center benefits from switching from the fiscal contract system to fixed sharing rate.

## **Implications and Discussions**

### ***Central Government: Why Tax Reform?***

Different from the arguments and concerns in previous studies that the central government is losing fiscal control to localities, this model suggests the opposite. The central government takes control of the fiscal agenda by choosing different revenue-sharing schemes to maximize its payoffs under different conditions. It can share fiscal power and tax revenues (*fenquan rangli*) with the locality when necessary; it can also reclaim the benefits when it is more advantageous to do so: When the post-Mao fiscal reforms started at the end of the 1970s, the Chinese national economy was so devastated and the tax base was so small that the central government could hardly extract much revenue from the localities. On the contrary, it had to shoulder local fiscal responsibilities. Under such a situation it was better off decentralizing fiscal power and letting localities stand on

their own feet. That is why it innovatively adopted the fiscal contract system and formalized this system by fixing contracts with the provinces for several years.<sup>12</sup> Receiving both a strong incentive signal as well as enhanced fiscal power from the center, local governments were motivated to promote entrepreneurial development of the local economy, which in consequence enhanced local fiscal revenue (see Oi, 1992; Shirk, 1993). As Figure 3 shows, local fiscal revenue (including both budgetary and extra-budgetary revenues) increased continuously from the early 1980s to 1993, the year before the tax reform.<sup>13</sup> Even controlling for inflation, there was still a general increasing trend in local fiscal revenue (the data series with triangular dots).

(Figure 3 about here)

Seeing the steady increase in local fiscal capacity, the central government felt secure enough to alter the revenue-sharing scheme to increase its share of local fiscal revenue. As early as 1987, the Thirteenth Congress of the Chinese Communist Party called for a tax-sharing system that could “rightly handle the economic relationship between the central and local governments, and between the state, enterprises, and individuals” (Zhao, 1987). However, the proposal encountered strong local resistance. At the same time, taxes and profits had not yet been separated for state-owned enterprises (SOE), which posed a fatal obstacle to the enactment of a tax-sharing system based on well-specified tax types (Ping, 1991). Besides, there were no concrete plans for how to carry out the tax reform and it was unclear what would be the consequences (Xin, 1998). Only in 1993, upon expiration of the 1988 fiscal contracts and after the SOE “tax-for-profit” reform, did the central government bring the tax reform to the table again.

---

<sup>12</sup> There were earlier attempts of fiscal contracts under the Maoist period. But those experiments were short-lived and unsuccessful. They were not as institutionalized as the fiscal contract system in the 1980s, which was fixed in fiscal contracts that would last for five years.

<sup>13</sup> The year 1993 saw a sudden decrease of fiscal revenues. It was due to the redefinition of the extra-budgetary revenue: special funds for state-owned enterprises (*qiye zhuanxiang zijin*) and some other extra-budgetary fees and charges were abolished, which caused the extra-budgetary revenue to drop by nearly two-thirds.

Another reason for launching the tax reform in 1994, as the model suggests, is that the central government is more eager to switch to a fixed-rate revenue-sharing scheme when local investment incentive is strong than when it is weak. Around 1993 and 1994, as a result of Deng Xiaoping's "southern tour", in which he urged accelerated market reforms and "opening up" to the outside world, China experienced economic overheating and widespread local zeal for investment. The center's desire to claim a larger share of local economic achievement, as well as a concern over a resurgence of investment-induced inflation, prompted the central government to reclaim fiscal control (Huang Y., 1996). Under such circumstances, 1994 appeared to be an ideal point for switching from a fiscal contract system to a tax-sharing system.

### ***Extra-Budgetary Revenue: Local Response to the Tax Reform***

Under the fiscal contract system, since the locality only needs to remit a certain amount of its fiscal revenues to the center and retains the rest, it does not matter how much EBR is collected from the tax pool. For the central government, since it always receives a fixed amount of tax revenues from the locality, its payoff is independent of local EBR. Thus the center does not have incentive to intervene in the local collection of EBR. Empirical data confirms this prediction. Throughout the 1980s, under the fiscal contract system the central government virtually turned a blind eye to the increase in local EBR. There was a loose extra-budgetary system that gave governments and their agencies substantial discretion over the collection and use of extra-budgetary funds. As a result, we see a steady level of EBR in the 1980s and the early 1990s. The local share of EBR remained around 50 to 60 percent.<sup>14</sup> (See Figure 4.)

---

<sup>14</sup> Here I use the local share out of the entire EBR rather than the absolute amount of local EBR because the ratio can provide a more comparable basis over years than the absolute amount in view of the changes brought about by economic growth, inflation, increasing government needs etc., as well as the occasional redefinition and recategorization of EBR by the center.

