

Financial Development, Government Behaviour and Economic Growth in China : Analysis based on Provincial Panel Data

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Financial Development, Government Behaviour and Economic Growth in China: Analysis based on Provincial Panel Data

Zheyi Liu[†]

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1 . Introduction

There is one common agreement reached by the economists that in China, even 30 years after the reform and opening up policy, the governments still play an important role in China's economic activities, especially the local governments (Montinola, Qian and Weingast, 1995; Li and Zhou, 2005; Blanchard and Shleifer, 2000; etc). The governments not only directly adjust and control the macro economy through fiscal budget or other indicative plans, but also lead the economy by a large amount of state-owned enterprises (SOEs) (Che and Qian, 1998; Sun and Tong, 2003; Li, Sun and Liu, 2006; etc). Since the 1980s, the fiscal decentralization¹⁾ reform made the role of local governments become increasingly important, because local governments took on the main role in expenditure, which could have far-reaching influence on economic growth. Therefore, without considering government behaviour China's economic growth could not be truly understood.

Previous studies have focused on the relationship between fiscal decentralization and economic growth. Some scholars highlight the positive role of fiscal decentralization in the economic

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I am very grateful to my supervisor, Professor Nobuhiro Inatomi, for his valuable comments.

1) In a broad sense, fiscal decentralization means that the central government relinquishes its fiscal controls to sub-national governments.

growth. Bardhan (2002) adapts the theory of decentralization for developing countries and finds that local governments, which have better knowledge of the local conditions and preferences, could improve the provision of local public goods and services. Qian and Weingast (1997) argue that appropriately designed institutions help align the interests of public officials with citizens, and government officials serve as a disciplinary device to maintain the positive and negative incentives necessary for thriving markets.

Meanwhile, some studies suggest that fiscal decentralization negatively affect economic growth because it creates revenue incentives which actually encourage the protectionism of sub-national governments (Yang, 1997). Enterprise ownership by local governments provides an incentive to local governments to duplicate enterprises under their jurisdiction so as to capture the revenues that would have otherwise gone to the central coffers. Tanzi (1994) maintains that corruption is more common at the local level than at the national level, especially in developing countries.

Scholars have paid attention to the case of China. Studies related to China could be divided into two strands: those examining the relationship between fiscal decentralization and economic growth in China; and those investigating the intergovernmental relationship during the fiscal decentralization. However, few studies focus on analyzing the effect of fiscal decentralization to China's financial system. Chen et al. (2006) focus on the effect of government intervention to financial development after the 1994 tax sharing reform. Their research indicates that the intervention of local governments leads to an inefficiency of the financial sector in allocating credits. Zhang and Shen (2008) use the dataset of 1991-2005 and show that, under the circumstances of fiscal decentralization, China's financial development contributes to the increase of provincial total factor productivity.

Using panel dataset for 31 provinces from 1980 to 2009, this paper investigates how does the local governments' behaviour affect financial development under the background of China's fiscal reform (especially the tax sharing reform in 1994), while exploring their joint effects to China's provincial economic growth.

The innovation of this paper is that we include financial system, fiscal system and government institutional system into one framework, and analyze their mutual effects under the background of China's fiscal decentralization reform. In addition, our data cover the time span of fiscal decentralization process since its beginning in 1980. This could provide a whole story of the evolution of the different systems, and also allow comparisons if changes occur before and after the 1994 tax sharing reform.

The rest of the paper proceeds as follows. Section 2 briefly introduces China's fiscal decentralization reform since the 1980s and the 1994 tax sharing reform as the background information. Section 3 proposes the hypothesis of this paper. Using China's macroeconomic panel data, Section 4 carries out the econometric tests to examine the hypothesis from the previous theoreti-

cal discussion, summarizes the econometric test results and gives the analysis. Section 5 concludes.

2 . Background Information

After the foundation of People's Republic of China in 1949 till 1978, the main characteristic of China's fiscal system was being centralized, and the right of eminent domain for local governments was limited.

Since the 1980s, China's fiscal system had undergone some important changes. It was changed from a unitary system, in which the central government had absolute control over revenue collection and budget appropriation, to a relatively decentralized arrangement, in which revenues were shared by the central and provincial governments. During this time period, China's process of fiscal decentralization could be divided into two phases: 1980-1993 under the fiscal contract system and since 1994 under the tax assignment system.

2.1 1980-1993 Fiscal Decentralization Reform

2.1.1 "Eating from Separate kitchens" System

In 1980, the central government enacted revenue-sharing arrangements under the principle of dividing revenues and expenditures with each level of government responsible for balancing its own budget²⁾. According to this arrangement, revenues were classified by source and divided into three categories: central fixed revenues (including customs duties and revenues remitted by centrally owned state enterprises), local fixed revenues (including salt taxes, agricultural taxes, revenues remitted by locally owned state enterprises, and other taxes and levies of a local nature) and central-local shared revenues (including profits of large-scale enterprises under dual leadership by the central and local government, and industrial and commercial taxes or turnover taxes). The sharing schemes were promised to keep unchanged for five years. Especially for Guangzhou and Fujian two provinces, they were required to remit a lump sum to the central government every year and were allowed to retain the rest of their revenues.

