A new broom sweeps clean: is there a Chinese-style political business cycle?*

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Politics is an important cause of economic growth and fluctuations. We present a new Political Business Cycle (PBC) Theory based on the background of recent Chinese economic transformation and government behaviors, explore the economic impact of the National Congress of the Communist Party of China (CPC), the National People's Congress (NPC) and Chinese People's Political Consultive Conference (CPPCC) and how they shape and influence the behaviors of local government officials. Based on 1994-2012 inter-provincial panel data of China and using SYS-GMM and LSDVC, we find that there are significant effects in China of PBC and government administration change. Changes in government administration influence the economic behaviors of local governments, which in turn influence local economic development through fiscal decentralization and political promotion tournament. These effects are sustained and robust. In this paper we offer an economic explanation for the Chinese proverb "a new broom sweeps clean," and try to verify the Chinese-style Political Business Cycle (CPBC). We provide new ideas for further improving the functions of government, optimizing macroeconomic control, and preventing personnel changes in the government from overheating the economy.

Keywords: political business cycle, effect of government personnel change, a new broom sweeps clean

1. Introduction

Since reform and opening up, there have been intermittent fluctuations in China's economic development. It has been difficult to find a steady growth path and economic development has often been either tepid or overheated (Liu, 2004). Scholars have summed it up as a tendency for

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"chaos to follow vibrancy, tightening-up to follow chaos, stagnation to follow tightening-up and stimulation to follow stagnation" or periodic fluctuations (Lin, Cai & Li, 1999). Why has China's economic development shown such a volatility? A large number of documents explore this issue from the perspectives of central fiscal decentralization and local competition. Li & Shen(2010) even found that 30% of China's economic fluctuation is due to the shock of local governments. Unfortunately, current studies fail to identify the systematic roots of Chinese economic fluctuation cycles, which is the topic of this paper.

Since the 1990s, the rotation years after each National Congress have all been at the peak of social investment growth, such as 1993, 1998, 2003, 2008, and 2013, which can be seen in Figure 1. For example, the 17th National Congress was held in 2007. The average growth rate of total social investment from 2004 to 2007 was 21.5%. The rotation year of central and local governments in 2008 had a general growth rate of 25.5%, then the rate jumped to 30.1% in 2009, and then was followed by a gradual decline. First, given the gradual increase of macroeconomic control by the central government, fixed asset investment has had increasing momentum and has behaved in a periodic cycle. Personnel changes in the government seem to be an important factor. Second, the new leadership is eager to show the public a new image and break new ground. They have proposed new ideas and development indicators, made changes and adjustments to economic and social development plans, which have somewhat weakened the effect of macroeconomic control and have even become an important reason for economic fluctuations (Guo & Jia, 2006).

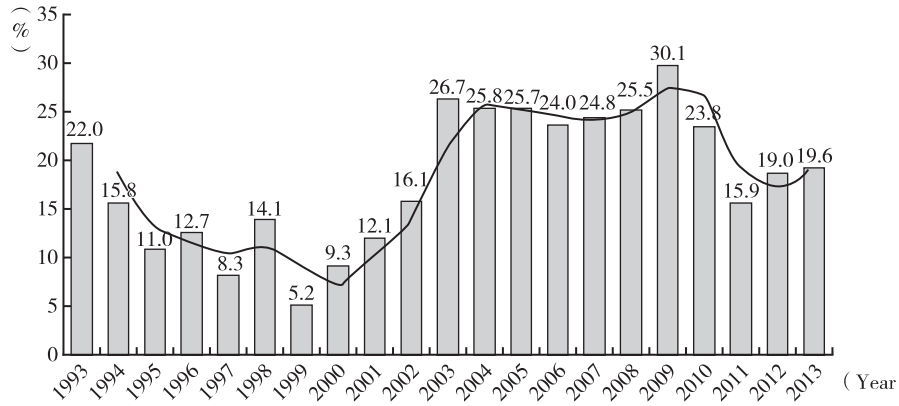

Figure1. The trends of the whole society fixed asset investment growth rate since the 14th National Congress of the CPC

Source: National Bureau of Statistics of China.

There is a saying that "a new broom sweeps clean," which is sometimes traced to the Chinese classic *Romance of the Three Kingdoms*. It means that officials often try to make some high-profile moves at the start of their terms to show their courage, insight and talent. In today's context, the question is whether the behavior of local officials will affect economic growth and

volatility and if so, by what mechanism? This paper explores theoretical interpretations of this proverb and what it might mean today. There are two possible innovations in the current study. First, more than any in the existing literature, we explore the links among officer incentives, congressional term cycles, and officer conduct. As far as we know, in all extant literature, this study is the first to systematically investigate the institutional roots of local Chinese government officials' behaviors from the perspectives of incentives and congress cycles. This paper makes frequent use of the concept of the Chinese style Political Business Cycle (CPBC), which has some theoretical value. Second, this paper also examines the mechanism of fiscal decentralization, endowment differences, and political cycles that affect local government behaviors. On this basis, we also offer recommendations for optimizing government macroeconomic control through PBC and for guarding against an overheating economy, which has important practical relevance.

