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Institutional inertia, local leadership turnover, and changes in the structure of fiscal expenditure

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Abstract

Taking the perspective of local party and government leadership change and using L-kurtosis to analyze provincial panel data in China from 1996 to 2018, this article identifies the structural change pattern of fiscal expenditures. We find that economic construction, science, education, culture, and health expenditures conform to the punctuated equilibrium pattern, while public security expenditures conform to the gradualism pattern. For expenditures under the punctuated equilibrium pattern, the longer the current local leader's tenure is, the greater the friction with institutional inertia, and the larger the deviation from the average expenditure structure during the previous local leader's tenure; however, for expenditures under the gradualism pattern, the local leader factor does not have a significant effect. This article also discusses the motivations of new local leaders for adjusting their expenditure structure. In terms of the proportion of economic development expenditures, in targeting expenditures, new leaders are more likely to "strive for the upper ends of the country," while the expenditures for science, education, culture, and health are targeted to "converge to the national average."

Keywords: Gradualism, Punctuated equilibrium, Institutional inertia, Fiscal expenditure

Introduction

Leaders of the local Communist Party of China (CPC) and the local government play a vital role in promoting local economic development, improving public services, and maintaining social order. With the change in local leaders, the fiscal expenditure structure may undergo systemic changes (Xu et al. 2019). Some foreign scholars believe that factors, such as the alternation of political parties, will cause policy discontinuity (Dye 1984). However, there are differences between China and Western countries in terms of the political system. This study draws on the theory of budget decision-making and takes the change in local leaders as a research entry point. It is proposed that a change in local leaders will lead to changes in the provincial fiscal expenditure structure. The longer the local leaders are in office, the stronger their political authority, and the easier it is for them to overcome the existing institutional inertia to change the structure



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of local finance expenditure. Local leaders are able to achieve this “goal” by changing the existing fiscal expenditure structure.

Figure 1 shows the fiscal expenditure structure of China’s central government and provincial governments in different fields from 1996 to 2018. The dots indicate the proportion of fiscal expenditures in various fields in each province. The dotted lines indicate the average proportion of expenditures in each province, and the solid lines indicate the corresponding proportion of fiscal expenditures in the central government. According to Fig. 1, in different years, China’s fiscal expenditures in various fields have shown different characteristics: in terms of economic construction expenditures, the proportion of central government expenditures has shown an overall upward trend, the expenditure proportions of all provinces across the country have also increased year by year, and the degree of dispersion between provinces has gradually increased. In terms of the expenditures on science, education, culture, and health, the proportion of the expenditures by the central government has shown an upward trend, and that of the various provinces has slowly increased, with a small degree of dispersion and a relatively concentrated distribution. Regarding public security expenditures, the overall change in the proportion of expenditures by the central government and the provinces has been relatively small. The proportion of the expenditures in each province has been relatively concentrated.

According to the results in Fig. 1, first, the fiscal expenditure trends of the local government and the central government in the same field are relatively similar, indicating that the behaviors of local party and government leaders have been highly consistent with the central policy. However, there are still differences between different provinces. Second, there are differences in the degree of dispersion of the fiscal expenditures in different fields. Economic construction expenditures have shown a relatively high degree of dispersion, while the degree of dispersion for the expenditures on science, education, culture, health, and public security has been relatively low. This article claims that local leaders have different “goals” for various types of fiscal expenditures, which may cause the proportion of various fiscal expenditures to exceed or approach the national average gradually.

To effectively explain the disruption of provincial fiscal expenditures and illustrate the process of local leaders achieving their “goals,” based on gradualism and punctuated equilibrium budgeting, this article first identifies various models of fiscal expenditures in China. Second, from the perspective of the change in local leaders, the deviation of the expenditure structure of the current local leaders from that of the previous leaders is introduced. To explore the regularities and differences of different models, the article examines the impact of the change in local leaders on the different models of fiscal expenditure structure. Finally, this article further explores how local leaders can achieve their “goals” by changing the structure of fiscal expenditures.