In 1985, a major change was made with the reform of the tax system and the replacement of state enterprises' profit remittances with income taxes. The revenues were still divided into three categories, but the criteria for the divisions were changed from previously based on the ownership of state enterprises to the tax categories.

2) In 1978, Jiangsu province was chosen to try out this new fiscal arrangement with the central government. Under this arrangement, the province was contracted to remit a share of its total revenues each year to the central government. The share was determined according to historical records of local revenues and expenditures of the province.

2.1.2 1988 Fiscal Contracting System

In 1988, the fiscal arrangements were changed again under fiscal contracting. Six types³⁾ of sharing schemes were widely implemented all over the country, as opposed to four types during 1985-1987. This system was expected to increase fiscal revenues to local governments while guarantee the stability of revenue growth in the central government. After submitting to the central government revenues, local governments could keep all the residuals and finance their local expenditure out of this residual.

2.2 1994 Tax Sharing Reform

2.2.1 Contents

Under this tax sharing system, taxes were reassigned between the central and local governments. Central fixed incomes include: customs duties, the consumption tax, value added tax (VAT) revenues collected by customs, income taxes from central enterprises, banks and other financial institutions; the remitted profits, income taxes, business taxes, and urban construction and maintenance taxes of the railroad, bank headquarters and insurance companies; and resource taxes on offshore oil extraction. Local fixed incomes include: business taxes (excluding those named above as central fixed income), income taxes and profit remittances of local enterprises, urban land use tax, personal income taxes, urban construction and maintenance tax, real estate taxes, the stamp taxes, animal slaughter taxes, agricultural taxes and so on. Only the VAT is shared, at the fixed rate of 75% for the central government and 25% for local governments.

The tax structure is greatly simplified. The VAT has replaced the product tax, and has been implemented basically at a uniform rate of 17%. The enterprise income tax structure has been merged to put all domestic enterprises on the same tax schedule, and the top rate has been reduced from 55% to 33%. The former system of profit and tax contracts, under which state-owned enterprises (SOEs) negotiated annual remittance obligations, has been eliminated, and many exemptions were eliminated.

Meanwhile, the existing tax bureaus was split into national tax bureau and local tax bureaus. The national tax offices are main responsible for collecting VAT and consumption tax (alcohol, tobacco, etc). After they collect all of both taxes, they transfer 25% of the VAT revenue to the local governments.

3) The sharing schemes were remitting a fixed amount of the revenues to the central government, remitting a share of the local revenues, remitting a share of local revenue in the base year and the total remittance increases at a predetermined rate in the subsequent years, remitting a fixed amount in the base year and the total remittance increases at a predetermined rate in subsequent years, receiving a fixed amount of subsidy from the central government, and receiving a fixed amount of subsidy in the base year and the total subsidy increases at a predetermined rate in subsequent years.

2.2.2 Outcome

Official reports of the central government have claimed substantial success of this tax sharing reform in terms of improvement in the so-called “two ratios” – the ratio of budgetary revenue to GNP and the ratio of central budgetary revenue to total budgetary revenue.

From the figure 1, we could see that the objective of raising the central government share of revenue to GNP has been achieved, and the ten-year decline was finally reversed in 1994. At the end of 2009, this ratio has climbed to 10.5%. Meanwhile, figure 2 shows that the fiscal budgetary revenue ratio of the central government in the total revenue raises from only 22% in 1993 to 56% after the tax sharing reform in 1994, and this ratio keeps around 50% ever since 1994.

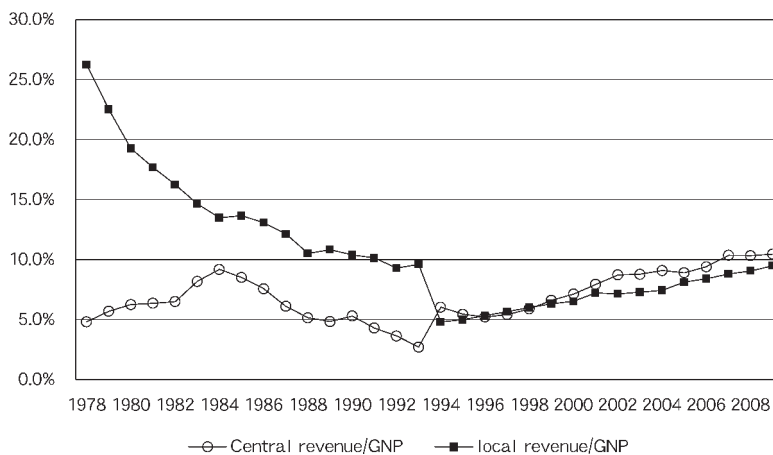
However there is a phenomenon which could not be ignored. The 1994 tax sharing reform increased the fiscal pressure of local governments. In 2009, while local governments accounted for about 48% of the total budget revenue in China, they were responsible for about 80% of total budget expenditure (see figure 2 and figure 3).