2. Current explanations: fiscal decentralization and promotion tournament

Since the tax reform of 1994, the gap in China's local finances between revenue and expenditures, as well as local government debt and the risk of macroeconomic fluctuation, have both grown (Fang & Zhang, 2013). There are five aspects of relative study. The first school emphasizes the non-equivalence between property rights and authority that leads to an expanding gap between revenue and expenditures, which results in the "parallel development" of "grabbing hands" and "helping hands" in the central and local governments (Chen, 2002; Zhang, 2005; Fang & Zhang, 2014). The second school emphasizes that the transfer payment system accompanied by fiscal decentralization can induce local governments' strong dependence on the "common pool" of resources from the central government, which forms the expansion of fiscal expenditures in local governments and financial collusion with lower level government organs (Brennan & Pincus, 1996). The third school stresses local government officials' tendency to act as "homo politicus," in which role they pursue economic growth in order to get promoted, and compete in order to pursue economic growth under the background of "political tournaments" (Li & Zhou, 2005; Zhang, 2005; Zhou, 2007). In addition, since local government officials have the preference of "homo economicus," some officials will turn to corrupt practices in order to gain economic benefits or push for economic development in the situation of political competition (Wu, 2008; Fan, 2013). The fourth school emphasizes that regional differences in resource endowment are another important factor that affects what local governments do. Local officials with different local endowments will face different constraints (Chen, Li & Yu, 2009; Wen, 2014). The fifth school emphasizes the effects of the political cycle on local government behaviors and economic development, especially the significant correlation between the cycles of the NPC and CPPCC (so-called "two sessions") and economic fluctuations (Jiang & Lin, 2010; Nie, Jiang & Wang, 2013). Thus, we can see that the first three schools are trying to explain the local governments' fiscal behaviors and the economic consequences within the context of political centralization and fiscal decentralization while the latter two schools focus on factors of local government behaviors

and their mechanisms, as well as emphasizing regional fiscal distribution and political cyclical fluctuations. In our view, both the tax system and transfer payments require local governments to act as an intermediary of economic development and policy implementation in the current socialist market economy with Chinese characteristics.

It is well known that economic development is a top priority of party committees and governments since reform and opening up, and officers' economic performance has also been one of the main evaluation criteria for promotion. The most substantial changes brought about by the ensuing political tournaments are the changes of assessment criteria, namely that economic performance has replaced the vague "political performance" indicator of the past. After the tax reform in 1994, political and economic conditions have existed in China that encourage party officer promotion tournament (Li, 2005; Zhang, 2005; Zhou, 2007). Local government officials have both a preference for being an "homo economicus" and "homo politicus." They are concerned with not only economic interests for local areas as general economic entities, but also their own political advancement and political benefits (Wen, 2014). Therefore, governments generally partake in a promotion game that is approximate to a tournament. Generally speaking, government officials, with the power of resource allocation, will first consider political gains. Only when there is little hope for reaping political benefits will officials consider the economic returns of actions (Li, 2005; Zhou, 2007). The essence of the political tournament is to implement the competitive logic of political games between government officials, and this logic profoundly changes their behavior. Government officials will allocate economic and political resources with the aim of maximizing revenue to make the greatest personal achievements in politics in the shortest time and gain enough capital for political promotion. The logic is: government-dominated economy→incentives→relative performance evaluation→imitation of economic development strategies (herd behavior)→industry isomorphism and redundant construction→ the competition of product markets and raw materials markets→local protectionism and market segmentation→division inhibition→inhibition of competitiveness→economic development suppression (Liu, 2007).

The theory of political tournaments portrays the logic of political and economic behavior among Chinese officials to some extent. This competition of political tournaments between local officials have many negative consequences, such as the approvals for redundant construction projects (Zhang & Gao, 2007), inefficient industry structure (Bai, Du, Tao & Tong, 2004; Fu & Zhang, 2007), market fragmentation (Lu & Chen, 2009), macroeconomic volatility (Guo & Jia, 2006), regional inequality and a large urban-rural gap (Qiao, Fan & Feng, 2005), misallocation of resources (Cao & Lou, 2012; Zhou, Zhao & Li, 2013), and so on. Tao, Su, Lu & Zhu (2010), Wang (2011), and Yang & Zheng (2013) have all questioned the theoretical logic of these tournaments and have argued that tournaments based on the economic growth do not actually exist. However, the resource allocation and infrastructure function of provincial, municipal, and county-level governments that are based on market mechanisms are an important reason for China's rapid economic growth and cannot be ignored. In addition, if there is no political

tournament, personal responsibility and morality cannot guarantee the proper functioning of government and the sustainability of economic development as described above. The continuously "sacked tigers" and corrupt officials above the sub-provincial level are typical examples of politician's personal choices causing problems in governance. In this sense, the competition of political tournaments under the banner of Chinese-style decentralization is still regarded as a more reasonable analytical framework.

3. A new explanation: the political cycle and the effects of personnel changes

Indeed, fiscal decentralization and the theory of political tournaments have been the factors that explain the analytical framework of economic performance since China's reform and opening up, but are there other important factors and mechanisms? Political cycles obviously cannot be ignored.

Politics are regarded as an exogenous variable in classical economics and thought to have minimal impact on economic development and fluctuation. However, as people study economic fluctuation, politics—as an institution—has been defined as an important endogenous variable in the modern model of economic cycles. The business cycle caused by cyclical fluctuation of politics is called the political business cycle (PBC). For accepted interpretations of political business cycles, there are two main views: Nordhaus (1975) explained the PBC alongside government office holders' need to seek re-election, as well as with the irrationality of voters. Hibbs (1997) used political factions, ruling ability, and rotation to explain the PBC. Nordhaus (1975) presented a PBC model on the basis of opportunist motivations and considered PBC to be due to the opportunist politician's manipulation before an election. He also argued that the unemployment rate must be dropped during the entire election season and the government can reap the benefits through the PBC political opportunism behavior caused by a deliberately unstable economy. Thus, a typical political-economic cycle behaves as follows: in the current period, government leaders will implement expansionary monetary policies to stimulate the economy on the basis of a short-term Phillips curve. During the election, due to expansionary policies put in place before the election, unemployment rates will decrease and inflation will rise. After the election, tight monetary policies will be implemented. The unemployment rate will rise while inflation decreases. This cycle will be repeated in each election season. Hibbs (1997) argued that since different parties have different macroeconomic objectives, the economic cycle reflects political cycles, which develop a pure model of partisanism. Along with the development of rational expectation theory, the two models of PBC abandoned the original adaptation hypothesis and have further developed into a rational opportunism model and a rational partisan belief model (Alesina, Roubini & Cohen, 1997; Rogoff, 1990). Among them, the United States, with its two major parties taking turns in power, is more in line with the partisan belief model. Democrats generally advocate for Keynesianism with state intervention and implement expansionary policies, while Republicans hold conservatism and tight economic policies.

