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**The Fiscal Risk of Local Government Revenue in
the People's Republic of China**

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Abstract

Since the Tax Sharing Reform in 1994, the local government revenue of the People's Republic of China (PRC) has faced downward risk problems. This paper reviews the fiscal and taxation reforms in the central and local governments of the PRC and focuses on evaluating the effectiveness of fiscal transfers. We find that, to a certain extent, fiscal transfers significantly promote the construction of local infrastructure. Earmarked transfers had an effect, but lump-sum transfers did not. Results showed every 1% increase in earmarked transfers to be associated with a 5% increase in local spending on infrastructure. These fiscal transfers also increased the size of local government spending such that a 1% increase of fiscal transfer would increase the ratio of local fiscal spending to gross domestic product by 1%. The risk of the local fiscal revenue sources was also assessed, and results showed that land finance, local government bonds, and fiscal transfers from the central government are not sustainable in the long term. The local fiscal system in the PRC needs to focus on improving local taxes in the future, such as the property tax.

JEL Classification: H71, H54, H68

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1. INTRODUCTION

In 1994, the People's Republic of China (PRC) began to reform its tax system. During the 1980s, the PRC had a weak central tax system and strong local tax system, and the 1994 reforms reversed this. The main objective of this reform was recentralization of the central government. The proportion of state revenue increased from 22% in 1993 to around 55% in 1994 (Fiscal Yearbook of China). However, the reform did not alter the expenditure responsibilities; the majority of public service functions remained the responsibility of local governments. The PRC local governments are not only service-oriented but can also be considered governments of developing states. The fact that most infrastructure investments (including airports, ports, and roads) and urban construction projects are covered by local governments has placed them under considerable fiscal stress. Raising sufficient local fiscal revenues is a serious challenge for every local government. The country's economic structure is likely to be adjusted further in the future, and some older sources of income have become unsustainable. For example, the central government has strict control over local government debts because of systemic fiscal risks associated with them; as a result, local governments have extremely limited options with respect to increasing income from local debts. In this way, it is very important to evaluate the risk of local income streams.

Aside from local tax revenue, the main sources of the PRC's existing local revenue are land finance, local bonds, and fiscal transfers from the central government. The central government has a dominant role in primary distribution of national revenue, with a huge fiscal surplus every year. For example, the central revenue in 2012 was 5.6 trillion, among which 4.5 trillion was transferred to local governments, where it had a remarkable impact on the regions. Previous studies have paid more attention to the effect of fiscal transfers on fiscal equalization and local public services (Tsui 2005). However, the effects of these transfers on local infrastructure and the size of local government have been neglected. The PRC's level of infrastructure seems to exceed its level of economic development. Even some underdeveloped areas are equipped with excellent highways and urban facilities. With more fiscal transfers from the central government to less developed areas, local governments have been allocated with significant resources that enable them to produce infrastructure in advance of the local population's need for that infrastructure. In this way, fiscal transfers have a direct connection to the development of infrastructure.

In this paper, we use panel data of prefecture-level cities from 1998 to 2007 to evaluate the impact of fiscal transfers on investment of infrastructure by the local government. Results showed that, among the three types of transfers, earmarked transfers significantly promoted investment in local infrastructure investment. Results showed that every 1% increase of earmarked transfer was associated with a 5% increase in local spending on infrastructure. In contrast, the effect of lump-sum transfers was not significant, because they are mainly used to make up the gap between regular income and regular expenditure in local areas, while the earmarked transfers are for specific development projects. The expansion of the size of local governments is also attributed to the fiscal transfers.

The risk of the three major sources of income was assessed. Land finance, local government bonds, and fiscal transfers are not sustainable over the course of 5–10 years. The rate of growth of land finance is limited by downturns in the real estate market, and local bonds are subject to the tightening of central government policy. It is difficult for local financing platforms to refinance because the fiscal transfers are

restricted by slowdowns in central government revenue. In this way, future local sustainable income depends on levying of new local taxes.

The rest of the paper is organized as follows: Section 2 introduces the background of the central local fiscal and tax reform. Section 3 estimates the impact of fiscal transfers on infrastructure investment and the size of government through empirical testing. Section 4 assesses the risk of several sources of income, concludes the article, and provides implications for political.

2. TAX REFORM AND EVOLUTION OF THE FISCAL TRANSFER SYSTEM IN THE PEOPLE'S REPUBLIC OF CHINA

The PRC's tax system has undergone frequent changes, with adjustment to the fiscal transfer system followed with each tax system. From 1980 to 1993, a fiscal contracting system was instituted in the country. This was commonly known as "all-around contract," or "serving meals to different diners from different pots" (*fen zao chi fan* in Chinese). The key trait of this system is to separate central and local budgets: the local budgets, for the first time in history, became directly linked to the level of local economic growth. The fiscal contracting system provided local governments with incentives to foster economic growth. In order to maximize fiscal revenues, local governments took the initiative to get rid of systematic obstacles by providing a good environment for the development of private enterprises and reducing the aid to the state-owned enterprises. The local government played the beneficial role of a helping hand by implementing the "preserving market federalism" program (Qian and Weingast 1997; Shleifer and Vishny 1998).

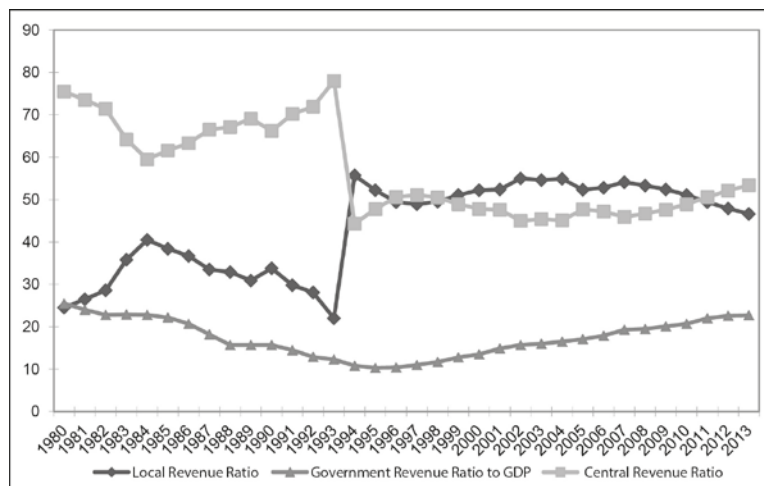
In order to reverse the decline in the central fiscal resources, in 1994, the previous fiscal contracting system was replaced with a tax sharing system. The tax sharing system changed the relationship between central and local governments in three ways. First, the unified tax rate and the tax sharing mechanism ensured the credibility of the proportion of central sharing. Second, separate collection of national and local taxes reduced the incentive of local governments to conceal income. Finally, large-scale vertical fiscal transfers allowed the central government to carry out macro regulation and balanced regional economic differences (Ma 1997).¹ In 1994, the tax sharing system significantly improved the centralization and fiscal position of the central government, and the two proportions (the ratio of fiscal revenue to gross domestic product [GDP] and centrally controlled proportion of state revenue) rose markedly. The ratio of fiscal revenue to GDP increased from 10.8% in 1994 to 22.7% in 2013. The proportion of central fiscal revenue leaped in 1994 from 22% to 55.7%, and it has remained around 50% since then.