The main findings of this paper are as follows: First, for expenditures under the punctuated equilibrium model, the longer the term of the local leader is, the greater the deviation from the expenditure structure of the previous leader; however, under the gradualism model, the changes in the tenure of local leaders will insignificantly affect fiscal expenditures. Second, concerning economic construction expenditures, the “goal” of local leaders is to “strive for the upper end,” and for financial expenditures in fields, such as science, education, culture, and health, their “goal” is to target expenditures

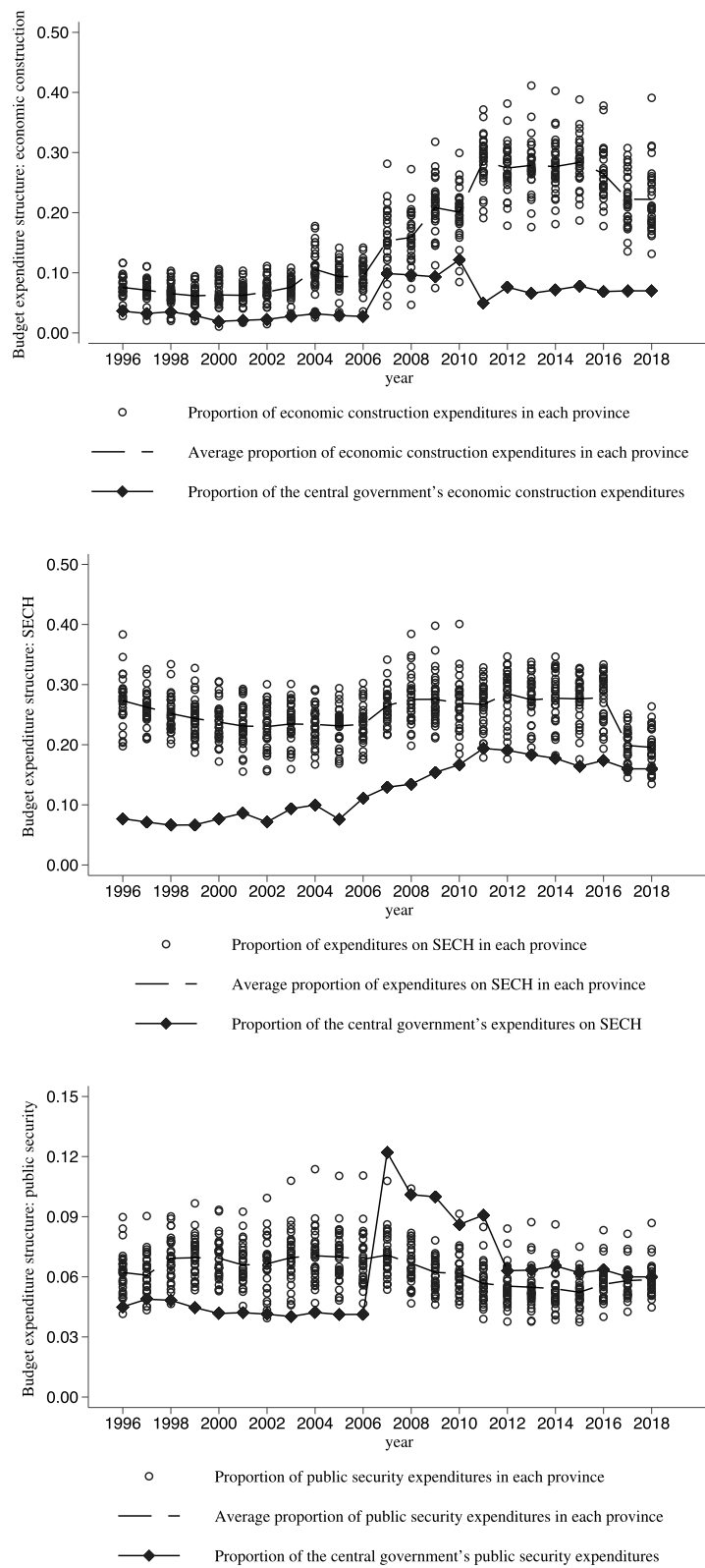


Fig. 1 (See legend on next page.)

(See figure on previous page.)