Unfortunately, existing literatures lack analysis based on political situations and characteristics of China. Since the Chinese political system has the characteristic of one ruling party in power with multi-party participation. There are conflicts of neither ideologies nor interests between different partisan entities, nor the phenomenon of artificially distorting economic development, which means the opportunistic model cannot explain China's situation. At the same time, economic manipulation for purpose of seeking reelection does not exist, so the partisan belief model does not suit China either. Therefore, trying to understand China's problems using western theories of political economic cycles is a moot exercise. No doubt, Chinese politics, to some extent, react to fluctuations in the Chinese economy. Getting familiar with the characteristics of PBC is of great significance to achieving a economic stability in China. However, we must reconstruct the theory of PBC to make it applicable to studying China's issues.

Scholars in China are also involved in the political cycle and economic fluctuations. For example, Jia, Guo & Zhao(2012) discuss the cyclical characteristics of the government's spending behavior and its impact on macroeconomic volatility. They find that local governments' spending behavior tends to run counter to the national cycle but in accordance with provincial cycles in economic and political trends. They also find that the political cycle contributes to national economic stability but exacerbates provincial economic fluctuation. Zhou, Zhao & Li (2013) use the data of Chinese industrial enterprises and official data from the ground-level from 1998 to 2007 to perform an empirical analysis of the intrinsic relationships between personnel changes in local governments and the degree of mismatch in manufacturing resources. The degree of mismatch in resources at the administrative level is rather high in the year of the provincial Party committee meeting and two subsequent years, and decreases in the next two years. The annual meetings of the NPC and CPPCC are statistically correlated with economic fluctuation cycles (Chen & Miao, 2010). Wang, Zhang & Xu (2011) use the rotation sample of 29 province officials from 1979 to 2006 to find that changes of CPC secretaries and provincial governor have a significantly negative impact on the region's economic growth. The degree of impact varies depending on rotation frequency of local officials and their ages. The rotation of local officials mainly affects short-term fluctuation in economic growth, rather than the long-term trend of economic growth. Jiang & Lin (2010) argue that the internal mechanism of macroeconomic volatility is the selective implementation of expansionary fiscal policies by governments and officials along with the political cycles since reform and opening up. These policies push economic operations to win favor in the political promotion tournament, which will result in the cyclical fluctuation of macroeconomics as well as to a certain degree, the PBC.

Nie, Jiang & Wang(2013) broaden the vision of the PBC in developed countries and argue that the political cycle is not necessarily formed on the basis of western-style elections. Any regular political events are likely to form political cycles and affect economic fluctuation. Thus, there are also PBCs in China. The author believes that in the situation of fiscal decentralization and the regulations of the political promotion tournament, the political cycle will inevitably affect the economy. On the other hand, officials, as "players" in this tournament are a crucial

intermediary force that affects economic fluctuation. Therefore, local government officials should be regarded as central players in the PBC of China. Political concentration and fiscal decentralization are the unique governance mechanisms in the central government, which forms scale competition in the local government. In the current system of GDP-centered performance evaluation in China, homogenous local governments all increase their level of public supply and improve governance levels and infrastructure to attract capital flows, which will contribute to regional economic growth and provide a "helping hand" (financial power effect). However, when the endowment gap between regions is too large, officials in the poorer regions recognize their competitive disadvantage and give up competition and shift toward trying to "grab" benefits through corruption (known as the endowment effect). The actions in the homogeneous governments will probably take place after the personnel change in governments (personnel change effect). The applicable concept of "a new broom sweeps clean" will lead to investment growth peaks(personnel change economic effect). Such changes also have an obvious impact on the conduct of officials. A "helping hand" will be more prominent when there are election cycles.

4. The model, variables, and explanation of data

4.1. The model set and variable definitions

Based on the above ideas, the reference model in this paper is set as follows:

$$govh_{i,t}=\alpha_0 govh_{i,t-1}+\alpha_1 fd_{i,t}+\alpha_2 pt_{i,t}+\sum_{j=3}^{n}\alpha_{ij}\cdot X_{i,t}+\lambda_I+\varphi_t+\varepsilon_{i,t} \quad (1)$$

In this model, the subscripts i, t, and j respectively denote the province, year, and variable. The $govh_{i,t}$ denotes the "helping hand" of local governments, $govh_{i,t-1}$ denotes its lag of one period, $fd_{i,t}$ denotes fiscal decentralization, $pt_{i,t}$ denotes the political period, $X_{i,t}$ denotes a series of variables which includes human capital $edu_{i,t}$[1], industry structure $indu_{i,t}$, population size $pop_{i,t}$, and technology stocks $tech_{i,t}$, λ_i denotes the area-specific fixed effects of the province that does not vary from year to year. φ_t denotes time-fixed effects. $\varepsilon_{i,t}$ denotes the random error term, and α_i is the parameter to be estimated.