Since the implementation of the tax sharing system, the strength of the central government has increased greatly. However, this time, reform was not accompanied by any corresponding adjustment in expenditure responsibilities. Taking the year 2013 as an example (Table 1), local governments bear the majority of the expenditure responsibilities in the areas of education, social security, health, environmental protection, and other obligations. This leaves the central government with a huge

¹ One objective of tax sharing is to balance regional fiscal resources and so support the development of less developed areas and reconstruction of old industrial bases through fiscal transfer. Refer to "The decision of the State Council on the implementation of the tax sharing for fiscal management" released by the State Council (1993) No. 85.

surplus after meeting its own corresponding obligations. This may explain the real vertical fiscal transfer that developed after 1994. Net fiscal transfers from the central to local governments increased from 181.9 billion in 1994 to 4.802 trillion in 2013 with annual growth over 20%, which is higher than the growth of the central fiscal revenue during the same period.

Figure 1: Revenue Ratios of Central and Local Governments (%)



GDP = gross domestic product.

Data source: *Fiscal Yearbook of China*.

Table 1: Government Expenditure in 2013 (billion yuan)

| Categories | Central | Local |
|--------------------------------|----------------|-----------------|
| General public services | 100.1 | 1,275.4 |
| Diplomacy | 35.4 | 0.1 |
| Defense | 717.7 | 23.3 |
| Public order and security | 129.7 | 649.0 |
| Education | 110.7 | 2,089.5 |
| Science and technology | 236.9 | 271.5 |
| Social security and employment | 64.1 | 1,385.0 |
| Medical and health care | 7.7 | 820.3 |
| Environmental protection | 10.0 | 333.5 |
| Others | 634.8 | 5,126.4 |
| Total | 2,047.1 | 11,974.0 |

Data source: *Fiscal Yearbook of China*.

The PRC’s fiscal transfers can be divided into three categories: tax rebates, lump-sum transfers, and earmarked transfers. In the early stages of the reform of the tax system, the tax revenue was transferred to local governments mainly through tax rebates. The tax sharing system mainly targeted value-added tax (VAT) and consumption tax rebates, commonly known as “rebate of two taxes.” In the early stage of the reform, tax rebates were the main form of fiscal transfer, accounting for up to 74% of the total. Over time, as the economy grew, the proportion of two tax rebates in the central revenue gradually declined, and meanwhile the central fiscal surplus gradually increased.

The second type of fiscal transfer is lump-sum transfers.² Unlike tax rebates, the distribution of lump-sum transfer is based on local fiscal deficits in inverse proportion to local fiscal capacity. The lump-sum transfer, on the one hand, eased fiscal difficulties in local regions and, on the other, balanced regional fiscal goals and promoted equalization of basic public services. Since 1995, the following formula has been used to calculate general fiscal transfers to balance out regional fiscal disparities:

$$\text{General fiscal transfer amount for certain region} = (\text{standard fiscal expenditure of the region} - \text{standard fiscal revenue of the region}) \times \text{fiscal transfer coefficient of the region}^3$$

In the formula, “standard fiscal expenditure” refers to the additional tax revenue and other subsidies from the central government, and “standard fiscal revenue” refers to the total expenditure of various counterparts. Along with the growth of central government revenue, the fiscal transfer coefficient increased from 4.2% in 1995 to 47.3% in 2005, and subsidies only began to increase substantially in 2002.

The third type of transfer is earmarked transfer. In 2011, as much as 1.7 trillion was moved through earmarked transfers, accounting for 42% of the overall fiscal transfers in that year. Unlike tax rebates and lump-sum transfers, earmarked transfers are intended for specified purposes, with each described as “a fixed fund for fixed purposes only.” Because the earmarked transfer is distributed based on projects, matched funds are expected to be provided by local governments.

Table 2: Transfers in 2007

| Category | | 100 million | Share (%) |
|---------------------|--|-------------|-----------|
| Lump-sum transfers | Lump sum transfer | 2,505 | 35.5 |
| | Transfer to minority areas | 173 | 2.4 |
| | Transfer from the rural tax reform | 759 | 10.7 |
| | Wage transfer | 2,234 | 31.5 |
| | Transfer to counties for administration reform | 339 | 4.8 |
| | Others | 1,083 | 15.3 |
| Earmarked transfers | Education | 391 | 5.7 |
| | R&D | 75 | 1.1 |
| | Social security | 1,961 | 28.4 |
| | Medical and health | 630 | 9.1 |
| | Environment | 748 | 10.8 |
| | Agriculture and water | 961 | 13.9 |
| | Others | 2,133 | 30.9 |

R&D = research and development.

Note: Other transfer for gap includes transfer for rural and urban compulsory education, transfer for resource-exhausted cities, the transfer from the old system, etc. Other earmarked grants include transfers to public service, defense, public safety, culture, sports, media, transportation, etc.

Source: Ministry of Finance (www.mof.gov.cn)

² In 2009, the lump-sum transfers were renamed “general fiscal transfers,” and the earlier general fiscal transfers were renamed “equalization fiscal transfers.” The meaning of these concepts remains unchanged.

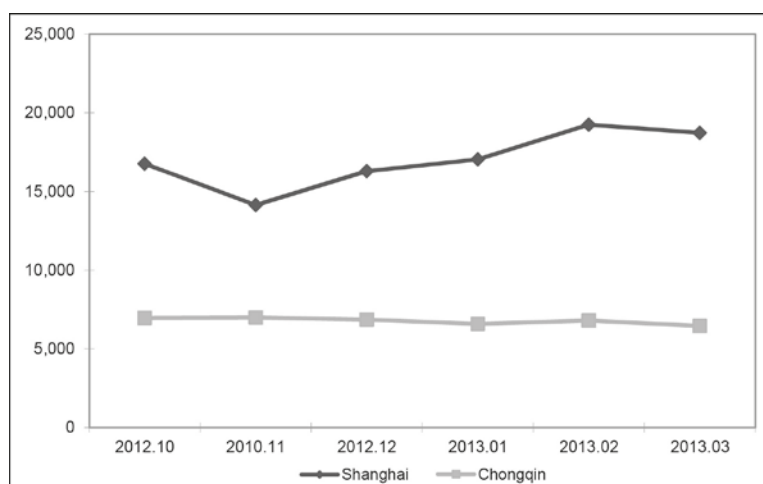
³ The fiscal transfer coefficient depends on the fiscal surplus of that year. Usually, the coefficients of eastern, middle, and western areas are different, but coefficients for all regions are positive.

As indicated in Table 2, almost as much money was moved through lump-sum transfers as through earmarked transfers. Among the lump-sum transfers, the most significant type was general fiscal transfers, followed by fiscal transfers for salary adjustment, which suggested that narrowing the regional per capita fiscal gap had become the major objective of lump-sum transfers. Among the earmarked transfer, the most important targets were for social security and employment, followed by affairs related to agriculture, forestry, water, and environmental protection, which indicated that earmarked transfers were mainly used to encourage local governments to increase the supply of local public goods.