2.2.3 Main Items of Governments Revenue and Expenditure

Expenditure of the Central and Local Governments

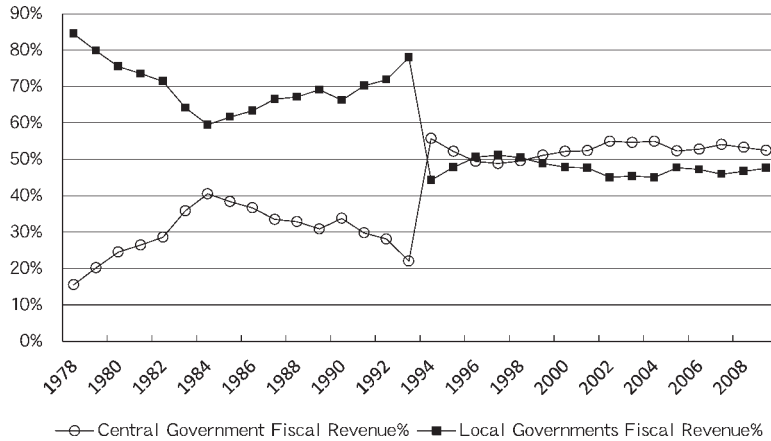
According to the different functions of the central government and local governments in economic and social activities, the rights of affairs administration are demarcated between those of the central government and those of local governments; and the classification of the expenditure between the central government and local governments are made on the basis of the classification of the rights of affairs administration between them.

Figure 1. Ratios of Central and Local Fiscal Budgetary Revenues to the GNP, 1978-2009



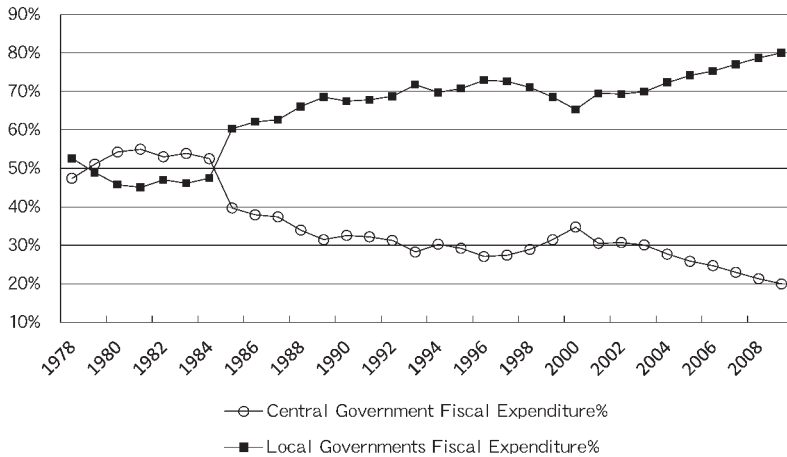
Source: Author's calculation based on various years of the *China Statistical Yearbook* and *China Fiscal Statistical Yearbook*.

Figure 2. Fiscal Budgetary Revenue Ratio of Central and Local Government, 1978-2009



Source: Author's calculation based on various years of the *China Statistical Yearbook* and *China Fiscal Statistical Yearbook*.

Figure 3. Fiscal Budgetary Expenditure Ratio of Central and Local Government, 1978-2009



Source: Author's calculation based on various years of the *China Statistical Yearbook* and *China Fiscal Statistical Yearbook*.

The expenditure of the central government includes the expenditure for general public services, expenditure for foreign affairs, expenditure for public security, and the expenditure of the central government for adjusting the national economic structure; coordinating the development among different regions; and exercising macroeconomic regulation.

The expenditure of the local governments includes mainly the expenditure for general public services, expenditure for public security, and expenditures for social development which are

planned by local governments, etc.

Revenue of the Central and Local Governments

In accordance with the decentralized taxation system, the revenue of the central government includes tariff, VAT and consumption tax from imports, VAT and consumption tax rebate for exports, consumption tax, business tax and city maintenance and construction tax from the Ministry of Railways, head offices of banks, head offices of insurance company, which are handed over to the government in a centralized way, 75% of the value added tax, 60% the share part of the corporate income tax, unshared part of corporate income tax of the central enterprises, profit handed in by the central enterprises, 60% of individual income tax, vehicle purchase tax, ship tonnage tax, 97% of stamp tax on securities transactions, resource tax on the offshore petroleum resources.

The revenue of the local governments includes business tax (excluding the part of the Ministry of Railways, head offices of banks, head offices of insurance company, which are handed over to the government in a centralized way), profit handed in by the local enterprises, city maintenance and construction tax (excluding the part of the Ministry of Railways, head offices of banks, head offices of insurance company, which are handed over to the government in a centralized way), house property tax, urban land use tax, land appreciation tax, tax on vehicles and boat operation, farm land occupation tax, deed tax, and tobacco leaf tax, stamp tax, 25% of the value added tax, 40% the share part of the corporate income tax, 40% of individual income tax, 3% of stamp tax on securities transactions, resource tax other than the tax on offshore petroleum resources, local non-tax revenue, etc.

The Figure 4 below gives the information of the main items of central and local governments' fiscal revenue and expenditure in the year 2009.