[1] With the reference of the ideas of Benhabib & Spiegel (1994), this paper uses the following ratios to measure the human capital stocks in each region: per years of schooling/the number of college students & per years of schooling/total population). The reason why to choose the general college students rather than the higher college students is to eliminate the TV university, correspondence, evening, distance learning courses. Since these schools cannot represent the true level of human capital. The "*China Population Statistics Yearbook*" from 1995 to 2005 and the "*China Population and Employment Statistics Yearbook*" from 2006 to 2012 provide the educational situation of the sample population who is over the age of 6 since 1996. It is totally divided into five categories: illiterate, elementary, middle school, high school, college and above. Therefore, the per year of schooling is calculated as the following formula: 0×literate proportion+6×primary proportion+9×junior proportion+12×high school proportion+15×college and the above proportion.

The explained variable $govh_{i,t}$ is the degree of the government's help in the year of t in the area of i. It is calculated by starting with 1, then subtracting the ratio of governmental extra-budgetary revenue and budgetary revenue. This ratio is often used to measure the "grabbing hand" effect as well (Chen, Hillman & Gu, 2002; Wen, 2014). This paper follows the method described above and measures the degree of "grabbing" by local governments with the ratio of extra-budgetary revenue and budget revenues.

The explanatory variable $fd_{i,t}$ is the degree of fiscal decentralization in year t and in area i. It is calculated as the following: per capita expenditure in each area/(per capita expenditure in each area+per capita expenditure in the country). Zhang (2011) emphasizes that this method of measuring may have bias and recommends using local government's degree of dependence on transfer payments from the central government and of the financial share of revenue and expenditures. However, we think that the degree of fiscal decentralization calculated through the degree of dependence on transfer payments may be either overestimated or underestimated.[1] Compared with income, expenditure index can represent the actual expenditure decentralization across the counties (Zhang & Gong, 2005). Taking into consideration the mismatch of the cost-benefit of public expenditures and of the tax base overlap between the central and local governments, we believe in using the following rate: per capita expenditure in each area/(per capita expenditure in each area+per capita expenditure in the country) to reflect the fiscal decentralization in the traditional sense.

The explanatory variable $p^t_{i,t}$ represents the political cycle. Rodden & Wibbels (2002) and Jia, Guo & Zhao(2012) consider that local government behaviors have cyclical characteristics. However, their studies focus on the relationship between the economic cycle and local government behaviors. Gu & Shen (2012) propose the idea of a political cycle that affects local government behaviors. Before the year of the National Congress meeting, the local officials muster enough motivation to do a "final sprint" for the following year's competition for promotion. At this ti me, a large number of projects with short-term growth effects are launched, which highlights this sprint effect. We draw on the above idea but the difference with this idea is that the determining factor of a political cycle is whether it is the year after the national congress meeting, which means the value of a personnel change year is 1 while all others is 0. The reason this lags one year is because a large number of political promotion and personnel reshuffling take place in the year following the national congress meeting. The local government officials who are promoted hope to win a good reputation in their new role through a variety of projects that benefit

[1] "*China Financial Yearbook*" in 2012 shows that the central subsidy revenue of Beijing, Tianjin and Shanghai in 2011 are 50.599 billion, 42.322 billion and 61.436 billion respectively, which accounts for 13.3%, 20.1% and 14.3%. The central subsidy revenue of Jiangxi and Anhui are 148.652 billion and 181.462 billion respectively, which accounts for 47.8% and 51.9% of the financial revenue. The central subsidy revenue of Gansu and Qinghai are 130.068 billion and 81.257 billion respectively, which accounts for 68.3% and 72.7% of the financial revenue. It can be seen that the dependence on the transfer payments in eastern region is lower and the fiscal decentralization may be overvalued while the dependence on the transfer payments in western region is higher and the fiscal decentralization may be undervalued.

residents, which lays a foundation for their performance and competition. This is in line with the proverb "a new broom sweeps clean."

4.2. Description of data and statistics

Given available data, this paper uses provincial unbalanced panel data for 30 provinces (except Hong Kong, Taiwan and Tibet Autonomous Region) of over 19 years from 1994 to 2012 for empirical analysis. The population data before 2005 were from the *China Population Statistics Yearbook* while the data after 2005 are from the *China Population and Employment Statistics Yearbook*. Unless otherwise noted, the data presented in this paper are from *China Statistical Yearbook*, *China Finance Statistics Yearbook*, *China Trade and External Economic Statistical Yearbook,* and *The Collection of Statistics in Sixty Years in New China*. Table 1 defines the variables and the descriptive statistics used in this analysis.

Table 1
The variable definitions and the descriptive statistics

Variable type	Economic meaning and calculation method	Number	Mean	Minimum	Maximum
Government intervention (helping hand)	1- Extra-budgetary funds/budgetary revenue	567	0.5451	-0.6419	0.9933
Fiscal decentralization	Per expenditure/ (area +national) per capital expenditure	567	0.4443	0.2297	0.7898
Political cycle	The value of the year that after the national congress is 1, others take the value of 0	567	0.2222	0	1
Per capita GDP (yuan/ person)	GDP of the districts/population at the end of the year (unit yuan/person) from 1994 to 2012	567	15590	1527	85213
Human capital (average years of schooling)	Average years of schooling from 1994 to 2012	567	7.7321	4.6053	11.216
Human capital (college student number)	College enrollment in the districts/total population from 1994 to 2012	567	0.0098	0.0014	0.1106
Industry structure	Output value of the secondary and tertiary industry/regional GDP from 1994 to 2012	567	0.8365	0.4814	0.9920
Population size	The logarithm of the total population (10 thousand) at the end of the year in the district from 1994 to 2012	567	8.0998	6.1612	9.2596
Technology stocks	The logarithm of the granted patents in area from 1994 to 2012	567	7.7147	3.7612	12.205

Note: Since 1997, the extra-budgetary revenue does not include the government funds of intra-budgetary revenue. Since 2004, the data of extra-budgetary expenditures are reflected by the fiscal expenditure budget accounts caliber. This paper adjusts for these accordingly. The extra-budgetary revenue was abolished since 2011 and the extra-budgetary variable was added to the budget management. Therefore, the non-tax revenue in 2011 was greater than 2010. We take the ratio of income from fines and penalties in the non-tax revenue and the general budget revenue as a regional proxy for the "grabbing" degree of the government.