3. EVALUATE THE IMPACT OF FISCAL TRANSFER

Since the implementation of the tax sharing reform, the centralization of power has been strengthened and fiscal transfers from the central to local governments also increased. In 2012, for example, among the 5.6 trillion in central fiscal revenue, 4.5 trillion were directly transferred to local governments, accounting for up to 74% of the total local fiscal revenue. In some less developed regions, the central fiscal transfers far exceeded the local government's revenue itself. Huge fiscal transfers had a significant impact on local fiscal spending and the local economy. Considering that local PRC governments paid more attention to the development, with marked enhancement of fiscal strength after receiving lump-sum transfers, the most obvious benefit was for the local infrastructure, which further improved their competitiveness in attracting investment, and finally promoted the rapid growth of the local economy in a short period of time. Meanwhile, fiscal transfers also had a profound impact on local governments by increasing the size of local government, which can be explained by what is called the "flypaper effect" (Hines and Thaler 1995; Brennan and Pincus 1996). According to this effect, for regions with the same amount of fiscal revenue, the one with the higher proportion of fiscal transfers tends to have a larger local government, and the local government spending sticks where it hits. This section focuses on assessing the impact of fiscal transfers on local infrastructure investment and the size of local government.

Figure 2: Fiscal Transfer and Transfer Ratio



Data source: *Fiscal Yearbook of China*.

3.1 Infrastructure

Multi-panel data were used in this paper, considering that infrastructure investment is influenced by multiple factors. The following multi-factor two-way fixed effects econometric model was constructed:

$$G_{i,t} = \alpha_i + \beta_1 Tran_{i,t} + \lambda' X_{i,t} + \tau_t + \mu_{i,t} \quad (1)$$

Here, i represents prefecture-level cities, t indicates the year, and G stands for infrastructure investment or government size. In later sections, different parameters were used for the measurement. $Tran$ indicates the logarithm of fiscal transfer (the earmarked transfer and lump-sum transfer are distinguished), then what β_1 measures is an elasticity, specifically with every 1% increase of transfer, the investment to infrastructure in this province increases by $\beta_1\%$. X represents the control variable, which includes the following items:

- (1) Per capita GDP. The per capita GDP is used to measure the level of economic development in all parts of the country. Areas with better-developed economies requested more infrastructure projects. However, as government public service has a scale economy effect, the size of government does not necessarily increase synchronously.
- (2) Urbanization. Areas with more urbanization require more supplies from the government for infrastructure and public services, and the spending would increase as well. The proportion of urban residents is used in this article to indicate the level of urbanization.
- (3) Population size. Population size has a positive effect on the demand for infrastructure and cost sharing for infrastructure. For example, a high-cost metro system can be afforded in a large city. The resident population of a prefecture-level city is used here to describe population size (Pop).

Note for sources of data: All fiscal data used in this paper came from the *China Fiscal Yearbook* and *City and County Fiscal Statistics* of the corresponding year. Otherwise, data were taken from the *China City Statistical Yearbook*. The data period covered in this article is from 1998 to 2007. Additionally, as the statistical coverage (scope) for fiscal revenue and expenditure was changed in 2007, the end date for some data samples for the regression estimation was set as 2006.⁴

Specification method: A two-way fixed effects model was used for all regression analyses performed in this paper. This method was selected since each city has some characteristics that do not vary over time and must be considered. These include geography, environment, and resources, which would affect the infrastructure and size of the government. This is controlled by FE of the corresponding province. Some common national macro shocks should also be considered. These would include overall fiscal policy, which was treated using the FE of the corresponding year. Considering that there is a serial correlation among variables of different prefecture-level cities, the standard error was clustered at the prefecture level.

⁴ The statistical coverage (scope) of fiscal revenue and expenditure was changed in 2007. Spending on infrastructure was no longer disclosed. Rather, only transportation expenses were listed, which rendered the data before and after 2007 incomparable.

As shown in Table 3, the logarithm of infrastructure spending in a prefecture-level city was used to evaluate the level of infrastructure. For the first regression analysis, the impact of overall transfers was investigated and results showed that the overall amount did not significantly impact the local infrastructure investment. Therefore, for the next three regression analyses, the impact of three types of transfers on infrastructure investment was analyzed. Specifically, for the second regression, only the logarithm of earmarked transfers and the two-way fixed effect were included, and results showed that for every 1% increase in earmarked transfer funds, the infrastructure investment in that prefecture-level city increased by 0.4%. For the third regression, other control variables were added on the basis of the second regression level, and results showed that the coefficient increased in some ways but remained significant at 1%. Overall, these two regressions indicated that earmarked transfers from the central government can in some degree alleviate the insufficiency of local fiscal support and promote the development of local infrastructure.

Table 3: Fiscal Transfers and Infrastructure Investment

| Independent Variables | Log Capital Construction | | | |
|-----------------------|--------------------------|---------------------|--------------------|--------------------|
| | (1) FE | (2) FE | (3) FE | (4) FE |
| Log transfer | 0.253 (0.239) | | | |
| Log lump-sum tran | | | | 0.114 (0.095) |
| Log earmarked tran | | 0.412*** (0.150) | 0.417** (0.163) | |
| Pergdp | | -0.016 (0.027) | 0.019 (0.031) | 0.075 (0.097) |
| Urban | -1.437* (0.737) | | -1.152 (0.735) | -1.925 (1.155) |
| Pop | -10.376* (6.013) | | -7.588 (5.742) | 15.353 (25.789) |
| Year dummy | Yes | Yes | Yes | Yes |
| Cluster | Province | Province | Province | Province |
| Within-R ² | 0.406 | 0.433 | 0.422 | 0.343 |
| City num. | 285 | 285 | 285 | 269 |
| Observations | 2,187 | 2,187 | 2,186 | 1,570 |

Note: Standard errors are shown in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

Source: Authors.

Fiscal transfers of the PRC are allocated by category. Lump-sum transfers, earmarked transfers, and tax rebates are the three main categories. Tax rebates are implemented in accordance with the provisions of the tax sharing system developed in 1994, and few changes have been made since then. Because the tax rebate is fully expected revenue by the local government, lump-sum transfers and earmarked transfers have a much more pronounced impact on local finance. In order to determine which one of them has a more pronounced impact on infrastructure investment, the effects of lump-sum transfers were analyzed further in a fourth regression analysis. Results showed that only earmarked transfers promoted investment in infrastructure and lump-sum transfers did not have any significant effect. The reason for this difference is that lump-sum transfers are mainly used to address local fiscal gaps and they do so by supporting the local government's everyday spending and public service expenses instead of infrastructure investment. However, the amount of money in earmarked fiscal transfers

is huge and some of these earmarked transfers are directly intended for many different kinds of infrastructure.