3 . Theoretical Analysis

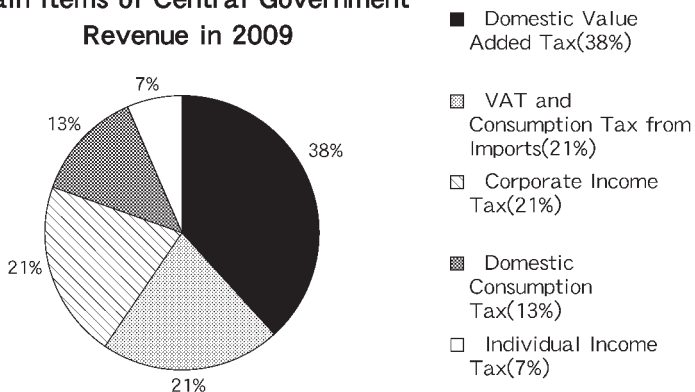
Section 2 introduces the background of China's fiscal reform, and we find that fiscal decentralization reform, especially the 1994 tax sharing reform, increased the fiscal pressure of local governments. In this section we also consider the reform process in the financial system and other pressures that local governments faced, which could shape local government behaviour. According to the substantial fiscal policy change in 1994, we divide our analysis into two time periods.

3.1 1980-1993

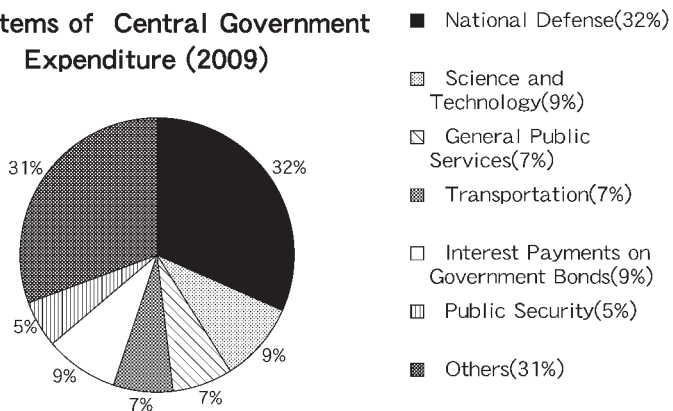
From 1980 to 1993 is the time of China's fiscal decentralization period. Meanwhile, since 1979,

Figure 4. Structures of Governments Revenues and Expenditures in 2009

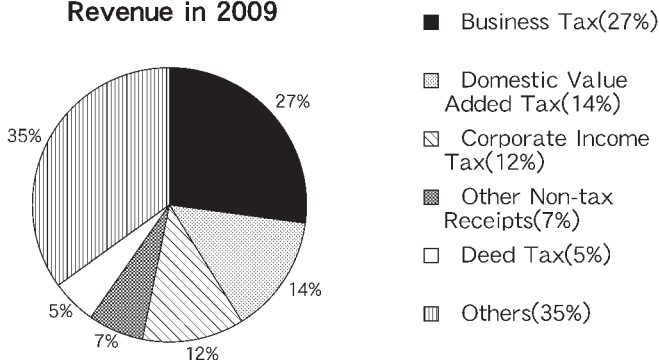
Main Items of Central Government Revenue in 2009



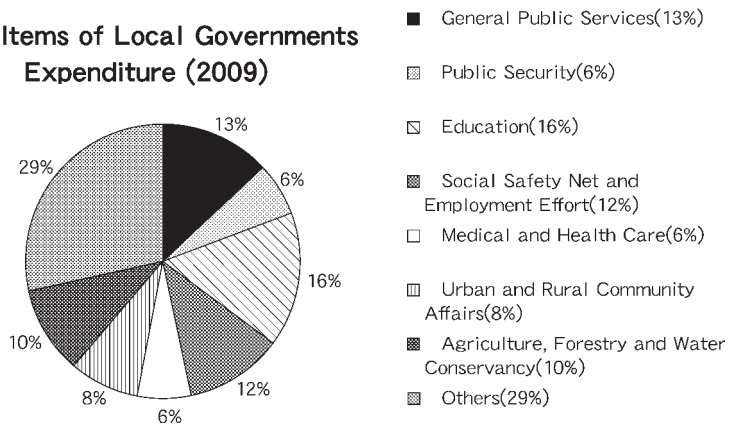
Main Items of Central Government Expenditure (2009)



Main Items of Local Governments Revenue in 2009



**Main Items of Local Governments
 Expenditure (2009)**



Sources: Author's calculation based on the *China Statistical Yearbook (2010)*

China also gradually launched the reform in the financial system. Four state-owned commercial banks were set up to take over the commercial banking businesses of the People's Bank of China (PBOC), and the reform of 'changing appropriation into bank loan' began to implement in the credit management system. Because the local GDP growth needed a large amount of capital investment, but under the financial circumstance of that time, the investment funds of local governments mainly relied on the loans from state-owned specialized banks. As a result, in order to obtain the loans as much as possible to support local economic growth, local governments inevitably would have the motivation of intervention to the local branches of the state-owned specialized banks and PBOC. Therefore, when these local branches made financial plan and loan decisions, they had to consider not only their own interests but also local governments' pressure (Zhang, 1998).