5. Empirical results and analysis

5.1. National results and analysis

Based on the regression analysis of model (1) and the Hausman test in the static panel estimation of fixed effects (FE) and random effects (RE), we recognize that all equations have refused random effects, which is shown in Table 2.

Table 2
Regression results at the national level

Explanatory variables	Model 1	Model 2	Model 3	Model 4	Model 5
Fiscal decentralization	0.3616** (1.99)	0.6657*** (4.05)	0.5283*** (3.20)	0.4736*** (3.00)	0.4933*** (2.97)
Political cycle (one year after the Congress)	0.0383** (2.53)	0.0521*** (3.86)	0.0508*** (3.82)	0.0498*** (3.94)	0.0499*** (3.94)
Per GDP/10^5	3.3623*** (22.32)	1.9284*** (9.02)	1.8973*** (9.01)	1.1676*** (5.20)	1.1607*** (5.14)
Quadratic term of per capita GDP/10^{10}	-2.9094*** (-13.77)	-1.7316*** (-7.58)	-1.6299*** (-7.20)	-1.1872*** (-5.29)	-1.1962*** (-5.30)
Human capital (average years of schooling)		0.1194*** (8.14)	0.0771*** (4.32)	0.0311* (1.72)	0.0296 (1.60)
Human capital (college students number)		3.7408*** (3.21)	2.6769** (2.27)	2.4526** (2.19)	2.4838** (2.21)
Industry structure			0.8679*** (4.07)	0.6011*** (2.91)	0.5961*** (2.88)
Technology stocks				0.1223*** (7.21)	0.1221*** (7.19)
Population size					0.0432 (0.37)
Constant term	-0.0141 (-0.19)	-0.9472*** (-7.85)	-1.2736*** (-8.89)	-1.520*** (-10.80)	-1.8617** (-2.01)
N	567	567	567	567	567
R^2	0.6977	0.7681	0.7754	0.7966	0.7968
F	19.75***	25.63***	26.783***	30.92***	30.57***
Note	FE	FE	FE	FE	FE

Description: (1)*, ** and *** represent the statistical significance at 10%, 5% and 1% respectively; (2) the estimated coefficients of FE OLS in the brackets is the value of t, R^2 is the adjusted goodness-of-fit. The later tables are the same with this table. So it will not be repeated.

First, fiscal decentralization effectively promotes the assistance behavior of local governments. This conclusion is significant from model 1 to model 5 at the 5% level at least, which indicates that along with the rising level of fiscal decentralization, the degree of freedom of fiscal revenue and expenditures of local governments has grown since the tax reform in 1994. At the same time,

local governments have more power to effectively develop the local economy, and the property rights effect is obvious. Increasing local government autonomy caused by fiscal decentralization induces "grabbing" behaviors by officials in the form of corruption and demolition. However, it is certain that financial centralization is not necessarily conducive to economic development while economic decentralization can suppress the grabbing behaviors of local governments to a certain extent (Chen, Hillman & Gu, 2002).

Second, political cycles significantly increase the value of local governments as a source of assistance towards the economy. This conclusion is significant from model 1 to model 5 at the 5% level at least. This indicates that the political promotion rules with the GDP assessment standards can fully motivate the "homo politicus" to compete for growth. They promote investment and support local enterprises to develop the local economy through the "helping hand," such as through strengthening infrastructure and tax incentives. The personnel change effect in the year after congress meeting is obvious.

Third, the effect of economic growth measured by GDP on government measures to offer assistance is nonlinear. It is conductive to such beneficent behavior in the short-term while it induces "grabbing" behavior in the long-term. Per capita GDP is significantly positive from model 1 to model 5 at the 1% level at least, while the quadratic terms of per capita GDP are significantly negative, which indicates that local officials are not only "homo politicus" who behave according to political competition but also "homo economicus" who take on "grabbing" behaviors for economic benefits. Therefore, it is important for local government officials to be self-disciplined apart from legal supervision in the process of economic development.

In addition, in order to identify the impact of endowments and changes on government behaviors, we add the control variables of human capital, industrial structure, technology stocks, and population size in the model. The results show that:

First, higher average level of education attainment and larger number of higher education institutions per capita promote local governments to implement beneficent policies. This is mainly due to two reasons: on one hand, a higher level of education and rising scale of education increase overall legal awareness and supervision efficiency of residents (Chen, Li & Yu, 2009), which makes cases of corruption more likely to be uncovered, and makes corruption more costly(Qiao, Fan & Feng, 2005). Therefore, it can function as an effective check on corruption. On the other hand, when people of higher education enter the government it improves human capital in government, thus promoting better overall decision-making, planning, and work efficiency. But in comparison, the density of higher education institutions has a larger impact on government behavior than does of the average year of schooling, which indicates that highly educated personnel and high-level human capital play a more catalytic role. Therefore, we should continually increase financing investments in education. Furthermore, we should improve the social mobility of highly educated people and make it easier for them to enter government departments.

