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China's economic growth: Trajectories and evolving institutions

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Research Paper No. 2008/33

China's Economic Growth

Trajectories and Evolving Institutions

Jun Zhang*

April 2008

Abstract

This paper investigates the institutional reason underlying the change in the trajectory of economic growth in post-reform China, and argues that the trajectory of growth was much more normal during the period of 1978-89 than in the post-1989 era. In the former period, growth was largely induced by equality-generating institutional change in agriculture and the emergence of non-state industrial sector. In the latter period, growth was triggered by the acceleration of capital investments under authoritarian decentralized hierarchy within self-contained regions. Such a growth trajectory accelerates capital deepening, deteriorating total factor productivity and leads to rising regional imbalance. This paper further argues that the change in the trajectory of growth is the outcome of changes in political and inter-governmental fiscal institutions following the 1989 political crisis.

Keywords: economic growth, political institutions

JEL classification: H83, P26

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Acronyms

CCES China Center for Economic Studies

FDIs foreign direct investments

TFP total factor productivity

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1 Introduction

Even though China has been able to continue a record growth rate of 9.3 per cent in its total output annually since the early of 1990s, the results of faster growth in the last decade turned to be quite different from those of the 1980s. Economic growth in the 1980s was able to bring 13.5 million people out of poverty every year and create huge job opportunities for rural immigrants. As a consequence of this income surge, growth was sustained by increasing domestic consumption. In the 1980s, as result of consumption-led growth, consumption accounted for over 70 per cent of China's total GDP. Typically, China experienced frequent incidences of trade deficit rather than surplus during this phase of growth.

China's growth since the mid-1990s, however, has been unexpectedly accompanied by increasing imbalances of payment, mostly the result of the huge influx of foreign direct investments (FDIs) and an accelerating pile-up of trade surplus. In 1985, the value of Chinese exports was less than 10 per cent of its GDP. Last year, the export/GDP ratio had increased to nearly 40 per cent. Large amount of surplus in the balance of payment and accumulation of foreign exchange reserves of over US\$2 trillion have exerted growing pressure on its fixed exchange rate regime and increasing trade friction with the US and EU.

Domestically, since the mid-1990s, the growth of capital investments has accelerated so that the investment/GDP ratio rose from less than 20 per cent in the early 1980s to over 45 per cent in 2005. After the mid-1990s, the tendency of regional convergence observed in the 1980s became reversed into regional divergence. The investment-led growth helped to enlarge the gap between the rich and poor provinces and resulted in rising regional imbalance. Job creation has been on a decline since the mid-1990s. The trickle-down effect of economic growth has not occurred.

Why are the results of economic growth since the mid-1990s so different from the preceding decade? What are the causes behind the change in growth trajectory? With respect to successful transition and growth, China has been regarded as a noteworthy case in the world of centrally planned economies, but much of the success in its performance is based on the experience of dissolved institutions, emergence of the non-state sector, and improved efficiency of existing sectors in the 1980s. The role of the changes in institutions governing decentralization and growth associated with political centralization following the 1989 political crisis has not received adequate notice, even if it is not totally neglected. A growing interest has been directed at the outcomes of investment-led growth in China recently, but the discussion has been limited so far to the causes of change in the growth trajectory of the mid-1990s.

In this paper we argue that the change in the trajectory of growth since the mid-1990s is the outcome of the modifications in political and intergovernmental fiscal institutions in the post-1989 era. Attention will be paid particularly to the role of political and fiscal recentralization that followed the political crisis in 1989. Political centralization and tax sharing system, which have created the prevailing regional competition, produce the dynamics that have underlain and propelled the process of investment-led growth since the mid-1990s.

This paper is organized as follows: in section 2, the trajectory of growth is discussed in the context of growth accounting for China, where emphasis is placed on the changing pattern in the growth of total factor productivity. Explanation for the change in growth

trajectory is presented in section 3. Section 4 provides some empirical evidence based on the results of various recent studies. Section 5 concludes.

2 The trajectory of growth and its change in the post-1989 era

There have been numerous studies that examine the sources of economic growth in post-reform China in the last two decades. The sources of data and methodologies may differ, but one finding is commonly shared by these studies, i.e., the growth rate of total factor productivity (TFP) in China has declined since the mid-1990s.

For example, in a re-estimation of TFP growth for the Chinese economy, Zhang and Shi (2002) find that the growth of TFP began to decelerate after 1992. This finding is a confirmation of some earlier results of growth decomposition for industrial enterprises in China (e.g., Jefferson, Rawski and Zheng 1996). These results have been replicated by many other studies as well. Table 1 includes some of the results estimated in these studies, showing a quite similar pattern in the change in the growth rate of TFP.