However, it should be noted that there is a serious endogeneity problem in Table 3. Because allocation of earmarked transfers requires a certain percentage match of local funds, regions with relatively abundant fiscal resources usually receive such transfers. Because such areas are usually equipped with better infrastructure than other areas, there is risk of overestimation in results from Table 3 caused by omitted variable bias. The birthplaces of ministers of State Council ministries and commissions were used as instrumental variables, which simultaneously satisfies hypotheses of correlation and the exclusion. First, earmarked transfers are usually for specific projects and their feasibility must be evaluated ahead of time by corresponding professional ministries before channeling funds from the Ministry of Finance. In this way, each ministry holds great discretionary power for deciding which funds to earmark for transfer. Moreover, the power of the PRC government is highly concentrated in the “first in command,” head of ministry of correlated function, and adjusting funding for local politics can significantly impact the amount of earmarked transfer funds received by local governments. This political connection can affect the transfers sent to a minister’s birthplace in two ways. Due to his or her feelings for his or her hometown, a minister may tend to take the initiative to take care of the area. In addition, local governments can use the political connections left by the heads of ministry to increase interactions with them during their terms of service, in order to earn more fiscal transfers. Initiative, both on the part of the head of ministry and passive political connections, can help ministers’ hometowns draw in more earmarked transfers.

No connection was observed between the appointment of ministers, level of economic development, and the amount of earmarked transfer funds received. The head of a ministry is usually selected from relevant professional fields. For example, the head of the ministry of education and health are selected from candidates who have worked in education and health departments. Usually, leaders with no professional knowledge and work experience are not hired interdepartmentally, especially in ministries with strong requirements for technical knowledge, such as the departments of finance, science, technology, education, and agriculture. For local governments, the appointment of a new head of ministry is considered an exogenous shock. Especially in cases of deployment of power sectors, exogenous shocks may have an enormous impact on the amount of funds earmarked for transfer to local governments, even on the local fiscal revenue. In recent years, the central government has expanded its earnings, and earmarked transfers paid to subordinate governments have also increased significantly. Ministers have come to play an increasingly more important role in the delivery of funds to local governments. For this reason, if there is any political connection between the minister and his or her place of birth, then this political connection can be expected to have a significant impact on the allocation of earmarked transfers.

The personal résumés of 29 ministers of the State Council were collected, and they were all assumed to have political connections to their birthplaces. When the minister’s birthplace was not included in the résumé, the native place (*ji guan* in Chinese) was considered the birthplace. Some reported their birthplaces at the county level or even named the town, and some only specified it at the level of prefecture-level city. In order to unify the statistical units, political connections were rounded to the nearest prefecture-level city, and then any previous fiscal and economic data were matched to the birthplace. Ministries with no corresponding departments in local governments, such as the Ministry of Foreign Affairs, Ministry of Railways, Ministry of Security, People’s Bank, and Auditing Administration, were excluded from statistical analysis.

Expenditures in these areas will be paid directly by the central government instead of transferred to local governments, which has no impact on fiscal transfers received by local governments.

The impacts of the earmarked fiscal transfers on infrastructure investment were estimated using two-stage ordinary least squares (OLS), and results are shown in Table 4. From the first stage, the amount of money earmarked for transfer was significantly affected by the minister. On average, if the minister came from a certain city, then earmarked transfer funds received by this city would increase by 10.4%. Second-stage analysis showed that, for every 1% increase in earmarked transfer funds, the investment in infrastructure in this prefecture-level city would increase by 5%, which indicated the presence of underestimation in Table 3.

Table 4: Fiscal Transfers and Infrastructure Investment: IV Estimation

| Independent Variables | Log Capital Construction | |
|-----------------------|--------------------------|--------------------------------|
| | Second Stage | First Stage |
| Log earmarked tran | 5.737** (2.777) | Minister 0.104** (0.049) |
| Pergdp | 0.145 (0.098) | Pergdp -0.023* (0.013) |
| Urban | 2.118 (2.008) | Urban -0.609*** (0.181) |
| Pop | 7.801 (16.257) | Pop -2.815 (2.418) |
| Year dummy | Yes | Year dummy |
| Within-R ² | | Within-R ² |
| City num. | 285 | City Num |
| Observations | 2,186 | Observations |

Note: Standard errors are shown in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

Source: Authors.

3.2 Government Size

The proportion of fiscal expenditure in GDP was here used to measure the size of the government (Persson and Tabellini 1999). The results estimated as given in formula (1) are listed in Table 5. As in the previous part of the study, the effect of the total amount of fiscal transfer in the first regression analysis was estimated and results showed that the total amount of money transferred from central to local governments did not significantly increase expenditure by local governments. The second regression only involved the log transfer of earmarked funds and results showed government size to be significantly increased by earmarked transfer funds. Other control variables were added to the third regression analysis on the basis of the second regression and the coefficient of earmarked transfers remained stable. With every 1% increase of earmarked transfers, the government size expanded by 1.4%. The fourth regression further analyzed the impact of lump-sum transfer. Lump-sum transfers also increased the size of the government, which indicated that the PRC's fiscal transfers produced a sticky flypaper effect. However, relatively speaking, the coefficient of lump-sum fiscal transfers was far smaller than the earmarked transfers. In addition, results also showed the effect of per capita GDP to be significantly negative. This is because government spending has a scale effect: regions with more pronounced economic development and more government spending were subject to lower costs after scale allocation.

Table 5: Fiscal Transfers and Government Size

| Independent Variables | Government Expenditure /GDP | | | |
|-----------------------|-----------------------------|---------------------|----------------------|---------------------|
| | (1) FE | (2) FE | (3) FE | (4) FE |
| Log transfer | 0.007 (0.007) | | | |
| Log lump-sum tran | | | | 0.003** (0.001) |
| Log earmarked tran | | 0.018*** (0.004) | 0.014*** (0.003) | |
| Pergdp | -0.006*** (0.002) | | -0.005*** (0.002) | -0.007** (0.003) |
| Urban | -0.017* (0.009) | | -0.006 (0.011) | -0.015 (0.017) |
| Pop | 0.015 (0.095) | | 0.060 (0.117) | -0.390 (0.627) |
| Year dummy | Yes | Yes | Yes | Yes |
| Cluster | Province | Province | Province | Province |
| Within-R ² | 0.534 | 0.380 | 0.587 | 0.460 |
| City num. | 286 | 286 | 286 | 274 |
| Observations | 2,663 | 2,668 | 2,668 | 1,927 |

GDP = gross domestic product.

Note: Standard errors are shown in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$

Source: Authors.

4. FISCAL RISK OF LOCAL REVENUE: LAND FINANCE, LOCAL GOVERNMENT DEBT, AND FISCAL TRANSFER

The results of a previous study showed that central fiscal transfers breathed new life into local development, starting with economic development, especially through improvements in local infrastructure. In addition to fiscal transfers, two other major sources of revenue for local PRC local governments were land finance and local government debt. The PRC's local governments, rather than the central government, hold most of the responsibility for public services, including pensions, education, health care, security, and environmental protection, which contribute to the welfare of every resident. Most local governments also shoulder the burden of economic development, which requires them to provide satisfactory infrastructure, such as roads, electricity, and communications. In this way, the sustainability of local fiscal revenue is a problem that every local government must consider. In 2012, for example, the sum of local government general budgetary revenue and total funding was 14.065671 trillion yuan, among which land finance was 2.804228 trillion yuan, accounting for 20% of the total local fiscal revenue, and lump-sum transfers were 4.536168 trillion yuan, accounting for 32% of the total local revenue. In this section, the risk of local governments' three major sources of income is discussed.