However, under the tax-sharing system, the incentive structure changes significantly. As the local government's remittance to the center now depends on the local tax base  $T$ , the more tax revenue the local government collects, the more it needs to remit to the center. Under such circumstances, if the local government can withhold certain part of the tax base from being shared with the center, it will surely take as much as it is allowed, because its payoff is positively correlated with EBR. In this regard, as the local government proposes the types and amounts of EBR to the center, it will propose to the upper limit that is tolerated by the center. It is this sudden change of incentive structure that drives the local government to maximize the collection of EBR. Thus after the 1994 tax reform, we see the local share of EBR jumped drastically to over 90 percent. In 1996, for example, there existed 346 types of national or central administrative fees, accounting for 150 billion yuan in total revenues. But this was only 8 percent of the total amount of fees collected nationwide, with 92 percent collected at local levels (Jingji Dongtai Ziliao, 1999).

(Figure 4 about here)

The central attitude towards EBR changed greatly as well. Since local collection of EBR now directly impacted on the center's fiscal income, the center no longer ignored the increase in local EBR. In contrast to the lack of central intervention in the 1980s, the 1990s saw a series of central efforts to curb the growth of EBR. It took the first serious action in 1993.<sup>15</sup> The central government redefined EBR and stopped collecting one major part of it, the depreciation funds and after-tax revenue of SOEs. In addition, the Ministry of Finance also participated in two inspections of illicit charges, one focusing on charges imposed on peasants, and the other on administrative

---

<sup>15</sup> It was still under the fiscal contract system in 1993, but the center had already experimented in a few provinces with the new tax-sharing system and was ready for a full-scaled tax reform. It could foresee the impact of extra-budgetary revenue on the central treasury under the tax-sharing system. Thus it is not hard to understand why the center started dealing with the issues of extra-budgetary revenue in protection of its interests then, even though the tax-sharing system was not enacted nationwide yet.

fees. The second central attack on EBR occurred in 1996, when the Ministry of Finance, State Development Planning Commission, People's Bank of China, Ministry of Supervision, and Auditing Administration conducted a thorough inspection on the collection and management of EBR across the nation. Following the inspection, the State Council's "Decision on Strengthening the Management of Extra-Budgetary Fund" (State Council, 1997) redefined the range of EBR and classified 13 major extra-budgetary funds (altogether about 150 billion yuan) as budgetary revenue. The Decision also called for the establishment of a "decoupling-revenue-and-expenditure" system (*shouzhi liangtiaoxian zhidu*), which required the extra-budgetary funds collected by public security agencies, procuratorate, courts, and bureaus of industrial and business administration to be incorporated into budgetary management (Ma et al., 2003). In 2000, another "tax-for-fee" reform was initiated that aimed at abolishing extra-budgetary levies imposed on peasants (Teng, 2003). The abolition of agricultural taxes in 2006 also undercut the channels through which local governments could extra levies while collecting agricultural taxes. By these measures, the central government intended to stop rampant local extra-budgetary levies and to replace them with taxes, which are relatively well regulated by laws and supervised by tax bureaus.

However, the series of central measures cannot fundamentally change either the pattern of extra-budgetary collection or the incentive structure of local governments. The root of the problem largely remains untouched: The loose management of EBR outside the budgeting process makes it very profitable for government agencies to collect funds arbitrarily and retain them in their own pockets, and they bear little cost for doing so.

Most importantly, local governments remain as the agenda setter in determining the amount of EBR. Since localities have the power to propose extra-budgetary charges, they can always set up new levies to make up for the financial loss after some old ones are abolished by the center. Essentially, as long as the locality takes the initiative in EBR collection, and has direct control over

local fiscal resources, there is no effective way for the center to contain the increasing tendency of local EBR. Without changing the incentive structure (e.g. disconnecting EBR from local income) or the mechanisms through which the incentive structure works (e.g. taking away the local power of setting up non-tax levies), central efforts to control EBR can only generate marginal, short-term effects.

### ***Local Investment Behaviors***

Local investment rate is also a crucial factor in this game: it is the major source for the increase of local tax capacity and also one of the central concerns in deciding tax-sharing scheme. As the model suggests, whether the locality maximizes or minimizes its investment rate largely depends on the investment return rate  $\lambda$  and time discount factor  $\delta$ . When the expected return of investment is high enough ( $\lambda\delta > \frac{1}{1-s}$ ), the locality will maximize its investment rate  $i$  no matter under what revenue-sharing scheme, and the center does not need to worry about hurting the local government's incentive to develop local economy. On the other hand, if the expected return of investment is too low ( $\lambda\delta \leq 1$ ), the locality will minimize its investment rate  $i$  under either revenue-sharing scheme. This is a reassuring result. It means that as long as local investment incentive is strong enough, the change of revenue-sharing scheme will not negatively impact on local investment or decelerate investment-propelled economic growth. Empirical evidence supports this argument. As we can see in Figure 5, local investment pattern largely remained unchanged before and after the 1994 tax reform. Between 1991 and 2002, the average national level of local investment rates stayed stable around 20 percent,<sup>16</sup> which were relatively high compared to other