Fig. 1 Changes in the proportion of central and provincial fiscal expenditures ((1)Science, education, culture, and health is abbreviated as SECH (2)After 2007, the proportion of the central government's public security expenditures changed significantly, which may be related to the reform of fiscal expenditures in China in 2007. In the robustness test, to ensure that the research conclusions are not affected by the budget account reform policy, this article only uses the data after 2007)

such that the expenditures “converge to the average.” Finally, this article carries out robustness tests based on the following: (1) the control of the deviation of local and central expenditure structures to avoid the possible influence from the central policy direction; (2) the replacement of the sample with “provincial-level” fiscal expenditure data to explore the impact of changes in terms of the tenure of local leaders on budget changes at the provincial level; and (3) the use of only the fiscal data after 2007 to avoid the impact of the reform of budget items on the results of this article. In these three types of robustness analyses, the conclusions of this article are all robust to a certain degree.

The main contributions of this study are as follows: First, under the premise of controlling the structure of central fiscal expenditures, this article finds that the term length of local leaders has an impact on the changes in the structure of provincial fiscal expenditures. Therefore, in researching fiscal sociology, the local leaders' possible influence on budget formulation should not be ignored. Second, providing lessons and references for subsequent research, this article finds differences in the “punctuated” intensity of different fiscal expenditures in China. Third, this article finds that the term length of the local party and government leaders has a heterogeneous impact on the two fiscal expenditure models, namely the punctuated equilibrium and the gradualism equilibrium. Fourth, this article finds that the local leaders have different goals for different fiscal expenditure models, which explains the differences in the degree of dispersion of the different types of fiscal expenditures.

Literature review and theoretical approach

This section will summarize the research results regarding the budget theory, the development, and characteristics of the two budget models of gradualism and punctuated equilibrium, the reasons for budget interruptions, and the measurement methods. Based on the findings of existing studies, the differences in the local leaders' “goals” in different financial expenditure areas can be identified.

Theory of the gradualism and punctuated equilibrium

In the 1960s, the research work of Wildavsky and Fenno promoted the development of gradualism research (Reddick 2003). The basic logic of gradualism is that the budget-making agency will fully consider the previous year's budget when formulating fiscal expenditures for the next year and will make moderate increases or decreases on a marginal basis. The budget for the next year will show the characteristics of the “base” plus “marginal increasing” or “marginal decreasing” expenditures (Ma and Ye 2003). Although gradualism quickly became widely used, it has not been unanimously recognized in the academic world (Schick 1969). Its fatal weakness is that it cannot explain the small number of large-scale changes in the budget.

Since gradualism cannot explain large-scale changes in the budget, the punctuated equilibrium model was developed. This theory first appeared in evolutionary biology. In the early 1990s, Baumgartner and Jones introduced the concept of punctuated equilibrium into budget research. The punctuated equilibrium model considers budget decisions to be inertial and mostly biased toward maintaining the current status of resource allocation. However, when new problems arise or the decision-maker's attention shifts, the previous budget allocation plan will no longer work, and decision-makers will make new budget decisions and redistribute budget resources. At that time, the budget will undergo significant changes (Baumgartner and Jones 1993).

Reasons and measurements of a disruption of financial expenditures

The unwillingness or difficulty of government departments to change the old budget decision is called institutional inertia. Despite the inertia of the system, in the process of transforming input information into output results, the political system will experience the addition of new participants, the acquisition of new information, and a sudden shift of attention, and all these factors will impose additional costs on the transformation of the output results. These additional costs represent the friction in the system. The re-election of officials leads to the replacement of decision-makers, and the newly appointed government departments will re-process and select information (Jones and Baumgartner 2012). The decision-makers select certain categories of all information for processing, which means that information selection becomes a decision-making mechanism. When the decision-maker's information focuses on changes, policy choices will also change (Jones 1994). This will lead to discontinuities in the structure of fiscal expenditures and cause institutional frictions (Flink 2017). Because of differences in the political system between China and the West, this article argues that Chinese officials want to achieve their "goals" by changing the scale and structure of fiscal expenditures. These officials need to challenge the initial institutional inertia, and institutional friction arises from this, which ultimately leads to discontinuities in fiscal expenditures.