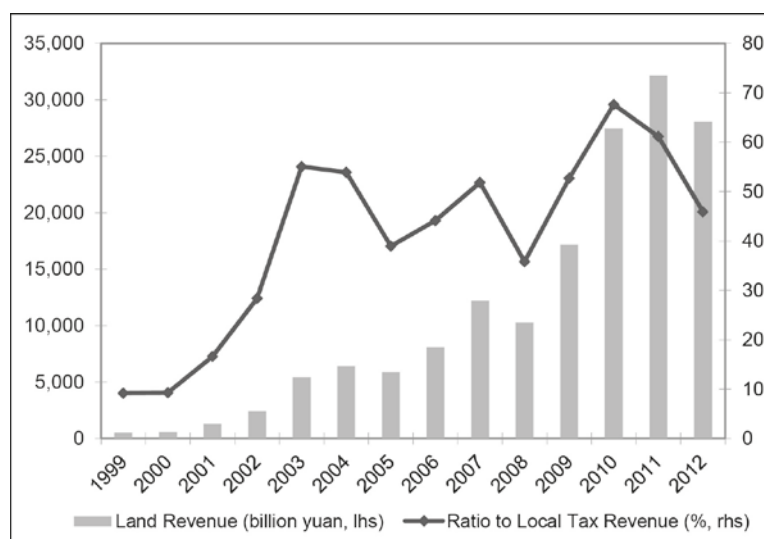
4.1 Fiscal Risk of Land Finance

The term “land finance” has a narrow and a broad sense. Narrowly, “land finance” refers to income generated from leasing land-use rights. In government budgetary revenue and expenditure, the government revenue comprises budgetary revenue and funds sent from other parts of the government. Land finance income is part of the government fund revenue, and it does not belong to the public budget. The proportion of land finance income in budgetary revenue is especially high in some large cities, such as Shanghai and Beijing, where the land finance revenue is almost equal to the local budgetary revenue. In Hangzhou, the land finance revenue is even higher than local budgetary revenue. In this way, the land leasehold revenue is here considered the second largest source of funding after budgetary revenue.

The PRC completed reforms to its welfare housing system around 2000 and established a market-based housing system, which promoted the development of the real estate market, and also caused the increase in housing prices. The rising housing prices allowed local governments to collect a certain percentage of rent from the ever-increasing housing prices. Although it is limited by the tenure of local officials, there is opportunistic behavior at every level of local government. Incumbent government workers tend to generate revenue from one-off land leasing instead of other sustained methods, such as property taxes. Meanwhile, in 2003, the auctioning of land was conducted by introducing trading modes of market competition, which increased land prices and generated income from land leases.

As shown in Figure 3, before 2000, land leasehold revenue accounted for less than 10% of local fiscal revenue, so it had not yet become the major revenue source of local funding and had not been raised to the level of finance. The real increase in land leasehold income took place after 2002. During 2002, land leasehold income nearly doubled from 2001 levels, and the revenue doubled again and reached 542.1 billion in 2003. The proportion of land leasehold income in local fiscal revenue reached 55%, a record high. The significant increase in land leasehold revenue is related to the auction system, the promotion of which reduced land leasing through private contracts. Leasing of any industrial land or commercial land was required to follow the open auction system, which caused the amount of land leasehold income to increase.

Figure 3: Land Revenue and Ratio to Local Tax Revenue



Data sources: *Fiscal Yearbook of China* and *China Land and Resources Statistical Yearbook*.

From 1999 to 2009, land leasehold revenue saw a 3-year decline. In 2008, affected by the global financial crisis, the PRC's domestic real estate market demand shrank and prices fell sharply, leading to a decline in land leasehold prices and the amount of land transferred decreased by more than 16%. The proportion of land leasehold income in local finance decreased from 52% to 36%. A quick rebound was seen in the land market in 2009, when land leasehold revenue increased from 1 trillion in 2008 to 1.7 trillion in 2009, the rate of increase reached 70% within 1 year, and its proportion in local finance returned to around 50%. The latest decline in land leasehold income occurred in 2012. The main contributing factor was the strict housing market regulation implemented in 2011, including property-purchasing limits, bank lending limitations, and trail property taxes implemented in some cities. This policy had a profound impact on the property market and directly affected the land leasehold market. The proportion of land leasehold revenue in local funding decreased continuously from 68% in 2010 to 44% in 2012.

Figure 4: Growth Rates of House Price and Land Revenue



Data sources: *China Yearbook* and *China Land and Resources Statistical Yearbook*.

Over the past decade, land finance constituted an important source of revenue for the local governments in the PRC. However, in the next 5–10 years, the contribution of land finance to local finance is expected to decline gradually, and land finance may not be a sustainable source of income for local governments. The main reasons for this view can be summarized in two ways. First, land finance has brought solutions both to insufficiency of local finance as well as social and economic problems. These have inspired the central government to reform the system. These negative issues include land disputes, increasing house prices, breaking the law and corruption related to land use, exacerbation of macroeconomic fluctuations, and other problems. However, as indicated in Figure 4, the PRC's land finance is strictly and positively related to housing prices. Land leasehold price increased with increasing house prices and vice versa. The main reason for these correlations is that the land leasehold market depends on the property market, and lump-sum land leasehold revenue is equivalent to the discount value of 70 years of value-added benefits. When housing prices fall, the will of real estate companies to buy land weakens, and when the land supply is established, land prices will fall. For the next 5–10 years, the PRC's housing prices do not increase significantly. From the perspective of demand, the PRC's economic growth rate is declining, and the demands of the housing market are difficult to reverse in the short term; from a policy perspective, restrictive policies in the past 3 years are difficult to replace with incentive policies in the short term. Even now, when the real estate

inventory is relatively large, policies restricting house purchases remain in some cities. Although the decision makers do not want the housing market to slump, they worry more about runaway housing prices. For this reason, a limited open housing policy will probably remain in place for a long period of time.

4.2 Fiscal Risk of Local Government Debt

In order to produce funds from land finance, local governments need to first acquire land, invest in public works such as infrastructure, and establish industrial parks in order to attract businesses as tenants. Not all of these can be fully covered by local financing, so the local government must seek out other sources of financing. The most common channel is loans, which produce large debts. According to the 2013 annual report from the National Audit Office of the PRC, by the end of June 2013, the total amount of local government debt was 17.89 trillion, accounting for around 30.4% of the national GDP in 2013.