3.2 1994-2009

After 1994, China began to implement tax sharing fiscal system. The tax sharing reform reinforced the central government fiscal revenue ratios while weakened the relative fiscal capacity of local governments. Since this tax sharing system only adjusted the distribution percentages of the fiscal revenue between the central and local governments, but the expenditure responsibility almost remained the same as before 1994. Figure 2 and 3 show that after 1994 the local governments have used about 50% of the total revenue to finance nearly 70% of the total budgetary expenditure.

If we define the local governments' self-supply ratio as yearly local governments budgetary revenue divided by their budgetary expenditure as the equation below, and depicts this ratio from 1978 to 2009 in figure 5.

Local governments' Self-supply Ratio

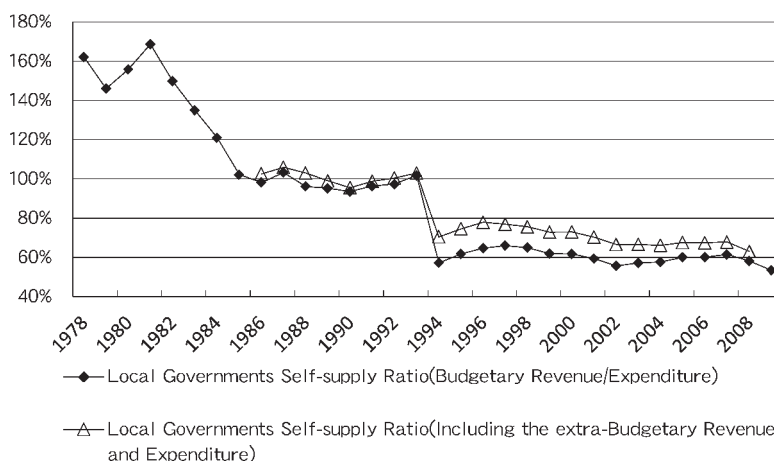
=local governments budgetary revenue/budgetary expenditure

Figure 5 shows clearly that before the 1994 taxing sharing reform, local governments could almost maintain the balance of budgetary revenue and expenditure; however, in 1994, local governments' self-supply ratio suddenly decreases from 102% in 1993 to only 57%, and since then this ratio keeps around 60%. It may be argued that the extra-budgetary revenue and expenditure could be a large amount. Then we depict the local governments' self-supply ratio adding in the extra-budgetary revenue and expenditure in figure 5. It shows that after including the extra-budgetary revenue and expenditure, although higher than the budgetary ratio, it is still around 70% and less than 80% after 1994.

The common observation is that governments with an unfavourable fiscal status would seek alternative ways to finance the local expenditure gap when facing both declining fiscal revenue collection and increasing spending assignments. The commonly observed practices include: (1) an expansion of extra- and off-budgetary revenues; (2) indirect borrowing from local state-owned banks by setting up affiliated entities of commercial companies; and (3) exertion of official influence on the credit allocation of the local banking sector and encouragement of subsidizing local SOEs through bank lending. Therefore, the tax sharing reform actually increased the intervention motivation of local governments on the regional banks credits decision (Zhang and Jin, 2006).

Along with the fiscal reform process is the further evolution of the institutional reform in China's financial system. In 1994, three policy banks were founded: State Development Bank

Figure 5. Local Governments Self-supply Ratio, 1978-2009



Source: Author's calculation based on various years of the *China Statistical Yearbook* and *China Fiscal Statistical Yearbook*.

(SDB), Agricultural Development Bank of China (ADBC) and Export-Import Bank (EIB). Policy-type services of the four specialized commercial banks gradually transferred to these three policy banks. Till now, the policy finance and commercial transactions were formally separated. In 1995, China passed the relevant laws and regulations to further regulate the functions of the People's Bank of China (PBOC). These measures were advantageous to limit the intervention of local governments to the local branches of the state-owned banks and PBOC. However, due to the problems of uncertainty property rights within the state-owned banks, lack of external competition and low independence of PBOC local branches, administrative intervention forces of local governments still remained (Liu and Zhang, 2005). Gao (2006) argues these to be one of the important reasons for a larger amount of non-performing loans of the state-owned banks during that time.

After 1998 Asian financial crises, China adopted a series of measures to deepen the reform of the financial system, which including streamlining the sub-national branches of PBOC, reforming the credit management system and withdrawing the rights of issuing bank loans inside the state-owned commercial banks. These measures, to some extent, limited the intervention capacity of local governments to the regional financial institutions. A report of PBOC (2004) showed that although the reform had basically eliminated the local government administrative directives on loans, when issuing credits, banks still worried about bankruptcy of the enterprises and other non-commercial considerations. Even with the recent emphasis on profit maximization and management responsibility in the state banking sector, the state banks may still favor the SOEs with which they have a long customer history and which are more likely to be bailed out by the government than non-state enterprises in the case of financial troubles. By contrast, projects in the non-state sector are perceived as more risky because of higher information costs and moral hazard. Wang (2008) points out that during that time the intervention of local governments has changed from direct orders into hidden interventions (using their political power to persuade, induce or even exert pressure to local banks and indirectly influenced their loan decision making).