---

<sup>16</sup> Local investment rate is calculated as the ratio of local constructive expenditure out of total local budgetary expenditure. Constructive expenditure before 1998 included the following seven items: (1) capital construction (*shengchanxing jiben jianshe zhichu*), (2) enterprise innovation funds (*waqian gaizao zijin*) and science and technology promotion funds (*keji san xiang feiyong*), (3) simple commercial construction (*jianyi shangye jianzhu*), (4) additional appropriation for

countries. For example, in the United States, investment and constructional expenditures took up less than 10 percent of federal expenditures in the 1980s and 1990s, and the local investment rates were a little more than 10 percent. In France, local governments spend 26 to 30 percent of their expenditures on economic construction. And the government investment rates in other developing countries vary widely from less than 10 percent to around 40 percent (Li, 2003). The relatively high local investment rates in China suggest that local governments had rather strong incentives in investment and economic construction, and that this strong incentive was not thwarted by the 1994 Tax Reform.

(Figure 5 about here)

Nevertheless, the local investment rate is constrained by local disposable revenue, which is determined by local fiscal capacity and imperative consumptive obligations. If local fiscal revenue can hardly meet such financial needs as government administrative expenditures and payments and social welfares of government employees, the local government must use its limited funds for prioritized consumptions, and hence there will be scanty investable revenue. Thus we observe considerable cross-regional variation in local investment rate. Regions with abundant fiscal revenue can afford to devote more government expenditures to capital construction, enterprise innovation, research and development etc., while in regions with limited fiscal capacity, most of the government revenue goes to imperative administrative expenditures, and the proportion of government investment consequently will be very low. With such divergence in local fiscal capacity, tax reform cannot directly change local investment patterns. From Figure 5 we can see clearly the difference in

---

enterprises' circulating capital (*zeng bo qiye liudong zijin*), (5) geological prospecting expenses (*dizhi kantan fei*), (6) expenses for supporting rural production (*zhiyuan nongye shengchan zhichu*) and special funds for agricultural development (*nongye zonghe kaifa zhichu*), and (7) expenditure for supporting underdeveloped areas (*zhiyuan bu fada diqu zhichu*). Starting 1998, the item of simple commercial construction was incorporated into capital construction and did not exist any more, while a new item, land and sea areas development expenses (*tudi he haiyu kaifa jianshe zhichu*), was created and included into the list of government expenditure.

local investment rates between the eastern, central, and western areas.<sup>17</sup> Wealthier eastern provinces invest consistently more than the central region, where economic reform and development have lagged behind throughout the 1990s and 2000s. Interestingly, the traditionally underdeveloped western provinces saw higher investment rate starting the late 1990s, probably thanks to the Western Development Project and the injected funds from the center.

Although the change of revenue-sharing schemes in general does not influence local investment pattern when local investment incentive is very strong or very weak, an interesting case occurs when the expected return of investment is moderate ( $1 < \lambda\delta \leq \frac{1}{1-s}$ ). Then the difference between the two revenue-sharing schemes matters: fixed local remittance encourages the locality to make investment while proportional central-local sharing hurts the local incentive in investing. In this case, the transition from fiscal contract system to tax-sharing system will change the local investment pattern. In effect, this is one of the major purposes for the center to initiate the tax reform. Not all kinds of investments benefit the national economy equally. The central government values the kind of investment that yields high long-term returns propelled by technological advancement rather than moderate short-term growth caused by intensive capital investment in small-scale manufactories or real estate speculation. One problem under the fiscal contract system that has been discussed by many scholars is the repetitive local investment in industries such as tobacco and alcohol that yield considerable tax revenue but only moderate or even no economic growth (Lin, 1995). The minimal requirement for initial investment and seemingly high returns drove local governments to concentrate investments in repetitive manufactories and led to

---

<sup>17</sup> Following common practice, I divide the 31 provinces into three areas: eastern, central, and western. Conventionally, eastern regions include Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, and Hainan; central regions include Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hunan, and Hubei; western regions include: Inner Mongolia, Guangxi, Guizhou, Chongqing, Sichuan, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang.

increasing regional competition and protectionism, which prevented the emergence of a free and coordinated market at the national level and the efficient allocation of investments among industries (Li, 2003; Kumar, 1994; Wedeman, 2003). Therefore, by initiating the tax reform, the center effectively takes away the incentive from the localities to invest in the small-scale manufactories that yield only moderate returns, but as discussed above, it will not influence local investment in the industries with really high returns. So we can see that tax reform not only serves the goal of increasing the central share of fiscal revenues, but also facilitates the efficient allocation of resources and the adjustment of industrial structures (Huang G., 1996).