According to the PRC's budget laws, "the budgets of local governments should follow the principle of keeping expenses within income and keeping the budget balanced to avoid deficits. Except as otherwise regulated by law and the State Council, local governments shall not issue local government bonds." This means that local governments cannot directly borrow from financial institutions, but must rather obtain loans from banks using land reserve organizations, government corporations, or management committees of economic development zones financing platforms, and fiscal revenue and land leasehold revenue as collateral. The use of the local financing platform was very strictly controlled and audited by the central government before 2008, which kept the local debt within limited scale. However, in order to manage the global fiscal crisis in 2008, a fiscal stimulus program of 4 trillion yuan was issued, of which 1.28 trillion was fiscal funding from the central government and the remaining 2.72 trillion required local funds. In order to ease the difficulty of obtaining local counterpart funds, the central government lowered the restrictions on financing platforms and encouraged local governments to borrow from the fiscal sector through the financing platform. This has become a channel for local governments to borrow with a large amount of credit flowing in to the local government with land serving as the main form of collateral. Until the end of 2010, a total of 129,400 parcels of land were in mortgage in 84 key cities, and the mortgage area was 258,200 hectares. The total mortgage was 3.53 trillion yuan. The mortgage area and mortgage loans grew by 19% and 36.3% year-on-year growth rate, respectively. The amount of land mortgaged increased by 37,400 hectares, and mortgage loans increased by 920.6 billion yuan, a year-on-year increase of 18.8%. The specific mechanism by which local governments obtained bank loans can be described as follows: Land reserve centers issue land use permits to local investment platforms. This land is then used as collateral by local investment platforms to obtain bank loans; the loan obtained in this way is invested in infrastructure, industrial parks, real estate, and other matters. These investments can attract tenants whose revenues can be used to pay back the bank loan. The increase in land price will provide local governments with more loans, which will further be used in infrastructure to keep such a cycle running. According to the China Banking Regulatory Commission statistics, by the end of 2010, the national local financing platform cooperation reached about 9,800. As indicated in a Goldman Sachs analysis report on the financing platform, the amount of money transferred in the form of local financing platform loans in 2010 was around 9.1 trillion yuan, accounting for 17.8% in the balance of loans in renminbi in that year.

After land financing, local government debt is the main source of financing for local governments. This was the case from 2008 to 2013, when rapid growth in government debt was observed. However, with the enlargement of the systematic risk and the tightening of policy, there will be fiscal risk of local government debt income. First, the local government debt risk is likely to induce systemic fiscal risks. In a normal year, due to the expected increase in house prices, land leasehold revenue may rise accordingly. Money borrowed by local governments, if any, may be repaid using expected land leasehold revenue. However, after 2010, the state began to regulate the real estate market by introducing a number of very strict restrictions on credit policy. These policies have weighed on the increase in housing prices in some cities, causing the real land leasehold revenue to decline in 2011 and 2012, which increased the pressure shouldered by local financing platforms. In order to respond to the need for regulation, commercial banks created shadow banks through extra-balance sheet business by adding income from fiscal services to financing platforms, rendering the fiscal system difficult to regulate. If the local government defaults on its debt, the consequences can permeate the entire fiscal sector. Second, the central government has a strong ability to supervise and clean up after problems caused by local government debt. The China Banking Regulatory Commission banned commercial banks from acting as the local financing platforms and increased supervision of other business, such as trusts and peer-to-peer (P2P), which made local financing platforms difficult to finance from the fiscal sector.

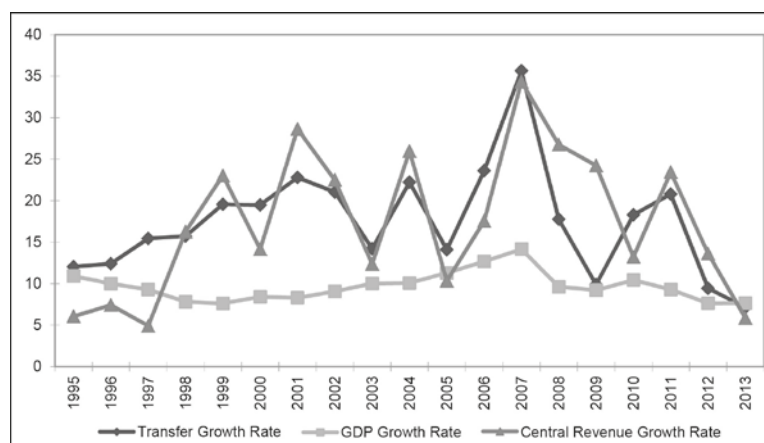
The PRC's Ministry of Finance is also gradually pushing the local government to issue bonds directly to the capital market instead of allowing banks to manage all the mortgages. However, at the current stage, the local governments do not have the resources necessary to issue bonds. One of the biggest limitations is that the PRC's local governments have not established a sound balance sheet and the capital market cannot determine the solvency of local governments. Because the establishment of balance sheets takes a long time and there is need for a clear definition for government assets, local governments may not raise enough revenue in the near future through local government debts.

4.3 Fiscal Risk of Intergovernmental Transfers

Since the reform of the tax sharing system reform in 1994, the PRC's central government has transferred a large amount of revenue to local budgets every year. From 1998 to 2012, the average annual growth rate of fiscal transfers exceeded 10% and the proportion of local fiscal transfers accounted for over half of local fiscal revenue, which constituted a stable source of local fiscal revenue, and, to a certain extent, solved the problem of vertical imbalance in the fiscal revenue and expenditure. However, as indicated in Figure 5, there is a serious dependency correlation among the transfers, central fiscal revenue, and GDP. First, the rate of growth of fiscal transfers and of central fiscal revenue are entirely consistent with each other, which indicates that the expenditures by the central government decreased as the central government revenues increased, and some of the additional revenue was transferred to local governments. For this reason, the lump-sum transfers received by local governments depend on the central fiscal surplus of that year. Second, the central fiscal growth rate is very sensitive to GDP growth. During rapid economic growth, the central fiscal revenue also grows. During economic recessions, the central finance revenue is one of the first things affected. This is because the central government's revenue comes mainly from the indirect tax income, such as VAT, consumption tax, tariffs, and other taxes. These taxes depend on the production activities of businesses,

which decrease rapidly during economic recessions. For example, in 2013, the GDP growth rate was only 7.7%, and the central government revenue fell to 5.9%, the lowest level since 1998.

Figure 5: Growth Rates of Central Revenue, Transfer, and GDP (%)



GDP = gross domestic product.

Data source: *China Yearbook, Fiscal Yearbook of China*.

In the next 3–5 years, fiscal transfers will not be able to provide a sustainable source of income for local budgets, mainly because the PRC's economy is facing huge downward pressure and the growth rate of GDP in the first and second quarters in 2015 was only 7%, which was 0.4 and 0.5 percentage points lower, respectively, than in the same period in 2014. As shown in Figure 5, along with the economic decline in 2012 and 2013, the fiscal transfer growth rate decreased to below 10% and back to 7.2% in 2013. During the next period of time, as the PRC's economy recedes or is consolidated further, it will become difficult for the central government to foster a growth rate over 20%. Accordingly, central-to-local fiscal transfers can only sustain a small margin of growth.