Scholars have used L-kurtosis¹ to measure the intensity of a disruption, comprehensively evaluating the distribution of a set of data changes (Decarlo 1997). L-kurtosis is a frequency analysis research method that was first applied to statistical hydrology research (Dalrymple 1960). Traditional kurtosis is susceptible to extreme values (Sharma and Paliwal 2006), while L-kurtosis can reliably measure budget changes and is less sensitive to the effects of extreme values (Hosking 1990). Breunig and Koski (2006) introduced L-kurtosis into the field of budget research and measured the intensity of budget disruptions in 50 states in the USA. This indicator can examine the changes in the flow of fiscal funds in a series of years. The larger the L-kurtosis parameter is, the higher the intensity of the budget disruption. Baumgartner and colleagues (Baumgartner et al. 2009) used L-kurtosis to measure the intensity of budget disruptions in the USA, Denmark, Belgium, and other countries, thus reflecting the degree of institutional friction in these countries.

¹The full name for this term is the L-moment of the kurtosis score, which is referred to as L-kurtosis in this article.

Budget control ability and “goal”

Under the tax-sharing system, local governments can influence local fiscal expenditures while complying with laws and regulations. The local leaders in China have played an increasingly important role (Bo 1996). Studies have shown that the change in local leaders will impact the local fiscal expenditure structure (Xiao et al. 2015; Wang et al. 2013). The term length of local leaders significantly impacts their budget control ability (Zhou and Zou 2014; Geng et al. 2016). Yang et al. (2015) used a stochastic frontier analysis to measure the local fiscal efficiency of 31 provinces in China from 1999 to 2012 and found that the change in local leaders will cause fiscal deficits to expand in the short term. Jiang and Yi (2017) found that the length of official tenure can significantly affect education expenditure. Guo and Lin (2018) also found that the term of office is correlated with the financial expenditure for people's livelihoods, and the extension of the official term will reduce the tendency of expansion in people's livelihood financial expenditures.

There are many local government expenditure items in China, and local leaders have different “goals” for different expenditure fields. Zhang (2013) found that during the officials' term of office, the proportion of local fiscal expenditures on infrastructure construction increased significantly, while expenditures on education and public security decreased significantly. Since the level of economic construction and development is still one of the critical indicators in the appraisal of officials, officials will tend to use financial resources on projects that can stimulate economic growth in the short term (Fu and Zhang 2007). Therefore, this article proposes that the goal of local leaders for economic construction expenditure is to “strive for the upper reaches.” Regarding expenditures on science, education, culture, and health, Liao (2004) found that the imbalance of education expenditures in various provinces may be related to national long-term education policy goals. In addition, China's *Education Law* also expressly stipulates that “the proportion of national fiscal expenditures on education in the gross national product should be gradually increased with the national economic development and the fiscal revenue growth. The State Council shall stipulate the specific proportions and implementation steps.” Therefore, this article proposes that the “goal” of local leaders for expenditures on science, education, culture, and health is to approach the national average and to achieve the goal of “converging to the average.” Regarding public security expenditures, Li (2018) found a relatively stable relationship between public security expenditures and the level of social stability. Zhang et al. (2017) found that public security expenditures still maintain a significant inhibitory effect on overall criminal crimes. Therefore, this article proposes that public security expenditures need to meet the minimum standards of social stability.

Summary

In summary, the existing studies have sorted out the concepts of gradualism and punctuated equilibrium and studied the causes and measurement methods of disruptions in fiscal expenditures. However, the existing studies have not comprehensively examined the impact of the change in local leaders and the length of their term on the expenditure structure. Therefore, this article draws on existing studies and does the following: first, by using L-kurtosis, measures China's fiscal expenditures in different fields; second, from the perspective of the

change in local leaders, examines the influence of the term of the governor and provincial party committee secretary on the expenditure structure; and finally, discusses how changes in the provincial fiscal expenditure structure reflect the “goals” of local leaders.