In the above, we analyze how local governments' motives to intervene the allocation of bank loans have formed under different fiscal constraints ever since 1980. Besides the fiscal pressure, local governments also face other pressures such as local protectionism and promotion pressure.

Local Protectionism

China's fiscal decentralization reform provides the local governments with a strong incentive to protect their tax base by shielding local firms and industries from interregional competition. The local governments also have incentives to protect SOEs under their administration, which are their base of political power, their source of private benefits as well as fiscal revenue (Bai et al.,

2004). China's financial system is bank-based and government-owned ever since the foundation of People's Republic of China. Even after the partial liberation and complementation of financial reforms, the four main commercial banks and their regional branches are not only mainly owned by government but also frequently subject to government influence. As a result, bank financing is still an investment channel for the majority of inefficient state enterprises. Although local protection exists even before the tax sharing reform, this reform has established a more comprehensive tax collection system, which could lead to a more serious local protection. Boyreau-Debray and Wei (2005) find that there are important regional barriers and special fiscal incentives that distort the national capital market. Local governments are reluctant to see capital flowing out their jurisdiction because it may entail a revenue loss and employment increase. Their research also points out that the degree of capital mobility in China significantly decreased in the 1990s, relative to the 1980s.

Political Promotion Pressure

Since the middle of the 1990s, a performance based selection system of local officials has been introduced with vertical appointing and monitoring political authority to guarantee economic development and social stability. Under both political and fiscal constraints, local governments work very hard to have a better provision of local public goods and to improve infrastructure in order to foster rapid economic growth, while continuing to subsidize the inefficient SOEs for the sake of social stability. However, the competition between local governments not only leads to serious economic local protection but also competition for political promotion of local officials (Zhou, 2004). The chasing of local officials for political promotion inevitably induces excessive investments into urban construction, duplicative investments, and ostentatious projects. It is not difficult to imagine that after the tax sharing reform the increasing fiscal pressure of local governments could drive the officials to lean on bank loans to solve both their fiscal constraints and political needs.

Based on the above discussion, we propose the hypothesis of this chapter as follows.

During China's fiscal decentralization process which begins in 1980s, the 1994 tax sharing reform aggravates the fiscal pressure of local governments. Local governments, which face fiscal constraints and their political considerations, enhance their intervention to the credit issuing of the financial sector. The intervention of local governments leads to the inefficient allocation of the financial resources, thus not favourable to the regional economic growth.

4 . Econometric Tests

4.1 Model and Data

According to the theoretical analysis above, we set the econometric model as follow:

$$\text{LnPGDP}_{it} = \alpha + \beta \text{FINANCE}_{it} + \chi \text{FISCAL}_{it} + \delta \text{GOVERNMENT}_{it} + \gamma \text{FINANCE}_{it} * \text{GOVERNMENT}_{it} + \varepsilon_{it}$$

(i=1, 2..., 31 ; t=1, 2..., 30)

Where the dependent variable LnPGDP_{it} stands for the log value of per capital GDP of region i at the year t , ε_{it} is an error term. Our explanatory variables are the following.

FINANCE is the indicator measuring the level of financial development. It is almost impossible to get any consistent provincial data as to how much has been lent to state-owned enterprises from officially released statistics, and the only available dataset is the overall financial institution credits for each province. Therefore, we use the provincial total financial institution loans to its GDP ratio as a proxy to measure the local development of financial deepening.

FISCAL is the indicator measuring the fiscal budgetary pressure of local governments. It is calculated by the ratio of yearly fiscal expenditure to budgetary revenue of a province, and the greater the value the heavier the fiscal pressure is. Then we calculate the fiscal pressure of 29 provinces in China during 1978 to 2009. The results and their relative ranks are summarized in table 1. It shows that nine out of the top ten provinces which have the heaviest fiscal pressure are located in the western China. The fiscal pressure for the eastern provinces is smaller than those located in the middle and west areas. The possible explanation is that there is a regional variation at local government level in fulfilling the goal of economic growth and social stability. For example, the provinces located in eastern area of China are more attractive to outside investments due to their favourable location, rich endowments and more active sector of private economies. Meanwhile, for the middle and west area, banks have to lend to support government-related projects or public investment, and there is much more to be done to maintain the operation of SOEs, improve infrastructure and other investment-induced public investment.

GOVERNMENT is the indicator of government activities. We use regional budgetary fiscal expenditure to local GDP ratio to measure the depth of government activities in local economic development.

In order to measure the influence of local governments intervention to financial development, we also introduce the interactive term FINANCE*GOVERNMENT. If our hypothesis is tenable, then the coefficient of this interactive term should be negative after the 1994 tax sharing reform.