## **Conclusion**

In this paper I construct a game-theoretic model that tries to understand China's fiscal reforms and to explain central and local interactions. It tells a two-fold story: First, the central government is a very strategic player in its interaction with local governments: When local economic development level was low and there was uncertainty about the potential for growth, it signed fiscal contracts and extracted fixed remittances from localities, which functioned as a safety net for the center and guaranteed its revenue level. At the same time, it gave local agents strong incentive to develop the local economy by allowing them generous revenue retention rates. As a result, local agents carried out economic reform enthusiastically, bringing about remarkable economic growth. When the pool of fiscal revenue expanded to a certain threshold as a result of economic growth, the center claimed a larger share by switching to a tax-sharing system. And by changing the revenue-sharing scheme, the center also manipulated the local incentive structure regarding investment. It discouraged repetitive local investments and induced more efficient and sound allocation of resources among industries. In this regard, the center controls the agenda in the formal, budgetary system. Making full use of this advantageous institutional position, it changes the revenue-sharing scheme from time to time to maximize its fiscal interests.

It is equally important to note that local governments should not be considered as dutifully following central command. Instead, they have their own agendas. The swelling of EBR after the 1994 tax reform is a clear manifestation of local pursuit of their interests. This leakage of the tax pool by way of EBR imposes a dilemma on the central government. As long as the center has a stake in the financial solvency and proper functioning of local governments, and local governments take the initiative in raising extra-budgetary funds to meet their financial needs, there is no effective way for the center to curb the increasing trend of EBR. In this sense, local governments are the agenda setter in the extra-budgetary system, and they take advantage of this institutional position to advance their interests. It is in this arena that the central government has genuine difficulty in gaining fiscal control over the localities.

The central-local relationship in China has been a very complicated issue. The irregularity and volatility of both central policies and local responses further complicate the analysis. However, we should not take changing short-term trends at face value by jumping to the conclusion that the center is losing control, or that the localities are vulnerable to repression from the center. Neither should we interpret the central-local relationship as a zero-sum competition for power. Instead of focusing myopically on the outcome and ignoring the rationale, we need to sensitively capture the incentive structures that guide the two players in their interaction and interdependence.

## References

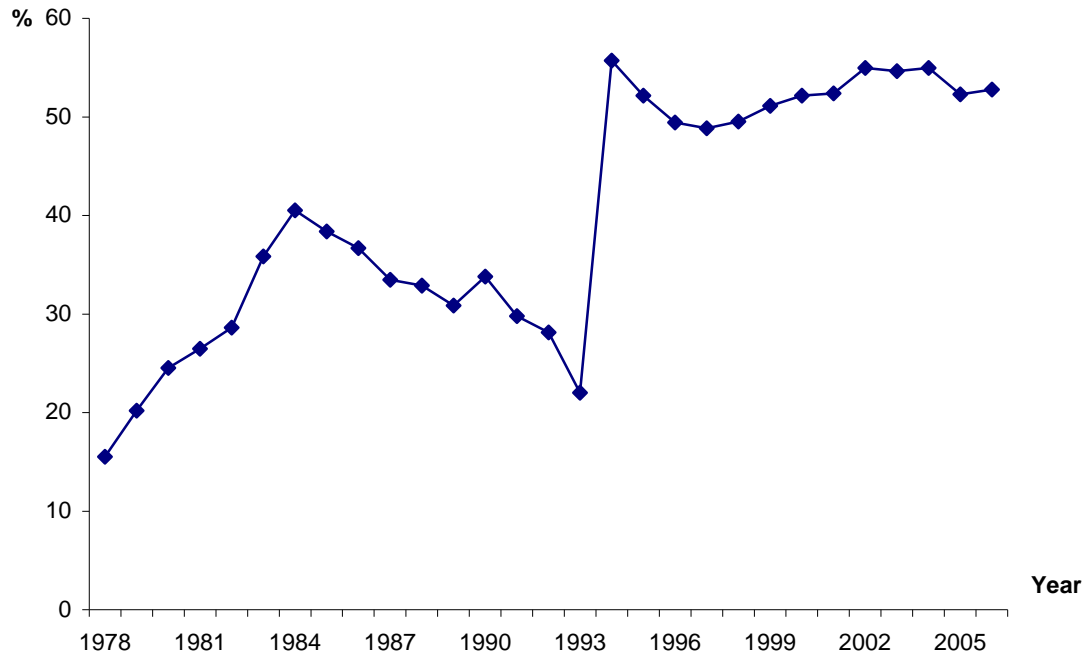
- Bernstein, T. and X. Lü. 2000. "Taxation without Representation: Peasants, the Central and the Local States in Reform china," *The China Quarterly* 163: 742-763.
- Finance of Contemporary China Editorial, ed. 1990. *Zhongguo Shehui Zhuyi Caizheng Shi Cankao Ziliao 1949-1985 (References of China's Socialist Fiscal History 1949-1985)*. Beijing: China Finance and Economy Press.
- Guo, C. 2001. "Zhongguo Caizheng (1979-2000) Bianqian de Xiaolu he Fangxiang (The Efficiency and Direction of China's Fiscal Transition (1979-2000))", *Gaige (Reform)* (4).
- Huang, G. 1996. "Lun Difang Baohu Zhuyi de Caizheng Dongyin ji Zhili Duice (On the Financial Motivation of Local Protectionism and Administrative Measures)," *Caijing Yanjiu (The Study of Finance and Economics)* 176: 15.
- He, S, and S. Liu. 1996. "Caiquan Fensan Bu Li yu Zhengquan Tongyi (Dispersion of Fiscal Authority Harms the Unification of Political Power)", *Zhongguo Caizheng Ninajian (Finance Year Book of China)*: 758-759. Beijing: Ministry of Finance.
- Huang, Y. 1996. *Inflation and Investment controls in China: the Political Economy of Central-Local Relations during the Reform Era*. Cambridge: Cambridge University Press.
- Jiang, Z. 2000. "Speech at the Meeting on Finance and Taxation" January 19.
- "Jingji Dongtai (Statistics of Economic Development)" (1999), *Shuiwu Yanjiu (Research on Taxation Affairs)* 11.
- Kumar, A. 1994. "Economic Reform and the Internal Division of Labour in China," in David Goodman and Gerald Segal, eds., *China Deconstructs: Politics, Trade and Regionalism*. London: Routledge.