Kuijs and Wang (2005), for example, recently update the results of growth accounting with the latest data. In their account, assuming the output elasticity of labour being 0.5, they find that compared to 1978-93, the contribution of capital accumulation to GDP growth increased in 1993-2004, as the capital-output ratio rose from an estimated 2.2 in 1994 to an estimated 2.8 in 2004, reflecting the rapid investment growth in the last decade, while TFP growth slowed down. When they update the revised GDP data for 1993-2005, they find little deviation in their results. On the basis of new data, for example, the contribution of capital accumulation was 60 per cent rather than 62 per cent, while TFP growth would be 3 per cent, instead of 2.7 per cent.

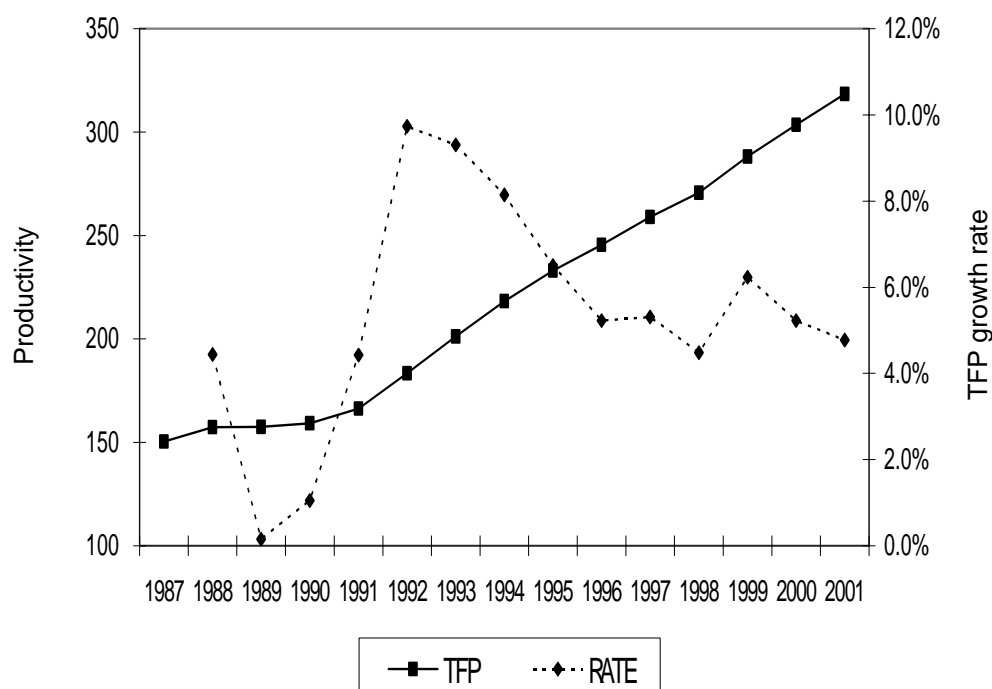
Based on a recent compilation of China's provincial capital stock series (Zhang, Wu and Zhang 2007) and Zhang, Wan and Jin (2007) also find that the aggregated growth rate of provincial TFPS for 1987-2001 presents similar pattern of change in the growth trajectory, as shown in Figure 1.¹

Table 1
Growth of TFP and its decline in China: various studies

Source	Period	TFP growth (%)
Zhang and Shi (2002)	1977-88	4.1
	1989-98	2.1
	1992-98	3.6
Zheng and Hu (2004)	1978-95	4.64
	1995-2001	2.28
OECD (2005)	1979-96	4.0
	1997-2002	3.2
Kuijs and Wang (2005)	1978-93	3.7
	1993-2004	2.7
Jefferson, Rawski and Zhen (1996)	1984-88	3.68 (4.52)
	1988-92	1.58 (2.98)

¹ The dataset developed by China Center for Economic Studies at Fudan University covers 29 Chinese provinces and municipalities for the period 1987-2001. The data of real capital stock series are based on Zhang et al. (2006).

Figure 1
Total factor productivity and its growth rate: 1987-2001



Source: Zhang, Wan and Jin (2007).

Table 2
Estimates of quadratic equation

	A_0	A_1	A_2
Coefficients	1.141	0.984	-0.0722
Standard error	1.281	0.229	0.025
T-value	0.891	4.297	-2.86
X^*	6.814		
Y^*	4.494		

Note: Quadratic equation for regression is $g(TFP) = \alpha_0 + \alpha_1 g\left(\frac{K}{L}\right) + \alpha_2 \left[\left(\frac{K}{L}\right)\right]^2$

The question here is why has the TFP growth begun to slow down since the 1990s, but GDP has not. China still maintained an output growth rate of over 9 per cent in the 1990s. From a growth theory perspective, if the growth of TFP does decline, then capital accumulation (as measured by the capital-labour ratio) should have contributed a far larger share to output growth.