Second, the share of secondary and tertiary industries and the number of patents can

effectively promote government assistance. In the competition of political promotion, local governments will adopt strategies of industrial imitation to maximize their benefit, which will lead to China's inter-regional convergence of industrial structures (Wang, Y. W. & J. H., Wang, 2009). The shares of local secondary and tertiary industries have been increasing since reform and opening up; however there are still significant differences between different regions. In the backward regions with less developed secondary and tertiary industries, local governments cannot get enough revenue to meet the needs of financial expenditure and political performance, and then the "helping hand" turn to the "grabbing hand," which causes the suppression of secondary and tertiary industries, and creates a vicious cycle (Wang & Qin, 2008). On the contrary, in the regions with more developed secondary and tertiary industries, the fiscal expenditure pressures will be relatively small. Generally speaking, enterprises, universities, and research institutions are the principal parts of technological innovation. Local governments are the main promoters of technological innovation through economic incentives (Qiu & Xu, 2007). Gu & Shen(2012) find that the officials promoting competition will distort financial expenditures and significantly reduce R&D subsidies for government enterprises. We believe that the situation may be more likely to occur in economically backward areas. Due to the regional fiscal gap, local government public expenditures will show a twisted structure with more weight on infrastructure and less on public service (Fu & Zhang, 2007). In the developed regions or areas with more ideal infrastructure, the vision of long-term economic development and the anxiety of upgrading industrial structures will encourage governments to increase R&D subsidies for enterprises, universities, and research institutions as well as technological innovations.

Third, the expanding population size is conductive for local governments to offer assistance, through three main mechanisms. The first is that there will be more financial revenue and opportunities for corruption. Government size, especially the expansion of cross-functioning departments, expands along with the expansion of population size. The supervisory efficiency of governments of higher levels over lower level officials will decline and curbing corruption is more difficult (Chen, Li & Yu, 2009). Second, local officials are now under more civilian oversight, especially with the rise of online communication tools such as WeChat and micro-blogs. The population size is further amplified through network effects and the efficiency of civilian oversight, which is conductive to supervision and corruption suppressing.[1] Third, no matter whether it is their responsibility to the governed or the requirement for local stability and good reputation for the political promotion, local governments and officials need to both feed and give good environment to enterprises and residents. Generally speaking, the latter two

[1] The micro-blog, WeChat and other instant communication tools have become important tools for effective means of communication between government and public as well as the supervision of government officials. The anti-corruption network has become an important form for public to participate public affairs. For example, "network in politics" has been advocated in government work report in Anhui province. Officials in Chongqing province startup the accountability of network and the principal of Wuhan ask all work programs in the departments to be public for supervision. During the "two session" in 2013 and 2014, many members open micro-blog and blog and solicit public opinion.

mechanisms play a greater role at the national level. It must be stated that this paper doesn't stress reducing the degree of "grabbing" through growing populations, but instead stresses the pressure of population size on "grabbing" behaviors. The estimated results show the more significant role of human capital in comparison with population size.

5.2. Regional results and analysis

The above results at the national level show that fiscal decentralization, political cycles, economic growth, and endowment have significant impacts on local government behaviors (more aid or more "grabbing"). The financial power effect, rotation effect, and endowment effect are all significant. The question becomes whether these effects have obvious geographical differences? Table 3 shows the regression results at the regional level.

First, each variable coefficient in the coastal region is consistent with the national level and only the variables of industrial structure and population size are not significant. This is because the property of secondary and tertiary industries has been greater than 90% since 2005. The intervention effect of local governments to primary, secondary, and tertiary industries is not significant. These three industries, especially the high-tech industry, need more policy support. The development of high-tech industries also positively rewards local economies. Therefore, it can be found that the effect of technology stocks in coastal areas for aiding behaviors is significant at the 1% level.

Second, the significance of variables in the central region declines slightly and the quadratic coefficient of per capita GDP also changes, which indicates that when the comparative advantage of endowment and its dynamic changes are taken into consideration, economic growth in the central areas will induce more assistance behaviors by local governments. This may be related to the current stage of economic development and regional policy, including the strategy of the "Rise of Central China." The coefficients of industrial structure and technology stocks are negative, which may be related to the transfer of coastal industries. To avoid the disadvantages of high operation costs in coastal areas, environmental pressures, and the infrastructural challenges in Western regions, industries in the east will initially transfer to the central region. The central region, however, does not have the business environment and pro-entrepreneurship policy that coastal regions own, at least in the near future. As a result, corruption increases slightly in the process of industrial upgrading. The six central provinces began in 2006 to implement a strategy to push for the "Rise of Central China" and received more financial authority and economic freedom, and have gradually improved the infrastructure and business environment. Therefore, the negative effect of industrial upgrading is not significant. In addition, various "economic zones" and "high-tech industrial parks" have been constructed in the area. Although technology stocks have increased, the behavior of getting project funding and preferential policies through the establishment of "high-tech industrial parks" still exists. It is seemingly for assistance but it is actually manifested as grabbing up tax incentives and financial subsidies of superior governments

for enterprises in the park.

Third, the coefficient of fiscal decentralization in western regions is negative, which indicates the economic liberalization brought about by fiscal decentralization does not provide incentives to local governments. There are rich resources in the West regions of China, but it faces the so-called "resource curse," where the government's revenue is strongly dependent on resource development. Despite the growing financial gap from the transfer payments of the central government, profits generated by resource development and the increasing dependence on transfer payments contribute to "grabbing" effects, which makes transfer efficiency low. The government should attach great importance to this. The quadratic coefficient of per capita GDP is the same for the central region with the shift from negative to positive, which is related to the "Develop-the-west Strategy" initiative implemented in 2000. The benefits of political promotion brought on by the economic development outweigh the "grabbing" gains in the long-run.