- Lin, T. 1995. "Lun Jiaqiang Zhongyang Caizheng Hongguan Tiaokong yu Difang Liyi Zhiyue (Strengthening Macro-Regulation of Central Fiscal Authority and Interest Constraint at Local Level)," *Caizheng Yanjiu (The Finance Research)* April 1995: 28.
- Lü, X. 1997. "The Politics of Peasant Burden in Reform China," *The Journal of Peasant Studies* 25 (1): 113-138.
- Ma, H, Y. Li, G. Shi, and H. Xu, eds. 2003. *Shouzhi Liang Tiao Xian Guanli Zhidu (Decoupling-Revenue-and-Expenditure Management System)*. Beijing: China Finance and Economy Press, 2003.
- Oi, J. 1992. "Fiscal Reform and the Economic Foundations of Local State Corporatism in China," *World Politics* 45(1): 99-126.
- Oksenberg, M, and J. Tong. 1991. "The Evolution of Central-Provincial Fiscal Relations in China, 1971-1984," *The China Quarterly* 125: 1-32.
- Pei, M. 1997. "Racing against Time: Institutional Decay and Renewal in China", in W. Joseph (ed.), *China Briefing: the Contradictions of Change*, 11-49. Armonk, N.Y.: M. E. Sharpe.
- Ping, X. 1991. *Caizheng Yuanli yu Bijiao Caizheng Zhidu (Fiscal Theories and Comparative Fiscal Systems)*. Shanghai: Sanlian Bookstore.
- Shirk, S. 1993. "Playing to the Provinces: Deng Xiaoping's Political Strategy of Economic Reform," *The Political Logic of China's Economic Reform*. Berkeley: University of California Press.
- State Council. 1997. "Guanyu Jiaqiang Yusuanwai Zijin Guanli de Jueding [Decision on Strengthening the Management of Extra-Budgetary Fund]." *Zhongguo Caizheng Nianjian [Finance Year Book of China] 1997*. Beijing: China Finance Journals Press.

- Teng, X. 2003. *Nongcun Shuifei Gaige yu Difang Caizheng Tizhi Jianshe (Rural Tax-for-fee Reform and the Construction of Local Fiscal System)*. Beijing: Economic Science Press.
- Walder, A. 1995. "Local governments as Industrial Firms: An Organizational Analysis of China's Transitional Economy," *American Journal of Sociology* 101(2): 263-301.
- Wang, S. 1994. "Central-Local Fiscal Politics in China", in H. Jia and Z. Lin (eds.) *Changing Central-Local Relations in China: Reform and State Capacity*, 91-112. Boulder: Westview Press.
- Wang, S. 1995. "The Rise of Regions: Fiscal Reform and the Decline of Central State Capacity in China," in A. Walder, ed. *The Waning of the Communist State: Economic Origins of Political Decline in China and Hungary*, 87-113. Berkeley: University of California Press.
- Wang, S, and A. Hu. 2001. *The Chinese Economy in Crisis: State Capacity and Tax Reform*. Armonk, N.Y.: M.E. Sharpe.
- Wedeman, A. 2003. *From Mao to Market: Rent Seeking, Local Protectionism, and Marketization in China*. Cambridge: Cambridge University Press.
- Xiang, H., ed. 1999. *Lingdao Ganbu Caizheng Zhishi Duben (Readings on Fiscal Issues for Leaders and Cadres)*. Beijing: Economic Science Press.
- Xin, X. 1998. *Hongqiang Juece: Zhongguo Zhengfu Jigou Gaige Shenceng Qiyin (Decisions behind the Red Wall: the Deep Causes of China's Governmental Organization Reforms)*. Beijing: China Economy Publishing House.
- Yang, D. 1994. "Reform and the Restructuring of Central-Local Relations", in D. Goodman and G. Segal (eds.), *China Deconstructs; Politics, Trade, and Regionalism*, 59-98. London; New York: Routledge.