In order to find evidence to support this assertion, let us assume that something happened in the early 1990s, so that capital intensity began to accelerate and caused the TFP growth to slow down. If this were true, then capital intensity might have had a non-linear relationship with TFP growth for the whole post-reform period. If we assume the following quadratic equation between the growth of TFP and the change in capital intensity, then we should expect the sign of a_2 to be negative, when it is fitted statistically by the data of Chinese economy:

$$g(TFP) = a_0 + a_1 g(K/L) + a_2 [g(K/L)]^2 \quad (1)$$

Table 2 reports the estimates of regression for Equation (1). The data used to estimate the parameters come from China Center for Economic Studies (CCES) at Fudan University. The fitted values of parameters are statistically significant, and all the signs of parameters are as we expected. Table 2 also reports the critical value (X^*) of $g(K/L)$, where $X^* = -a_1 / (2a_2)$, and the maximum value of $g(TFP)$ is Y^* .

From the perspective of standard growth accounting, capital-output ratio can also be decomposed into the following two parts:

$$g(K/Y) = \alpha g(K/L) - g(TFP) \quad (2)$$

Inserting Equation (1) into Equation (2), we have

$$g(K/Y) = -a_0 + (\alpha - a_1) g(K/L) - a_2 [g(K/L)]^2 \quad (3)$$

Because a_2 has a negative sign, acceleration of capital intensity will, therefore, cause capital-output ratio to rise. In order for $g(K/L)$ to drive $g(K/Y)$ up in equation (3), we let the first derivative of $g(K/Y)$ with respect to $g(K/L)$ be greater than zero, then we obtain:

$$g(K/L) > (a_1 - \alpha) / (2 |a_2|) \quad (4)$$

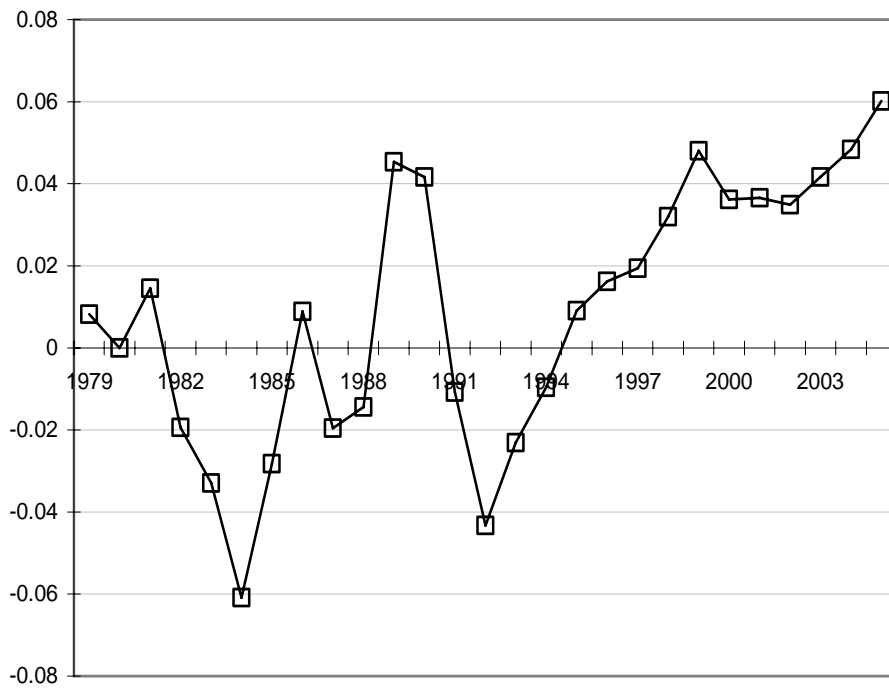
Using the estimated values of parameters, a_1 and a_2 , and assuming the output elasticity of labour, α , is $1/2$,² then we estimate that the critical value of $g(K/L)$, which is the minimum value for the change in capital labour ratio to trigger capital output ratio to rise. The annual per cent age change in China's capital-output ratio over the period of 1979-2004, which is based on our estimations, is depicted in Figure 2. It shows that China's capital-output ratio has unexpectedly accelerated since the mid-1990s.

Given the assumptions of standard growth accounting, (K/Y) is also the product of output elasticity of capital, α , multiplied by incremental capital-output ratio (ICOR), therefore, the rising capital-output ratio can be translated into rising ICOR, indicating deteriorating efficiency of aggregate investments over time. The evolution of China's incremental capital-output ratio is presented in Figure 3, which is largely drawn from Zhang (2003b). It shows that the ICOR experienced a stable, slight decline in the 1980s, but has increased dramatically since the mid-1990s.