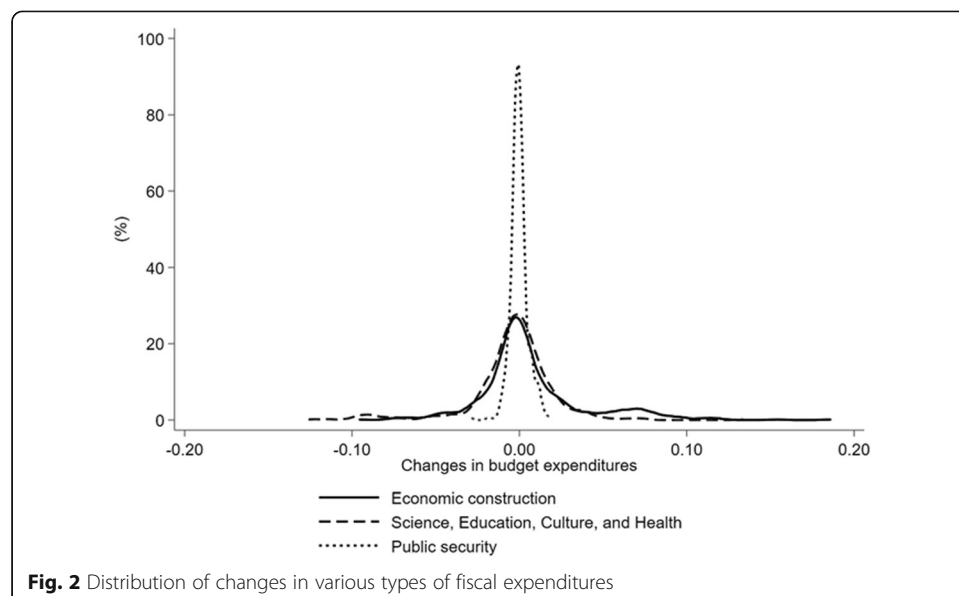
Stylized facts and basic assumptions

To explore whether the replacement of local party and government leaders can trigger changes in the provincial fiscal expenditure structure, this article first examines the existing stylized facts in China and identifies various fiscal expenditure patterns in China. Second, it examines the impact of the change in local leaders on the budget expenditure structure. Finally, based on sorting out the stylized facts, the theoretical hypothesis of this article is proposed.

To what kind of budget formulation pattern do China’s fiscal expenditures conform?

Based on provincial panel data of China from 1996 to 2018, this article calculates the change in provincial fiscal expenditures. Figure 2 shows the distribution of the changes in various fiscal expenditures at the national level and reveals that different fiscal expenditures reflect different change patterns. Among these patterns, most of the changes in public security fiscal expenditures are distributed in a small range, exhibiting the apparent characteristics of “large probability, small changes,” which are characteristics more in line with those of gradualism. The distribution of changes in economic construction, science, education, culture, and health expenditures has a noticeable “fat-tailed distribution” pattern, indicating that there is a “small probability, large change” situation, which is a distribution pattern more in line with the change characteristics of punctuated equilibrium.

This article further calculates the L-kurtosis of various fiscal expenditures to measure the strength of punctuated equilibrium in China. There are considerable differences in the L-kurtosis values of the different types of fiscal expenditures in China. The L-kurtosis average of economic construction expenditures is 0.32; the L-kurtosis average