- Yang, X. 2000. “Zhengfu Caizheng de Xingwei Zhunze—jian Lun Yi Shi Chifan, Er Yao Jianshe” (“The Behavioral Rules of Government Finance: on ‘Eat First and Construction Follows’”), *Caizheng Yanjiu (Finance Research)* May, pp. 58-59.
- “Yi Yao Chifan, Er Yao Jianshe” (“Eat First and Construction Follows”) *People’s Daily*, February 22 1982.
- Zhao, Z. 1987. “Yanzhe You Zhongguo Tese de Shehuizhuyi Daolu Qianjin (Progress along the Socialist Road with Chinese Characteristics).” Speech made at the Thirteenth National Congress of the Chinese Communist Party.
- Zhou, F. 2006. “Fenshuizhi Shi Nian: Zhidu Jiqi Yingxiang (Ten Years of Tax-Sharing System: System and Its Implications,” *Zhongguo Shehui Kexue (Chinese Social Sciences)*, vol. 6, pp. 100-115.
- Zhongguo Caizheng Nianjian (Finance Year Book of China) 1992-2007*. Beijing: Ministry of Finance.

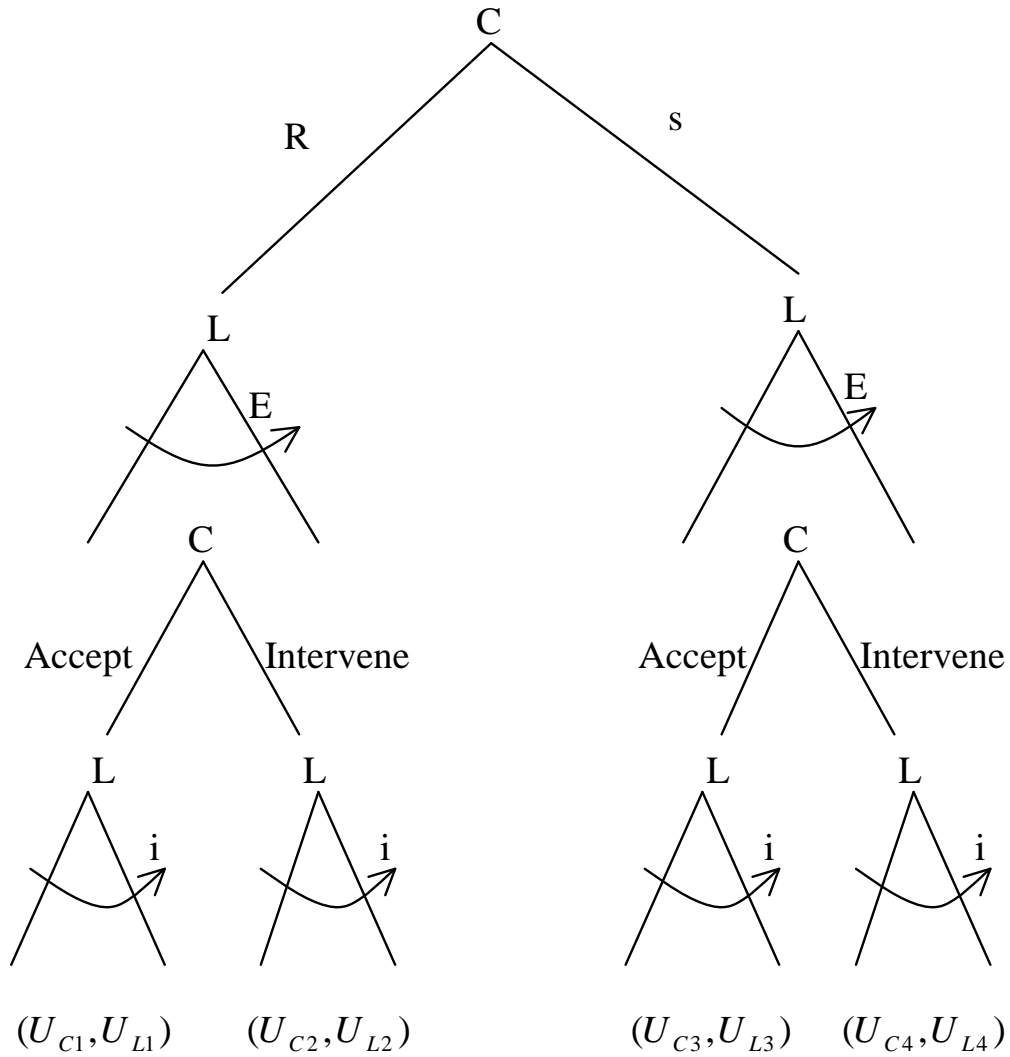
**Figure 1: Central Share of Budgetary Revenue (1978-2006)**