Table 3
Regression results of regional level

Explanatory variables	Eastern region		Central region		Western region	
	Model 6	Model 7	Model8	Model 9	Model 10	Model 11
Fiscal decentralization	0.8968** (2.56)	1.4474*** (4.34)	1.391** (2.22)	1.2261* (1.75)	-0.3805 (-1.39)	-0.3629 (-1.44)
Political cycle (One year after the Congress)	0.0376* (1.81)	0.0509** (2.54)	0.0428 (1.40)	0.0428* (1.71)	0.0357 (1.42)	0.0498*** (2.71)
Per GDP/10^5	2.9662*** (15.78)	0.5361* (1.69)	3.7956*** (8.23)	0.5655 (0.60)	5.5042*** (9.57)	0.4151 (0.47)
Quadratic term of per GDP/10^{10}	-2.416*** (-9.75)	-0.6043** (-2.11)	-4.099*** (-4.69)	1.2353 (0.99)	-8.805*** (-5.07)	0.3264 (0.16)
Human capital (Average years of schooling)		0.0771** (2.20)		0.0101 (1.60)		0.0082 (0.28)
Human capital (college students number)		2.9186** (2.17)		17.122*** (2.98)		5.8415 (1.15)
Industry structure		0.4694 (1.48)		-0.3694 (-0.82)		0.9684*** (2.77)
Technology stocks		0.1368*** (5.55)		-0.0096 (-0.20)		0.1769*** (6.13)
Population size		0.0659 (0.43)		-2.3932*** (-4.81)		-0.2843 (-1.17)
Constant term	-0.3258* (-1.88)	-1.9378 (-1.52)	-0.425** (-2.20)	-20.619*** (-4.89)	0.308*** (2.95)	-3.5473** (1.97)
N	247	247	114	114	206	206
R^2	0.6934	0.7922	0.8304	0.8759	0.6595	0.8331
F	18.9***	16.65***	26.66***	18.89***	10.29***	24.17***
Note	FE	FE	RE	FE	FE	FE

5.3. Robustness test

The endogenous nature of these cycles is inevitable since adding the interpreted variable as an instrumental variable into the dynamic panel data models is part of the process. This paper adopts the SYS-GMM proposed by Arellano and Bover (1995) as well as Blundell and Bond(1998) to conduct robustness tests. In comparing with One-step estimations, the Two-step style of SYS-GMM is more robust. However, the two-step estimation with a small sample can easily lead to an underestimated standard error of the parameters (Windmeijer, 2005). To obtain an unbiased estimation of standard deviation, we use the methods of Windmeijer(2005) to correct the estimated values of standard error. This is the two-step estimation of SYS-GMM with the procedure of "xtabond2" developed by Roodman(2009). In addition, the national sample of 30 sections and 19 years has the characteristic of "Big N and Small T," which means the methods of dynamic panel estimation are more appropriate (Roodman, 2009). Since it cannot meet SYS-GMM's requirements for the large sample, namely $N\rightarrow\infty$, then there may be the problem of weak instrumental variables caused by the excessive use of instrumental variables in the case of limited samples, especially small samples. The estimation results will be biased. Stimulating the analysis of Monte Carlo, Kiviet (1995, 2012) argue that in the case that N is small, the method of the bias-corrected Least Square Dummy Variable (LSDVC) would have better performance. In view of this, based on the method of SYS-GMM, we adopt the LSDVC to correct biased estimation results and increase robustness.

Table 4
Robustness test

Explanatory variables	Pooled OLS	FE OLS	SYS-GMM		LSDVC	
	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17
One period lagging of the government intervention	0.8464*** (31.06)	0.5002*** (13.87)	0.599*** (15.94)	0.5251*** (14.30)	0.9109*** (6.41)	0.9106*** (3.51)
Fiscal decentralization	0.0326 (0.70)	0.2696* (1.81)	0.207 (1.14)	0.2777 (0.91)	0.1035 (0.25)	0.2696 (1.02)
Political cycle (One year after the Congress)	0.0959*** (7.32)	0.0773*** (6.51)	0.0699*** (39.96)	0.0675*** (22.19)	0.0768*** (18.31)	0.0762*** (11.19)
Per GDP/10^5	0.4716*** (3.63)	0.6044*** (5.50)	1.2934*** (11.29)	1.0433*** (3.35)	0.1021 (0.23)	0.1736 (0.40)
Quadratic term of per GDP/10^{10}	-0.5121*** (-3.25)	-0.595*** (-3.99)	-0.879*** (-4.92)	-0.6995** (-1.97)	0.1915 (0.31)	0.1132 (0.20)
Human capital (Average years of schooling)			0.0408*** (4.93)		0.0059 (0.49)	
Human capital (college students number)				0.2338 (0.14)		7.3306* (1.66)
Industry structure				0.1569 (0.69)		0.2591 (0.82)
Technology stocks				0.0772*** (5.36)		0.1182*** (6.97)

Explanatory variables	Pooled OLS	FE OLS	SYS-GMM		LSDVC	
	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17
Population size				0.4256** (2.37)		-0.2352** (-2.43)
Constant term	-0.3258* (-1.88)	0.0176* (1.86)	0.1572** (2.16)	-0.3101** (-2.05)	-0.5331* (-1.69)	2.7342* (1.73)
N	540	567	540	540	540	540
Arellano-Bond AR (1)			0.0038	0.0001		
Arellano-Bond (2)			0.8638	0.2720		
Sargan			1.0000	1.0000		

Notes: Due to limited space, the test result of national robustness is only given in this paper. The regional robustness test does not change this conclusion.