Figure 3 also indicates that investment-GDP ratio accelerates dramatically since the mid-1990s. Indeed, annual total investments in fixed assets rose from about 20 per cent in the early 1980s to over 47 per cent by 2003. Similarly, gross fixed capital formation as per cent of GDP increased from around 25 per cent in the 1980s to over 45 per cent by the year 2005. China's investment-GDP ratios are far higher than those of Hong Kong and Taiwan, where investment rates between 1966-98 were just 25.4 per cent and 23.7 per cent respectively (Toh and Ng 2002). They are also higher than those of Singapore and South Korea (in the 1970s-1980s). For example, the average ratio of investment to GDP in Singapore was 35.4 per cent between 1966-98, which was the highest among the four little tigers in East Asia (Zhang 2003a).

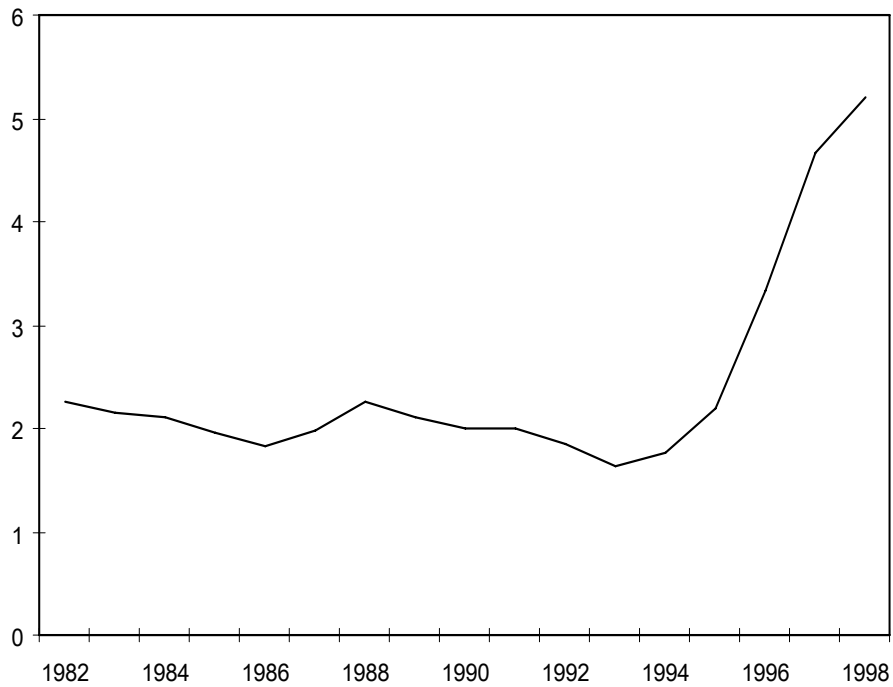
² Most studies on growth accounting for post-reform China assume a lower output elasticity of labour, as the share of labour in the country's national income ranges from 0.4-0.5.

Figure 2
Percentage change of capital output ratio in China



Source: Author's computation.

Figure 3
China's incremental capital output ratio
(5-year moving average)



Source: Zhang (2003b).

3 Explanations

Both Table 1 and Figure 3 show that the trajectory of growth was much more normal in the 1980s than the post-1992 era. Why is the trajectory of growth between these two periods so different? Why has it changed since the mid-1990s?

In this paper we look at the evolving roles of China's political and fiscal institutions in redefining the variation in the growth trajectory. Emphasis is given on the critical impact of the political crisis in 1989 on the change in political and fiscal institutions that have induced the regional competition of local governments.

During the initial phase of economic liberalization in the 1980s, shortly after the end of Cultural Revolution (1966-76), the mutual objective of the Chinese reformers was to partially decontrol the planned economy and to improve the *allocative efficiency* of existing resources by reassigning and diffusing property rights, creating incentives and autonomy for farmers, enterprises and for local governments. One important step to decentralizing fiscal accountability and delegating decisionmaking powers to local governments was the introduction of the revenue-sharing system between central and local governments.

While these institutional reforms have enhanced efficiency, which has led to rapid output growth, economic liberalization and fiscal decentralization are eroding the ideological legitimacy of the party/government, and are creating the potential for political crisis. Why would China's fiscal decentralization and micro institutional reforms in the 1980s have an eroding effect on the legitimacy of the party/government, and produce potential for political crisis?