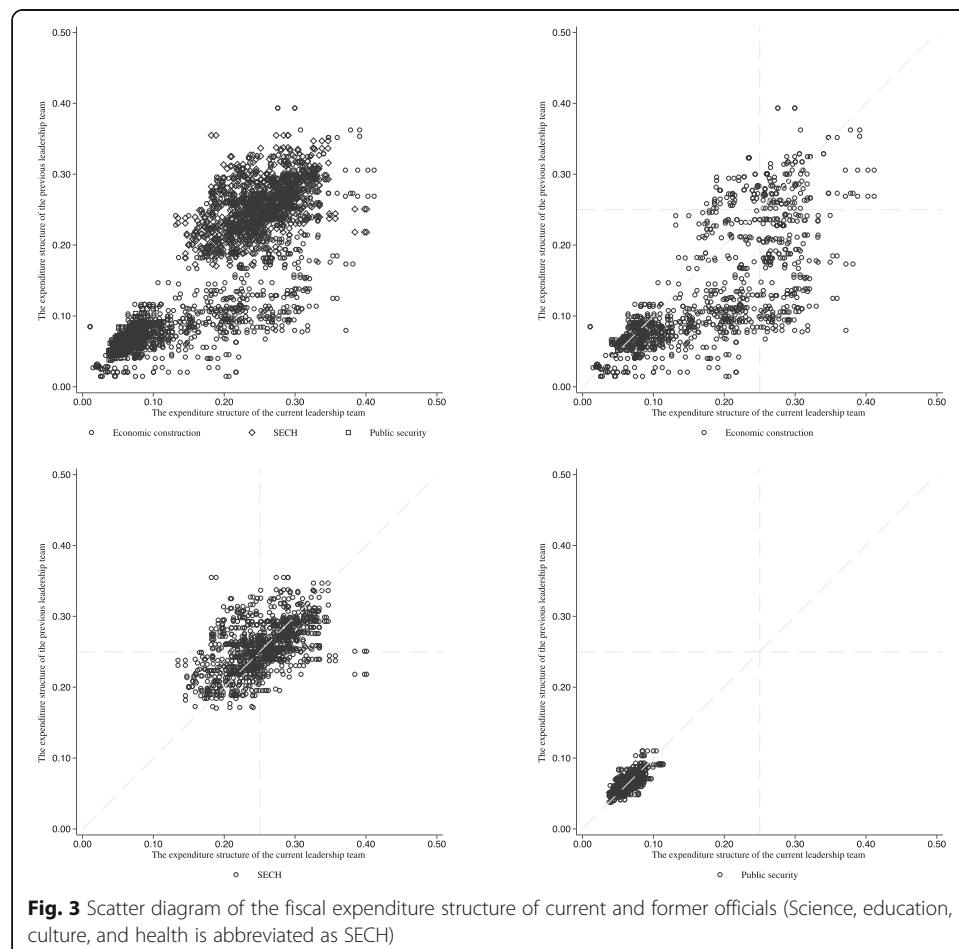
of science, education, culture, and health is 0.39; and the L-kurtosis average of public safety is 0.22. From this, the following stylized facts can be summarized.

Stylized fact 1 Regarding budget changes, the expenditures on economic construction and science, education, culture, and health are characterized by a pattern of “small probability and large change.” The intensity of the punctuation in the fiscal expenditures in these areas is relatively large, consistent with the characteristics of punctuated equilibrium.

Stylized fact 2 Regarding the frequency of budget changes, public security expenditures are characterized by a pattern of “large probability, small change.” The intensity of the punctuation in the fiscal expenditure in this area is relatively small, exhibiting characteristics close to those of the gradualism model.

The impact of the change in local leadership on the fiscal expenditure structure

This section introduces the change in the local party and government leaders and presents a scatter diagram of various fiscal expenditure structures during the tenure of the current and former officials. According to Fig. 3, the scattered points of economic



construction expenditures are widely distributed, and most of them are located in the lower right part of the figure. This shows that, on the whole, there is a large difference between the proportion of the current officials' economic construction expenditures and the proportion of the predecessors' expenditures and that the current officials have a strong incentive to increase this type of fiscal expenditure. Therefore, the scatter diagram shows an expansion to the lower right. The scattered distribution of expenditures on science, education, culture, health, and public security is relatively concentrated and more evenly distributed on both sides of the diagonal. Therefore, this article summarizes the following stylized facts.