This paper uses panel data of 31 provinces⁴⁾ from 1980 to 2009 to carry out the econometric tests. Data used in this paper comes mainly from various issues of Statistical Yearbooks (*China*

Table 1 Average Values and Ranks of Provincial Government Fiscal Pressure (1978-2009)

East Area	Average Value	Rank	Middle Area	Average Value	Rank	West Area	Average Value	Rank
Hainan	1.864	9	Jilin	1.961	7	Qinghai	3.936	1
Hebei	1.344	19	Jiangxi	1.723	12	Xinjiang	2.941	2
Fujian	1.269	21	Heilongjiang	1.691	13	Ningxia	2.937	3
Liaoning	1.143	22	Anhui	1.516	14	Inner Mongolia	2.739	4
Shandong	1.128	23	Hunan	1.511	15	Gansu	2.164	5
Guangdong	1.080	24	Henan	1.462	16	Guizhou	2.104	6
Tianjin	1.003	25	Shanxi	1.460	17	Yunnan	1.867	8
Zhejiang	1.002	26	Hubei	1.431	18	Shaanxi	1.743	10
Jiangsu	0.966	27				Guangxi	1.739	11
Beijing	0.918	28				Chongqing	1.312	20
Shanghai	0.739	29						

Source: Author's calculation based on relative statistics.

Note: Sichuan and Tibet are not included in this table. Sichuan misses the data from 1978 to 1984. The fiscal revenues of Tibet are negative during 1978 to 1988 and make this fiscal pressure ratio incomparable with other provinces. Therefore, the total observations of this table are 29 provinces.

Statistical Yearbook, Almanac of China's Finance and Banking and Finance Year book of China and the book *Comprehensive Statistical Data and Materials on the Sixty Years of New China*.

Table 2 provides basic descriptive statistics for the dependent variable, that is, the log of per capita GDP (LNPGDP) and the main explanatory variables FINANCE, FISCAL and GOVERNMENT. From the Table 2, we could know that, except the variable GOVERNMENT, the standard deviations of all the other variables are relatively greater which suggests the level of financial development, fiscal pressure and per capita GDP are unequal among the provinces of China. The Jarque-Bera test values show that all the variables are not normally distributed, so we could not use the OLS regression to estimate our models.

4.2 Test Results

Before carrying out the regression analysis, stationarity of the variables should be determined first. Only the stationary variables are eligible, otherwise it could lead to spurious regression. Firstly, we will carry on unit root test to our panel data to check if there are stationary variables. There are two kinds of unit root tests: one's null hypothesis is to suppose all the cross-section data

4) The data of Sichuan province is available from 1985.

Table 2. Descriptive Statistics for the Variables

	LNP GDP	FINANCE	FISCAL	GOVERNMENT
Mean	9.10	1.48	0.92	0.143
Median	9.11	1.11	0.97	0.136
Maximum	11.16	3.096	1.34	0.20
Minimum	7.14	0.50	0.29	0.09
Std. Dev.	1.30	0.73	0.33	0.03
Jarque-Bera (Probability)	79.95 (0.000)	97.16 (0.000)	93.17 (0.000)	69.25 (0.000)
Observations	992	992	992	992
Cross sections	31	31	31	31

suffer a common unit root process, for example Levin, Lin and Chu (LLC) unit root test; the other kind supposes the data of individual unit root process, such as Phillips-Perron Fisher (PP Fisher) unit root test and Im, Pesaran and Shin (IPS) unit root test. We choose LLC and PP Fisher methods to test the stationary of our variables. The test results done by the Econometric software Eviews 7 are summarized in the table 3.

From the table 3 we could know that all the level variables are not stationary since they all fail to reject the null hypotheses. However, all the first order differenced variables are stationary because they reject the null hypotheses of both LLC and PP Fisher unit root tests. All the variables are I(1) variables. Therefore we will estimate our model with the differenced stationary variables, and the model is rewritten as follows.

$$\begin{aligned} \Delta LnP GDP_{it} = & \alpha + \beta \Delta FINANCE_{it} + \chi \Delta FISCAL_{it} + \delta \Delta GOVERNMENT_{it} \\ & + \gamma \Delta FINANCE_{it} * \Delta GOVERNMENT_{it} + \varepsilon_{it} \end{aligned}$$

(i=1, 2..., 31 ; t=1, 2..., 30)

In order to observe if there are any changes brought by the 1994 tax sharing reform, we estimate our model through two separated time periods which are before the tax sharing reform from 1980 to 1993 and after the reform from 1994 to 2009. The results are summarized in table 4.

Hausman test is carried out to determine the suitable regression model type. Both the model [1] and model [2] fail to reject the null hypothesis of the hausman test, so the random effect model is more suitable for them.

The coefficients of variable $\Delta FINANCE$ remain negative in both model [1] and model [2]. However, the significant level of the coefficient in model [2] is at 1% which is stronger than the 10% in model [1]. It suggests that financial development does not promote economic growth; instead, brings a negative effect to the economic growth and this negative effect is more certain after the year 1994.

Table 3. The Unit Root Tests Results of Variables

	LLC Test		PP Fisher Test	
	Statistic	Probability	Statistic	Probability
FINANCE	4.87	1.00	14.09	1.00
Δ FINANCE	-18.36***	0.00	452.33***	0.00
FISCAL	5.30	1.00	36.43	0.99
Δ FISCAL	-16.60***	0.00	629.17***	0.00
GOVERNMENT	-0.89	0.19	71.60	0.19
Δ GOVERNMENT	-24.01***	0.00	376.34***	0.00
LnPGDP	18.66	1.00	1.66	1.00
Δ LnPGDP	-4.71***	0.00	335.35***	0.00

Note: Δ FINANCE is the first order difference of the variable FINANCE; the same applies to other variables. ***denotes significance at the 1 percent level.