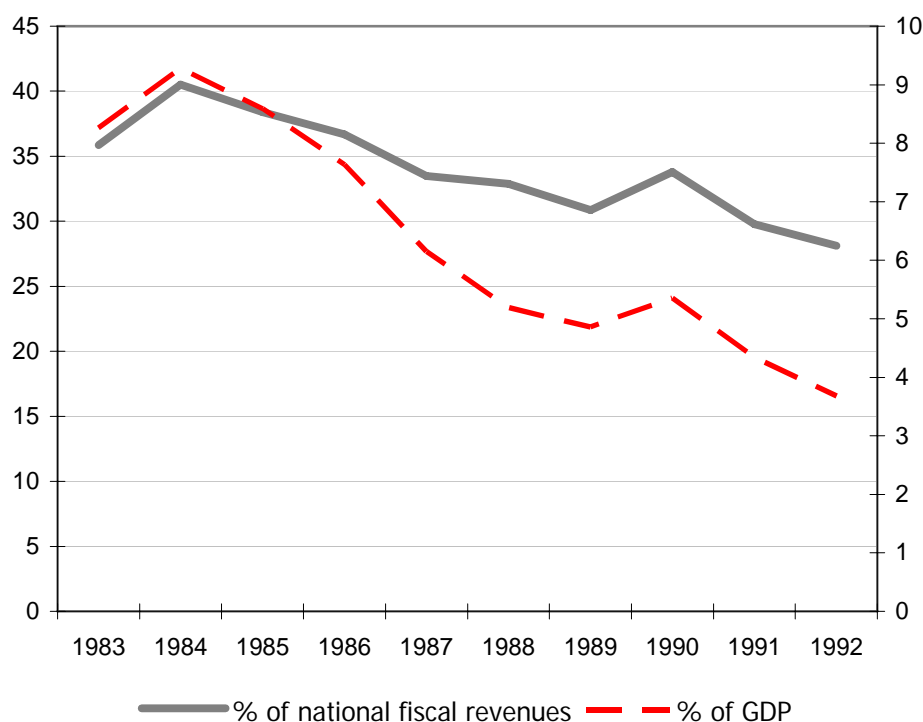
There are several reasons:

- i) the top-down economic decentralization through the reassigning and diffusing of property rights to local and non-state sector, has created high powered incentives and autonomy for economic agents and local governments, but have increasingly challenged ideological orthodox and brought in a growing awareness of, or desire for, political pluralism and political reforms;³
- ii) fiscal decentralization induced a big decline in the central government's share of total national fiscal revenues and in aggregate GDP, as evidenced in Figure 4. This fiscal situation empowered local governments and is widely believed to have jeopardized the authority of central party leadership;
- iii) fiscal decentralization and institutional reforms in the 1980s, characterized by sectoral redistribution without losers, led to frequent incidences of hyperinflation during the decade, and at the same time, because of fiscal decentralization, they eroded the government's ability to control and maintain macro stability.⁴

³ In China, this awareness was officially condemned and criticized as capitalist liberalization and spiritual contamination.

⁴ Brandt and Zhu (2000) as well as Feltenstein and Iwata (2005) argue that fiscal decentralization and diminished ability of central government in the 1980s explain the periods of hyperinflation in China.

Figure 4
Deteriorating fiscal status of central government in China, 1983-92



Source: NBS (various years).

A political crisis was eventually ignited by the students' protests in Tiananmen Square in 1989. Although it was not the first political crisis during the economic reform process in the 1980s,⁵ it definitely produced a profound effect on the trajectory of economic reforms and growth in China. This political crisis was followed by a disruptive drop in GDP growth as well as international embargo and isolation for three years. The important lessons that can be highlighted to the Chinese reformers from the political crisis in 1989 are threefold:⁶ (i) economic decentralization and micro liberalization cannot guarantee political stability; (ii) without political stability China cannot maintain rapid economic growth; and (iii) without faster economic growth, it is hard to maintain political stability in China.

Shortly after the crisis and economic retrenchment between 1989-91, the reformers, especially the senior leader Deng Xiaoping, decided to rebuild and reinforce leadership legitimacy by turning the economy back onto the fast growth track, and at the same time, to bring about political stability by initiating new reform programmes in political and fiscal institutions.⁷

Indeed, the mutual goals of the various reforms could hardly be effective without the introduction of some unique incentive mechanisms. In line with such objectives,

⁵ Another major crisis occurred in 1986, after the death of former party secretary, Hu Yaobang.

⁶ A more detailed exposition of these lessons was included in the collected works of Deng Xiaoping.

⁷ Deng Xiaoping gave a series of speeches in the early spring of 1992 on an inspection tour of south China's provinces.

authorities proposed some fundamental changes in the political institutions of the party and governments. One such change is the political recentralization in the party governance structure, as well as the introduction of the cadres system within both the party and government hierarchy for monitoring, and performance-based promotion scheme for the party (Li and Lian 1999). Local officials, especially the provincial party secretaries and governors, were to be strictly appointed, rotated and promoted in order to guarantee their loyalty to the central government and to overcome the informational asymmetry between the different tiers of governments (Huang 2002; Zhang and Gao 2007).⁸

One of the outcomes of this political recentralization was the creation of *political championship* governing local governments.⁹ There are several reasons why the political championship works so well in China: the country has an authoritarian political system which enables the central government to set the rules of game, the standard of measurement, and to decide who will be promoted. Second, China has a history of M-form organizational hierarchy within which the performance of each agent is highly comparable to each other,¹⁰ and this makes it much easier to implement the championship game. Lastly, even although there has been a growing non-state sector since the 1980s, most financial resources, land, other factors of production and economic policies are still controlled and allocated by local governments. Therefore, political institutions governing incentive mechanisms have a profound influence on local economic performance.