Table 4 shows that the value of SYS-GMM is greater than FEOLS but less than Pooled OSL.[1] One phase lag of government intervention is significantly positive, which shows the behaviors of the government's financial assistance have a self-sustaining quality. The "path dependence" of "grabbing" and corruption indicate that continuing anti-corruption initiatives and transparent monitoring are necessary and effective. We cannot only implement invisible "gust of wind" and campaign-style corruption initiatives. The coefficient of fiscal decentralization is positive. However, the variable of population size in model 15 and model 17 are not steady, which indicates that inter-regional migration is accelerated along with economic development and traffic improvement since reform and opening up. At the same time, the net effect changes of the three mechanisms in short-term are greater. The regression results of LSDVC show that the coefficient of the political cycle is greater than the estimated coefficient of SYS-GMM. From the perspective of the comprehensive Pooled OLS, FEOLS, and LSDVC, the SYS-GMM is downwardly biased. However, the consistency of the political cycle coefficient is significantly positive, which indicates the rotation effect is still robust and effective. The results show that "a new broom sweeps clean" not only is a simple saying, but also contains a profound theory when applied to the political business cycle. That is, the political cycle first affects the choice and evolution of official behaviors, which is the personnel change effect. The political cycle eventually affects economic development and business fluctuation through the choices and evolution of officer behaviors, namely personnel change economic effect.

6. Conclusions and implications

It is clear that central and local governments play an important role in Chinese economic growth. The political cycle, to some extent, affects China's economic growth and volatility. The

[1] Bond et al. (2001) argue that comparing the estimation value of the GMM, mixed OLS (Pooled OLS) and fixed effects OLS (FE OLS), if the value of GMM is between the two values, then this GMM is reliable and effective.

question remains: is there a pattern to these effects? Current theories of fiscal decentralization and political tournament models offer a deep analysis of this question from the perspective of taxation competition and promotion competition. In this paper, we adopt another method and focus on the effects of political cycles on economic development and fluctuation through local government behaviors.

Based on the provincial panel data from 1994 to 2012 in China, we find that not only does "Chinese-style growth" exist in China, but there is also a 'Chinese PBC'(Song, Storesletten & Zilibotti, 2011) in the situation of Chinese style political and taxation systems. Its defining characteristic is taking five-year cycles of congressional meetings and the two intermittent sessions between the five-year periods. It also takes local government behaviors as a channel for affecting macroeconomic volatility. The logics are as follows: first, the party committees and local government officials are promoted, laterally reassigned, and get retired in accordance with political processes, and selection regulations, especially the economic indicators used in these meetings. Second, the officials who are promoted or transferred to major leadership positions will tend to advance economic reform and construction on the basis of "self-determination" and try to attain new political achievements, which results in indicator fluctuation. The 'helping hand' of local governments to enterprises is manifested. Third, government officials will conduct self-assessment before the next session. If the promotion probability is greater, aiding behaviors will be favored; however, if the prospect for promotion is dim, more "grabbing" behaviors will be taken. Finally, regardless of promotion potential, under the mechanism of fiscal decentralization and the promotion of accountability, reform and economic construction will be conducted for political performance required by the previous session, and results in revenue gaps and expansion of debt, and further interferes with market operation to a certain degree.

Based on the literature, this paper systematically investigates the behavior choices of Chinese local government officials and the institutional roots of economic fluctuation from the perspective of official incentives and congressional cycles, and also links the idiom "a new broom sweeps clean" with China's economic and political cycles. This study has important implications for the new brooms after the session held in March, 2014, as well as for how to avoid general economic overheating, volatility and the risks of a hard landing. The government needs to introduce the following policies.

First, service functions should be increased and administrative functions should be reduced to make the transition from an administrative government to service government. The decision in the Third Plenary Session of the Eighteenth National Congress of CPC stresses the importance of accelerating the transformation of government functions. On the basis of the ongoing "super ministry reforms," campaigns to reduce government spending on overseas trips, automobiles and receptions, to combat corruption, and to push for the reform of public services, the government should further decentralize its services and deepen reform of administrative examination and approval system. The central government should minimize the amount of micro management and give full play to the market in regards to resource allocation. Social organizations should

play a more active role in community management affairs and local governments should provide better services to their constituency, which will further improve governance. At the same time, diversification of the criteria for screening candidates for government positions and promotions is in order. The principle of "people first and governing for people" should be put into practice.

Second, household consumption can be increased and government spending can be reduced. Investment-led growth should be replaced by consumption-led growth. The consumption during the five year plans can be the first driving force of economic growth. However, China's consumption rate has continued to decline from 62.1% in 1978 to 47.6% in 2010. Since government consumption has been stable, which indicates household consumption has dropped even more, from 48.4% in 1978 to 33.8% in 2010. World Bank statistics indicate that the global average of the share of household consumption share in GDP is 61.5% while the shares in the United States and the European Union are more than 80%. Consumption shortage has become an important reason for China's economic imbalances. Therefore, overall planning of urban and rural development, reforming income distribution, improving the social security system, and improving urban and rural residents' consumption power are important measures to sustain continual economic growth. China must shift from investment- and export-dependency toward coordinated development of domestic and foreign demand. China must redefine the relative importance of investment, export and consumption in order to reflect the strategy of "coordinated and integrated development."

Third, China must increase investment in the real economy, reduce dependence on land financing and mitigate the operational risk of the real estate market. Real economy hollowing and real estate market regulation are the two major challenges in our economy. Real estate investment increases from 361.4 billion yuan in 1998 to 8.6013 trillion yuan in 2013, with an average annual growth rate of 23.2%, which is higher than the total fixed asset investment growth rate of 8.3% and accounts for a total social investment growth from 12.7% in 1998 to 19.7% in 2013. At the same time, local governments increasingly depend on land revenue to make up for the gap between revenue and expenditures. In 2013, land transfer payments accounted for 60.9% of the local tax revenue. Some local governments issue bonds, which contribute to high debt risk and instability of the macro-economy. We need to realize equality between financial rights and authority as soon as possible. It is also important to accelerate the implementation of the unified registration system of real estate taxes and real estate, as well as the declaration system of official properties. It is important to guide investment returns towards the real economy, develop strategic emerging industries and modern services, while guiding fixed assets investments, especially real estate investments. The market rather than government policies or political cycles should play a decisive role in economic matters. Policies should only play an auxiliary role.

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