Source: Figure compiled using statistics from *Finance Year Book of China 1992-2007*.

<b>Table 1: Choice Variables and Parameters</b>	
<b>Choice Variables</b>	<b>Parameters</b>
R – lump-sum remittance to the center	T – local tax base
$s$ – fixed central tax-sharing rate	$\sigma$ – center’s cost for rejecting E
E – extra-budgetary revenue	$\lambda$ – investment return rate
$i$ – local investment rate	$\delta$ – time discount factor

Figure 2. Extensive Form of the Game



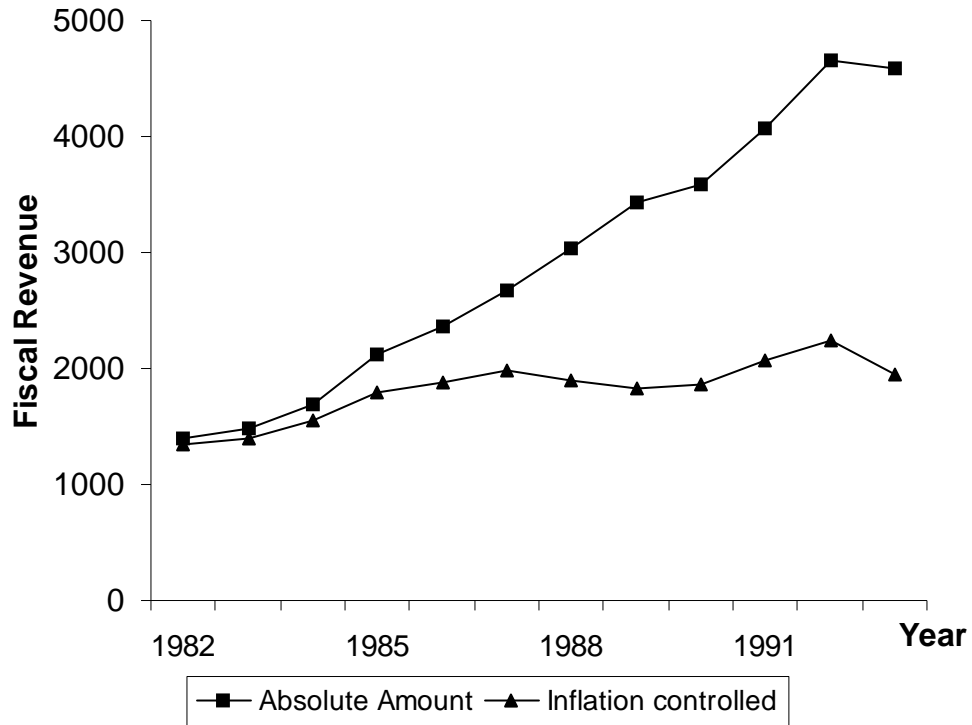
C – Central government, L – Local government

R – lump-sum remittance (Fiscal Contract System)

s – proportional sharing (Tax Sharing System)