Reforms in the intergovernmental fiscal system were implemented in the early 1990s to reverse the declining financial position of central government. In 1994, the system of revenue-sharing between central and local governments was replaced by a tax sharing system, whereby local governments were granted the legal right to collect local taxes, while the value added tax (VAT: a tax on local production and distribution) was to be shared by both government tiers. This fiscal arrangement encouraged local governments to promote economic growth. Therefore, local fiscal autonomy was successfully preserved, in addition to substantially improving the fiscal status of central government.¹¹

By the mid-1990s, decentralized authoritarianism was institutionally reconstructed, and local government officials were politically motivated to ‘put growth first’ if they wished to safeguard their political careers and promotion potential to higher positions.

⁸ The official proclamation was issued in March of 1990. Using a panel consisting of 28 Chinese provinces, Li and Zhou (2005) find a positive relationship between the relative economic performance of local officials and their probability of being promoted. Based on dataset consisting of 302 provincial leaders and 29 provinces for 1978-2004, Zhang and Gao (2007) find that term limitations and rotation of local officials are inductive to local economic growth.

⁹ Championship as an incentive mechanism is studied in economics literature. See Lazear (1995) for a theoretical discussion.

¹⁰ See Xu and Qian (1993) for a more detailed account of the evolution of the Chinese hierarchical system based on the distinction of M-form versus U-form.

¹¹ The central government has agreed to recycle a portion of tax revenues to local governments as an equalization transfer in order to bridge the gap in their expenditure. But the variation across provinces is still huge.

In determining why regional decentralization works better in China than in Russia, Blanchard and Shleifer (2001) conceptualize the framework of ‘fiscal federalism, Chinese style’ based on the experiences of these two countries. In particular, they conclude that:

... it has been neglected in the recent discussions of China praising the decentralization benefits of federalism. As best we can tell, the economic benefits of decentralization obtained from federalism rely crucially on some form of political centralization. Without such centralization, the incentives to pursue regionalist policies are too high, and cannot be eliminated solely through clever economic and fiscal arrangement (Blanchard and Shleifer 2001: 178).

Economic growth since the mid-1990s thus rests on very different institutional foundations. Faster growth has been triggered within the framework of a more centralized political hierarchy. The incentive mechanism of the local governments is built largely on their tax autonomy and the motivation of political championship they face. Since the mid-1990s economic growth has become increasingly highly regionally driven, investment-led, fragmented, and uneven across provinces and regions.

4 Statistical evidence

In what follows we provide some empirical evidence based on recent studies of China’s regional decentralization, competition and growth. If the changes in political and fiscal institutions in the aftermath of the 1989 political crisis have helped to steer local governments toward investment-led (or export-led) growth, it is important to seek out such empirical evidence.

The evidence we are looking for can be summarized follows: if the explanation above is plausible, namely, that investment-led growth was the outcome of political championship and fiscal autonomy that characterized the incentive mechanism of regional governments, then we should expect to find that: (i) the fiscal autonomy of local governments should be enhanced rather than diminished by the tax sharing system which replaced revenue-sharing mechanism in 1994; (ii) within performance-based political control as well as tax sharing system and the resulting regional competition, local governments are expected to favour capital construction and investment-led growth, and less likely to support the provision of equity-enhancing public goods; or/and (iii) fiscal decentralization and the accompanying regional competition from 1994 onward should have a significantly positive effect on local economic growth in general.

4.1 Fiscal autonomy

The robustness of the link between local expenditure and revenues should indicate whether local governments are fiscally motivated to be committed to local growth. A simple way to capture the change in the fiscal autonomy enjoyed by governments is to examine the correlation between fiscal expenditure and revenues at the local level (e.g., Zhuravskaya 2000; Jin, Qian and Weingast 2005; Zhang 2005).

Table 3
Estimated fiscal autonomy of provincial governments in post-reform China

Dependent variable: in-budget fiscal expenditure						
	1970-79		1980-92		1994-2004	
In-budget fiscal revenue	0.1689*** (-0.0183)	0.1597*** (-0.0219)	0.8529*** (-0.0306)	0.7818*** (-0.0233)	1.0884*** (-0.0254)	0.9518*** (0.0339)
Population		0.0046*** (-0.0013)	0.0101*** (-0.0031)	0.0032*** (-0.0009)		0.2034*** (-0.0346)
R ²	0.7543	0.921	0.9679	0.9314	0.9514	0.9789
Hausmann	3.0	13.01		Negative	1.03	30.54
Pr>	0.2227	0.0046			0.5975	0.000
Note	RE	FE	FE	RE	RE	FE
First difference						
In-budget fiscal revenue	0.1586*** (-0.0237)		0.5218*** (-0.0363)	0.4337*** (-0.0405)	0.9416*** (-0.0449)	0.8201*** (-0.0592)
R ²	0.1545		0.5042	0.5419	0.7313	0.8258
Hausmann	2.0		Negative		Negative	
Pr>	0.9515					
Note	RE		RE	FE	RE	FE
Groups	28	28	28	28	29	29
Observations	180	280	364	364	319	319

In Table 3, using panel data provided by CCES at Fudan University, we present the estimated coefficients of budgetary expenditure regressed on budgetary revenues. The dataset used in this paper consists of 29 provinces covering the period of 1980-2004. In order to control for time trend and the effect of various amounts of fiscal spending, all the regressions in upper half of Table 3 are run with a year dummy and population size because total fiscal spending is positively related to local population.