Table 4. 1980-1993 and 1994-2009 Two Period Model Results

	[1] 1980-1993	[2] 1994-2009
Δ FINANCE	-0.096* (-1.78)	-0.057*** (-7.78)
Δ FISCAL	1.112*** (14.02)	0.268*** (18.24)
Δ GOVERNMENT	-4.296*** (-15.79)	-1.31*** (-7.23)
Δ FIN* Δ GOV	19.85*** (7.11)	-2.11*** (-8.42)
C	0.055*** (9.50)	0.15*** (64.23)
Adjusted R ²	0.42	0.48
F-statistic	78.59	116.25
Model Type	Random Effect	Random Effect
Hausman Test Probability	1.00	1.00
Number of Observations	434	496

Note: Dependent variable is Δ LnPGDP. *denotes significance at the 10 percent level; **denotes significance at the 5 percent level; ***denotes significance at the 1 percent level. Values in parentheses are t-values.

The coefficients of our key interactive term Δ FIN* Δ GOV are significant in the two time period, but it is significantly positive before 1994 in model [1] while significantly negative in the model [2] after 1994. The negative coefficient in model [2] supports our hypothesis that the intervention of local governments to the financial sector leads to the inefficient allocation of the financial resources, thus not favourable to the regional economic growth. Since the 1994 tax

sharing reform brought a break between expenditure and revenue to the local level of government, and this break substantially increased the spending burden of local governments, which further induced the intervention of local governments to the bank loans to make up their deteriorated fiscal capacity (Zhang and Jin, 2006). Their behaviour depressed the promotion effect of financial development to the economic growth.

However, the positive coefficient of the interactive term in model [1] is out of our expectation. One possible explanation could be that in the 1980s China's economy was dominated by a large amount of state-owned enterprises, and local government intervened in the financial market and made most of the bank loans flowed to these SOEs. Although compared with small and middle sized private enterprises, those SOEs may not be as efficiency as them, but SOEs were mainly distributed in manufacture industrial sector which was the promotion engine to economic growth in the 1980s. Therefore during the period 1980-1993 the joint-effect of government behaviour and financial development presented the positive effect to the economic growth. However, the 1992 Deng Xiaoping's speech during the southern tour encouraged the development of non-state owned sectors in China. Since then the efficient non-SOEs contributed more to the GDP growth than the SOEs. As we analyzed, the 1994 tax sharing reform further intensified local government intervention to financial sector which results in the financial resources flow to the less efficient department. Therefore, this coefficient becomes negative after the 1994.

The coefficient of the variable Δ FISCAL remains significant and positive in both model [1] and model [2]. This suggests that during our research period local governments have made full use of the fiscal revenues and the general expenditure brings a positive effect to local economic growth.

In both the model [1] and model [2] the coefficient of the variable Δ GOVERNMENT is negative at 1% significant level. This negative effect of government expenditure on economic growth is consistent with most scholars' research, which suggests that to cut down the government intervention and involving in the economic activities are favourable for the economic growth.

The decrease in the magnitude of the coefficient from -4.296 in model [1] to -1.31 in model [2] suggests that the negative effect brought by government intervention to the economic growth is not as strong as before 1994. If we subdivide local governments expenditure, for example in 2009, the main items of local government expenditure⁵⁾ are education (which account for 16.2% of the total expenditure), general public services (13.2%), social safety net and employment effort (11.7%), agriculture and environment conservancy (10.5%) and urban-rural community affairs (8.4%). We could see that although these government investments do not have a direct promo-

5) Author's calculation based on the data from *China Statistic Yearbook 2010*.

tion effect on local economic growth, they are beneficial to local long-term economic growth in terms of improving the investment environment, maintaining a harmonious society. With the deepening of marketization process in China, social function of government investments become more and more important in the regional economic growth. This could be one possible explanation for the decreased negative effect of government expenditure on economic growth after 1994.

5 . Conclusions

This paper examines how regional financial development is influenced by the intervention of local governments under the background of fiscal decentralization reform, and how their joint-effect affects the regional economic growth in China.

Both the theoretical analysis and econometric test show that the 1994 tax sharing reform cut down the balance between fiscal expenditure and revenue, and bring a heavy fiscal burden to local governments. The increasing fiscal pressure inevitably leads to the intervention behaviour of local governments to the loan extending procedure of bank sector, through absorbing from the financial system to make up its fiscal expenditure. Meanwhile, local protectionism and officials' political ambition for promotion strengthen local governments' intervention behaviour. The intervention of local governments to the financial sector is not favourable for financial system allocating capital efficiently and thus not beneficial for local economic growth. Our regression results before and after the 1994 tax sharing reform also show that after 1994 the promotion effect of financial development on economic growth is weaker than before 1994.

China's economic development process is the transition from a centrally planned economy to a market-oriented economy. During this process, all the institutional systems in China also need to complete this transition. However, one single system could not be separated from other systems, since they need to cooperate with other systems to achieve the final coordination. When we inquire how to improve the efficiency of financial system, we should also consider about the fiscal system and government institutional system.

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