In the next 5–10 years, with the gradual stabilization of the PRC's economy, the central government's fiscal transfers will increase, but the growth rate may not be as high as during 1998–2008. For the next 5 years, further adjustment of the PRC's economic structures may bring economic growth back into the 7%–8% range. The Business Tax Replaced with VAT program may further enhance the centralization of government, which increases the proportion of central finance revenue and keeps the annual growth rate of lump-sum transfers around 10%. The lump-sum transfers can in some degree increase the local fiscal capacity. However, this may not satisfy the overall needs of local development.

4.4 Potential Source of Local Revenue: Property Tax

The PRC's current real estate tax law is mainly for commercial purposes, while personal property is exempt from the use of property taxes. Around 2010, the PRC's real estate prices have been significantly increased. In order to curb the trend of rising house prices, the government plans to collect sales tax on housing. By increasing the cost of housing, the government intends to fight against speculation by means of policy to foster rational housing consumption of residents. On the other hand, stable sources of revenue obtained from tax collection can be used to ensure housing construction,

and thus adjust the housing supply structure. In January 2011, the State Council began to collect property tax in pilot cities such as Chongqing and Shanghai and the practice has continued to the present. However, due to the low efficiency of collection and lenient tax terms in two cities, the amount of real estate tax income actually obtained was very low.

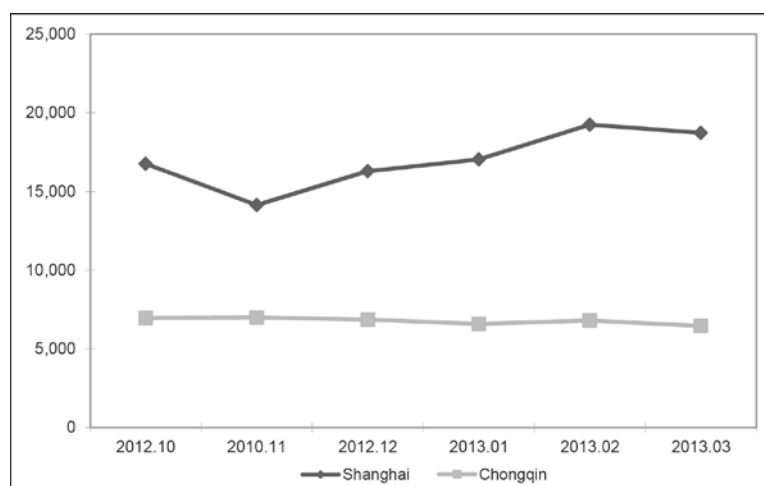
The value of two key variables, tax rates, and housing price had to be determined to estimate the potential of real estate tax revenue. A broad tax basis was used, which means that all property owners needed to pay property taxes. The tax rate varied across places with different levels of economic development, but the coverage of property taxes was set to be the same in all areas. For low-income families, a variety of return policies were implemented to prevent uneven distribution of housing. The next question was the value of housing. Because there is no theory in place to provide an appraisal process for all types of housing, the average transaction price in the housing market was considered each building's value. The reasons for this treatment are as follows: First, the average transaction price of second-hand housing was used. Because real estate taxes are levied for the present value of housing, the transaction price of second-hand housing can be considered indicative of housing shortages, which is even more realistic than the assessment value of housing. Second, the total residential area included houses in different regions and of different prices. The average transaction price is also related to the different sizes and prices of housing, so both could be matched more effectively. It should be acknowledged that, due to differences between the structure of second-hand housing transactions and existing housing structures, the average price of second-hand housing was not completely consistent with the existing housing. However, data indicated that this was the most accurate method available for this study.

The house property tax pilot program has only been implemented in Shanghai and Chongqing. The expected property revenue in Shanghai and in Chongqing were estimated and compared to actual property revenue. The average price of residential transactions in Shanghai and Chongqing, which was a comprehensive price including both newly built dwellings and second-hand property, was provided by the China Index Academy for the period from October 2012 to March 2013. As shown in Figure 6, the average residential price at the end of 2012 in Shanghai was generally around 16,000 yuan per square meter and an increase in price was recorded at the beginning of 2013. The average residential price in Chongqing was more stable, and it remained around 6,500–7,000 yuan per square meter.

According to online statistics regarding second-hand housing transactions in Shanghai, the total turnover of second-hand housing units in Shanghai in 2012 was around 200,000, a yearly increase of 42.5%. The total amount of money exchanged in second-hand transactions was 256.9 billion, an increase of 49% over 2011. The average price was 16,357 yuan per square meter, which was 1.63% higher than in 2011. According to the statistics of the China Index Academy, the average housing price in Chongqing in December 2012 was 7,202 yuan per square meter. The second-hand prices in Shanghai and Chongqing were near the level indicated in Figure 6, which served as a basis value for the following calculations: The total value of residential housing was estimated using the average price of residential area and residential area. Then, the corresponding real estate tax revenue was calculated according to the low rate (0.5%) and high rate (1.2%). Finally, the proportion of property taxes was calculated according to the local budgetary revenue and land leasing revenue. As shown in Table 6, the total estimated housing value in Shanghai was 8.948 trillion yuan. According to the low and high rates, 40.47 billion yuan and 97.14 billion yuan in property taxes, respectively, can be levied. The local budgetary revenue in Shanghai in 2011 was 432.8 billion yuan.

The proportion of expected property tax in the budgetary revenue was 9.3% and 22.4%, respectively. The high proportion indicated that the fiscal sustainability problem in Shanghai can be solved by property taxes. As the most developed city in the eastern PRC, Shanghai has rich local fiscal revenue. Even if there is fiscal pressure, the gap is very small. Therefore, if there is real estate tax revenue of 40 billion–100 billion, the fiscal pressure is basically negligible. More importantly, the land leasehold revenue in Shanghai in 2011 was 87.5 billion yuan, the value of which was between the low and high calculated results. In accordance with these simple statistics, if property taxes are levied based on a wide tax board in Shanghai, its tax revenue can partially or even completely replace land finance revenue.

Figure 6: Housing Prices in Shanghai and Chongqing
(yuan)



Data source: China Index Academy.

Table 6: Simulation of Property Tax Revenue in Shanghai and Chongqing

| | Shanghai | Chongqing |
|-------------------------------|-------------------------------|-------------------------------|
| Price | 16,357 yuan/m ² | 7,202 yuan/m ² |
| Total built-up area | 494.88 million m ² | 416.82 million m ² |
| Total value | 8,094.8 billion yuan | 3,001.9 billion yuan |
| Property tax revenue: | | |
| tax rate = 0.5% | 40.47 billion yuan | 15 billion yuan |
| tax rate = 1.2% | 97.14 billion yuan | 36.02 billion yuan |
| Local revenue | 432.8 billion yuan | 170.35 billion yuan |
| Share of property tax revenue | 9.3% vs 22.4% | 8.8% vs 21.1% |
| Land finance | 87.5 billion yuan | 89.75 billion yuan |
| Share of property tax revenue | 46.3% vs 111% | 16.7% vs 40.1% |

m² = square meter.