The lower half of Table 3 reports the results of first difference regression which captures the dynamic effect of fiscal autonomy over time. Both results are similar. The coefficient of budgetary revenues increased from 0.8539 in the 1980s to 0.9518 during 1994-2004. In the first difference regression, the coefficient of budgetary revenues increased substantially from 0.4337 in the first period to 0.8201 during the second. The larger the coefficients, the greater the budgetary autonomy and the greater the motivation of local governments becomes.

The results in Table 3 are consistent with those of Zhang (2005) who, based on data from 1,860 Chinese counties for 1993 and 2000, also finds that political centralization and the tax sharing system introduced in 1994 substantially improved local motivation in triggering growth.

4.2 Regional competition and spending bias

The assumption developed in this paper is that political championship as well as the tax autonomy as of 1994 encourage regional competition among local governments towards better economic performance. The most prevalent competitive measure, among others, is attracting an influx of FDIs through preferential tax treatment and improvement of

local infrastructure (Zhang et al. 2007). Since FDIs are export-generating, trade processing usually therefore becomes the engine of local economic growth.

If local governments are committed to such regional competition, then they are most likely to spend more budgetary revenue on productive investments and capital construction. To capture the effect of regional competition on the expenditure structure of the local governments, Fu and Zhang (2007) regress both capital construction and non-direct productive expenditure as percentage of total budgetary expenditure (RPCAP and RPCUL), respectively, on the following explanatory variables: fiscal decentralization (FD); regional competition (COMPE); intersection of FD and COMPE; real per capita GDP; and other control variables such as basic education (PRIMARY, JUNIOR, etc.), net rate of migration (NETMIG), and relative size of the state-owned sector (SOU).

A measure of real tax differentiation is used in Fu and Zhang (2007) as a proxy for regional competition (COMPE). This tax variation constitutes the average tax rates divided by the tax rate charged to FDIs in each province. Fiscal decentralization is measured by provincial level overhead fiscal expenditure relative to national overhead fiscal expenditure. The panel data used for the regression are again obtained from CCES, covering 29 provinces for the period of 1986-2004. The year 1994, as mentioned, is the effective year of tax sharing system.

Their results of fixed effect regression for 1994-2004 are summarized as follows. Note that we omit the constant and insignificant variable.¹²

$$\begin{aligned}
 \text{RPCAP} = & -0.1291\text{PERGDP} + 0.0411\text{PERGDP}^2 + \mathbf{0.0123\text{FD}} + \mathbf{0.0050\text{FD} * \text{COMPE}} \\
 & (-0.0356) \quad (-0.013) \quad (-0.0033) \quad (0.002) \\
 & - 0.0117\text{COMPE} + 0.0701\text{SOU} + 0.0125\text{T} + 0.0382\text{DUMEXP} \\
 & (-0.0059) \quad (-0.0334) \quad (-0.0013) \quad (-0.00530) \\
 & - 0.0151\text{DUM96} - 0.0088\text{DUM02} - 0.0151\text{DUM03} + 0.2905\text{PRIMA RY} \\
 & (-0.0037) \quad (-0.0037) \quad (-0.0043) \quad (-0.116) \\
 & - 0.5367\text{JUNIOR} - 1.2054\text{UNINCUN} \\
 & (-0.2112) \quad (-0.3409)
 \end{aligned}$$

$$\begin{aligned}
 \text{RPCUL} = & 0.1050\text{PERGDP} - 0.0325\text{PERGDP}^2 - \mathbf{0.0038\text{FD}} - \mathbf{0.0069\text{FD} * \text{COMPE}} \\
 & (-0.0293) \quad (-0.0108) \quad (-0.0017) \quad (-0.0013) \\
 & + 0.0239\text{COMPE} - 0.0752\text{SOU} - 0.0136\text{T} - 0.0091\text{DUMEXP} \\
 & (-0.0042) \quad (-0.0238) \quad (-0.001) \quad (-0.0034) \\
 & + 0.0139\text{DUM02} + 0.0102\text{DUM03} + 0.8201\text{JUNIOR} + 0.4593\text{UNINCUN} \\
 & (-0.0027) \quad (-0.0028) \quad (-0.1681) \quad (-0.2414) \\
 & - 0.0002\text{NETMIG} \\
 & (-0.0001)
 \end{aligned}$$

¹² The figures in parenthesis shown under the regressed equation are standard errors.