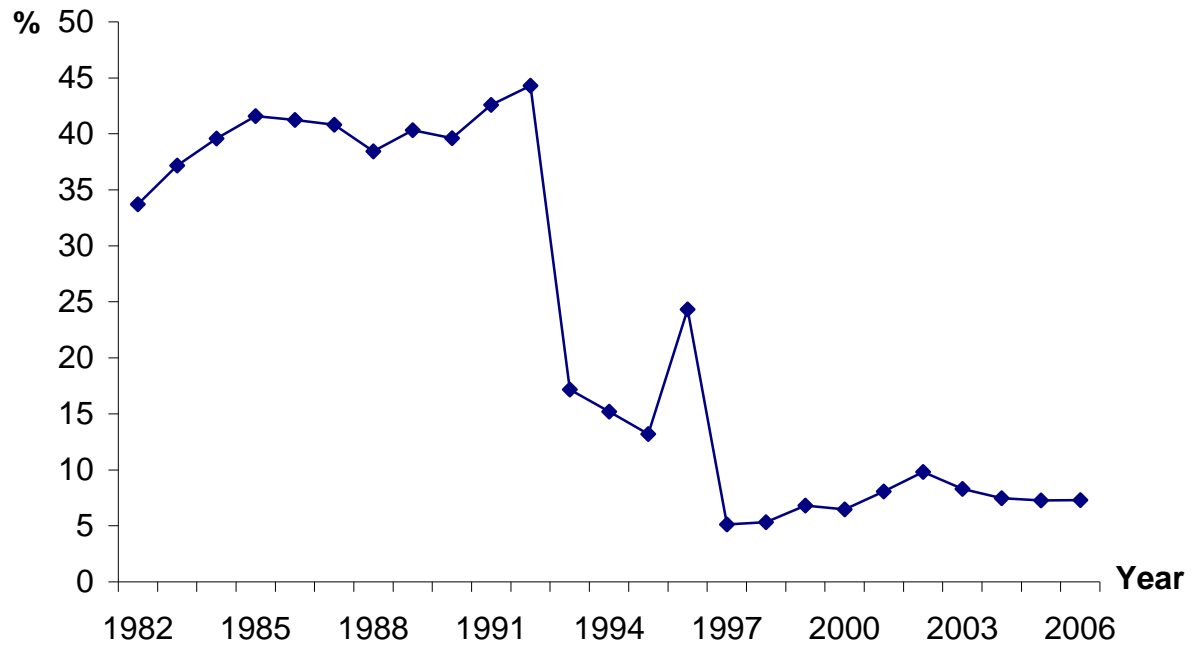
E – extra-budgetary revenue, i – local investment rate

**Figure 3. Local Fiscal Revenue (1982-1993)**  
(Unit: 100M yuan)



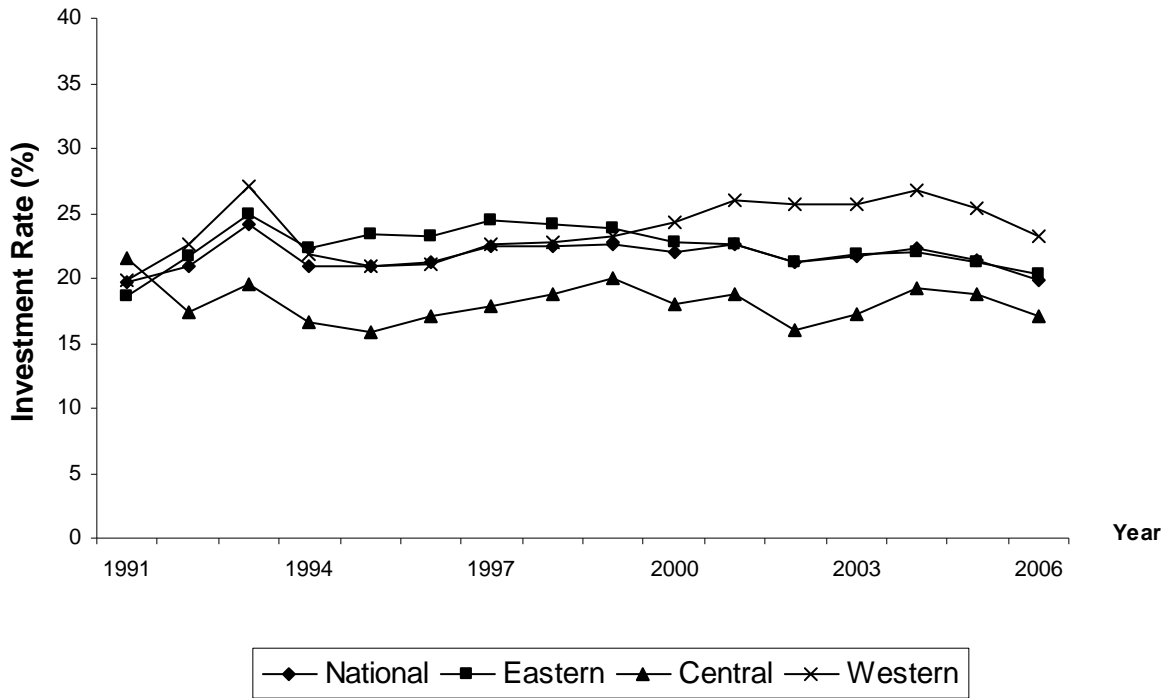
Source: Figure compiled using statistics from *Finance Year Book of China 1992-2007*.

**Figure 4. Central Share of Extra-Budgetary Revenue (1982-2006)**



Source: Figure is compiled using data from *Finance Year Book of China 1992-2007*

Figure 5. Local Investment Rates (1991-2006)



Source: Figure compiled with data in *Finance Year Book of China 1992-2007*.