The property tax revenue in Chongqing was calculated using the same method. The expected property revenue in Chongqing ranged between 15 billion and 36 billion yuan, accounting for 8.8%–21.1% of the local finance revenue (170.35 billion yuan). Since Chongqing is an important urban city in the western PRC, tens of thousands lump-sum transfers can be performed every year. For this reason, an additional 30 billion yuan in property taxes would greatly ease the local fiscal revenue problem. The land leasehold revenue in Chongqing in 2012 was 89.75 billion yuan, of which 16.7%–40.1% was

property tax. It seems that there is a certain distance between property tax revenue and land leasehold revenue in Chongqing. It should be noted that the land leasehold revenue increased significantly only after 2011, which continued to increase when the land leasehold revenue in most PRC cities decreased by different degrees. In 2009 and 2010, the land leasehold revenues in Chongqing were 38.9 billion and 40.5 billion yuan, respectively. For this reason, if a longer time span is considered, there is almost no difference between property tax income and land leasehold income in Chongqing.

5. CONCLUSIONS AND POLICY IMPLICATIONS

In this paper, we evaluated the fiscal risk of local government revenue in the PRC and empirically tested the role of fiscal transfers. The two main conclusions are as follows:

- (i) The PRC's huge fiscal transfers to local governments, to a certain extent, promote local investment in infrastructure and ease the plight of local governments in the financing of infrastructure projects. The impact of earmarked transfers was found to be especially significant, and the effect of lump-sum transfers was insignificant. Fiscal transfers also had a negative effect, especially by inducing local government expansion and increasing the size of government spending.
- (ii) Several major sources of local revenue in the PRC are risky. In recent years, a visible slowdown in land revenue has become visible, and the development of the real estate market is clearly defined. The local government debt revenue increased rapidly from 2008 to 2013. However, because local government debts may induce systemic fiscal risk, its development could be considerably suppressed in the future. Subject to the growth rate of the central fiscal revenue, the growth rate of fiscal transfers in the past 2 years has declined significantly. With the decline in economic growth in the PRC in the future, the contribution of fiscal transfers to local finance will also decline.

The policy implications of these findings are as follows:

- (i) Central government to increase the intensity of reform and promote the rapid and reasonable adjustment of economic structure to ensure that the rate of economic growth exceeds 8%. Central government revenue growth is more sensitive to the real economy, especially the main taxes, such as VAT and consumption tax revenue, so the robust rate of economic growth is conducive to the growth of central government revenue and can ensure that the central government has sufficient surplus to implement the fiscal transfers. Local fiscal revenue is also sustainable to further development.
- (ii) Accelerate the construction of the local government balance sheets to lay the foundation for the issuing of local government bonds. The bonds issued by local governments to the capital markets can finance projects by providing funds, but it should be noted that the premise is that local governments need to have perfect balance tables. In this way, it is necessary to accelerate the construction of balance sheets at all levels of government in the PRC. Because government assets should be defined clearly ahead of time, some counties can be selected as pilot areas for the building of successful models for further national promotion.

- (iii) Restart the land supply system reform and establish a healthy real estate market. The development of the real estate market is closely related to local government revenue, and a healthy real estate market can raise enough land revenue for local governments. However, it can also contribute to the local budgets. It is suggested here that the land supply system reform should be re-initiated to increase the number of urban construction land targets, promote the construction of trading systems for cross-regional construction land transactions, and change the cultivated land protection index from classified protection to total quantity control.
- (iv) Reform the land leasehold system to gradually reduce land leasehold payments and dependence of local budgets on land finance. Land finance can raise revenues for local governments. However, its twisting and negative effects can cause short-term problems for local governments. The land leasehold system can be gradually phased out. The land leasehold revenue will be included in general budget management in the short term, while the system itself should be gradually eliminated in the long run.
- (v) Redivide the rights distribution between central and local governments by increasing the expenditure of central government and reducing the spending pressure of local governments. The sustainability of local fiscal revenue depends on its responsibility for expenditures. The sustainability of local revenue is not the only thing that the reforms should improve. The local responsibility for expenditure must also be reduced. The key point for reform is focused on areas that have not yet enacted tax sharing systems by uplifting office authority and expenditure responsibility. More local affairs, such as pensions, medical care, and cross-regional environmental protection, should be handled by central governments.
- (vi) Promote the construction of public finance of local governments and change toward service-oriented governments. The existing local finance is too biased in favor of production and social spending is insufficient, which increases the payment pressure of pension, health care, and education. Local finance will need to increase spending on people's welfare by changing the development-based finance to service-based finance. The local government should proactively respond to the service needs of residents. More weight should be placed by the central government on local public service in assessment indicators for local officials.
- (vii) Actively innovate more channels of financing and solve the problem of infrastructure financing by introducing social funds. First, cash flow of regular payments for infrastructure should be classified, and the items paid using future charges can be constructed using market financing. For the profitable projects, the cooperation between governments and social capitals can be conducted in an innovative way. For example, the public-private partnership model can be used to solve the financing problems of infrastructure. It has multiple channels and methods.
- (viii) Improve the fiscal transfer system, since certain negative effects can be caused when constructing local infrastructure. The focus of the reform should be changed from pre-allocation to post-assessment. Third-party assessment institutions or systems should be constructed for a comprehensive evaluation of the effect of fiscal transfer. A relevant reward and punishment system should also be established.

- (ix) Construct an early warning mechanism to comprehensively assess the possibility of a decline in local financing. Considering that the growth rate of the PRC's economy may decline further in the future, the growth of local government revenue can be affected in many ways, and an early warning mechanism should be constructed and appropriate solutions should also be considered.

REFERENCES*

- Alesina, A., and R. Wacziarg. 1988. Openness, Country Size, and the Government. *Journal of Public Economics* 69(3): 305–321.
- Brennan, G., and J.J. Pincus. 1996. A Minimalist Model of Federal Grants and Flypaper Effects. *Journal of Public Economics* 61(2): 229–246.
- Hines, J.R., and R.H. Thaler. 1995. Anomalies: The Flypaper Effect. *Journal of Economic Perspectives* 9(4): 217–226.
- Ma, J. 1997. *Intergovernmental Relations and Economic Management in China*. Basingstoke, UK: Macmillan Press.
- Persson, T., and G. Tabellini. 1999. The Size and Scope of Government: Comparative Politics with Rational Politicians. *European Economic Review* 43(4-6): 699–735.
- Qian, Y., and R. Weingast. 1997. Federalism as a Commitment to Preserving Market Incentives. *Journal of Economic Perspectives* 11(4): 83–92.
- Rodrik, D. 1998. Why Do More Open Economies Have Bigger Governments? *Journal of Political Economy* 106(5): 997–1032.
- Shleifer, A., and R.W. Vishny. 1998. *The Grabbing Hand: Government Pathologies and Their Cures*. Cambridge, MA: Harvard University Press.
- Tsui, K. 2005. Local Tax System, Intergovernmental Transfers and China's Local Fiscal Disparities. *Journal of Comparative Economics* 33(1): 173–196.
- Yao, Y. 2007. Investigation the Equalization and Incentive Effect of Intergovernmental Grants in China. Working paper, Cornell University.

* The Asian Development Bank refers to “China” as the People’s Republic of China.