The results of the regression support our hypothesis that regional competition tends to motivate local governments to target more spending on capital investments. In their study, Fu and Zhang (2007) also report the results of regressions covering various regions and periods, and according to their finding, the year 1994 when the tax sharing system was implemented does make a difference: the spending bias is much more significant in both eastern and western provinces of China.¹³

4.3 Fiscal decentralization and growth: before and after 1994

In a recent paper, using an improved dataset and measurements, Zhang and Gong (2005) examine the effects of fiscal decentralization on economic growth in China. The dataset covers 28 provinces and the period of 1986-2002. The authors adopt three different measures of fiscal decentralization in their estimation of equations for the robustness test. To capture the effects of the changes in fiscal and political institutions in 1994, they break down the entire period into both phases: 1986-92 and 1994-2002, respectively.

They note in their regression that the 1994 intergovernmental fiscal reform largely changed considerably the relationship between fiscal decentralization and economic growth, which had been significantly negative in the pre-reform era but has become significantly positive in the 9-year period since then. The coefficient of fiscal decentralization is no longer significantly negative for the entire sample from 1986-2002.

This result is partially consistent with that of Zhang and Zou (1998) who also observe a negative correlation between fiscal decentralization and growth in China for the period of 1978-92.¹⁴ They also find that the significantly positive relationship between fiscal decentralization and growth exists in localities with a higher per capita GDP (as measured by the cutoff point of RMB 7,000), but not in provinces with much lower overhead income.

4.4 Implications for regional disparity

One of the most important outcomes of the change in the economic growth trajectory since the mid-1990s is that economic growth is regionally more decentralized and increasingly led by capital investments. While the politicized incentives geared to local governments account for this regional commitment to growth, it does not generally guarantee nor bring about the convergence of the regional GDP growth. Rather, it is, by its nature, a mechanism of endogenous growth.

Indeed, the intergovernmental tax sharing system introduced in 1994 encouraged local governments to dedicate efforts to pro-growth policies, but because initial positions among regions differed substantially, it increased regional disparity. For example, great differences in economic structure and revenue bases exist, causing the implicit tax rate

¹³ For more details of their results, see Fu and Zhang (2007).

¹⁴ The only exception is Lin and Liu (2000) who, using provincial data covering 1970-93, find a positive relation between fiscal decentralization and economic growth in China. For more detailed survey of such literature on China's fiscal decentralization and growth, see Zhang (2007).

and fiscal burden to vary significantly across jurisdictions. This difference in initial position and endowment can translate into rising regional difference. According to Zhang (2005), who uses a county-level panel for 1,860 Chinese counties for 1993 and 2000, the Gini coefficient of per capita productive public expenditure rose from 68.28 in 1993 to 73.34 in 2000, an increase of 7.4 per cent; and the Gini coefficient of the share of productive investment in total public expenditure grew from 33.04 in 1993 to 41.61 in 2000, an increase of about 26 per cent.

In a recent study on the variation in regional infrastructure in China, Zhang et al. (2007) find that after the mid-1990s, the distribution of increments in physical infrastructure began to indicate a bias more towards the east and coastal provinces which are relatively rich and enjoy better geo-political endowments. And as these provinces have better infrastructure, they are also more successful in attracting FDI, thus generating much faster growth. As a result, these rich provinces are in a better position to rely on their own financing to improve infrastructure for added inflows of FDI. The western provinces, however, lag behind and mostly rely on central transfers for the construction of infrastructure. Regional variation in the level and growth of infrastructure across provinces largely explains the rising regional disparity apparent since the mid-1990s.

5 Conclusion

This paper investigates the institutional reasons underlying the change in the trajectory of economic growth in post-reform China, and argues that the growth trajectory is the outcome of changes in political and inter-governmental fiscal institutions following the 1989 political crisis. By any standards, these institutional modifications were successful, because they induced faster growth and achieved political stability. Without them, China might not have been able to maintain the political stability of the last 20 odd years since 1989.

However, the nexus between growth and political stability is never linear. In this paper we explored the pattern of growth since the mid-1990s, and find that triggering economic growth under a decentralized authoritarian system is costly. This system enabled local governments to favour and compete for investment-led growth, but generated negative spillovers of rapid growth, include rising disparity across incomes and regions, environmental degradation, frequent macro disturbance, external imbalance of payments, financial fragility and prevalent corruption.

The resolution of these issues and the transition to inclusive growth necessitate open access to further institutional reforms at both economic and political levels. Issues such as building good governance, sound financial and fiscal systems, effective identification and protection for civil and private property rights, including land—issues which have progressed slowly and with delay during the past decade—cannot be ignored in the reform agenda of the future.

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