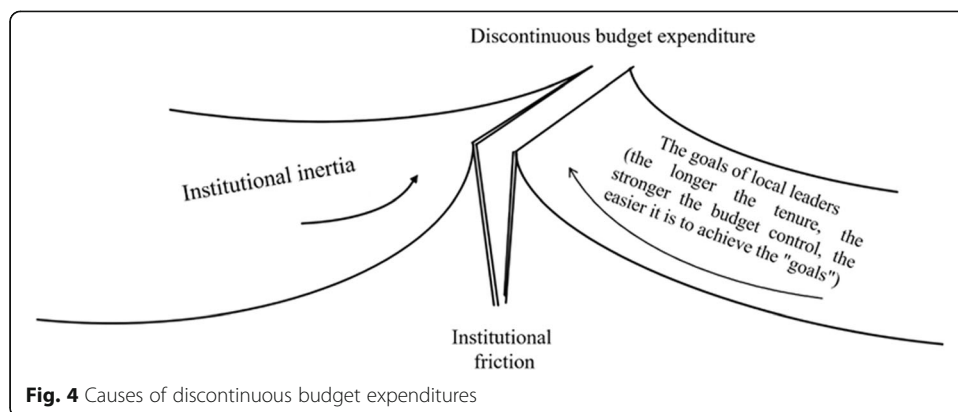
Stylized fact 3 There is a difference in the deviation of the expenditure ratio between current officials and former officials since the types of fiscal expenditures are different. In general, the most obvious deviation of the proportion of the current officials' expenditures from that of the former officials' expenditures is in economic construction expenditure. The current officials have a strong incentive to increase the proportion of economic construction expenditure. Moreover, the expenditures on science, education, culture, and health also reflect a certain deviation, while public security expenditures reflect the least deviation.

Theoretical assumptions based on stylized facts

Based on the stylized facts of China's fiscal expenditures, this article takes the change in the local party and government leaders as a research entry point and further proposes the following theoretical hypothesis: with the change in local leaders, new officials give new weights to different areas of expenditure, leading to a redistribution of financial resources. When former officials have formed a fixed fiscal expenditure structure, and institutional inertia is established, power changes are generated with the change in officials, and the current officials will try to challenge the existing institutional inertia. As their term of office lengthens, the officials' ability to control the budget will increase, enabling them to achieve their "goals" by changing the fiscal expenditure structure. These "efforts" become frictions in budget decision-making. With the gradual accumulation of frictions, the pressure to change fiscal expenditures increases, leading to changes in the fiscal expenditure structure.² The specific process can be seen in Fig. 4.

An analysis of the stylized facts reveals that the budget formulation of the expenditures on "economic construction" and "science, education, culture, and health" conforms to the characteristics of punctuated equilibrium and has a high correlation with the change in official tenure. According to the existing research, as the term of office increases, the officials' ability to control the budget will increase, making it more likely that the inertia of the existing system will be broken through and triggering major changes in the expenditure structure. Therefore, this article proposes hypothesis 1: For fiscal expenditures under the punctuated equilibrium model, the longer the local party

²What needs to be emphasized here is that changes in the fiscal expenditure structure by local leaders must be completed within the legal framework of the Budget Law. According to the requirements of the "Budget Law," budgets must be reviewed and approved by the People's Congress at the corresponding level to become legitimate; at the same time, the party's leadership over the work of the People's Congress also enables the will of the local party committee to be reflected in the People's Congress budget discussions and resolutions.



and the government leaders' term is, the greater the deviation from the expenditure structure of their predecessors.

Public security expenditures conform to the characteristics of gradualism. As shown in Fig. 3, the budgets for public security vary within a small range and are relatively insensitive to changes in the tenure of the local party and government leaders. Based on the above findings, this article proposes hypothesis 2: For fiscal expenditures under the gradualism model, the length of office of the local party and government leaders does not have a significant impact on changes in the fiscal expenditure structure.

This article argues that local party and government leaders change the provincial fiscal expenditure structure to achieve their "goals." For different types of expenditures, their "goals" are different. According to the existing literature, this article proposes hypothesis 3: The deviation from the fiscal expenditure structure of former officials will further affect the gap between this type of fiscal expenditure and the national average, thereby achieving the "goal" of officials. Regarding financial expenditures related to economic construction, the officials' "goal" is to "strive for the upper end." Provinces below the average line have an incentive to increase upward, and provinces above the average line have an incentive to invest more resources. For certain types of fiscal expenditures, such as science, education, culture, and health, the "goal" of officials is to "converge to the average," that is, to approach the national average.

Empirical strategy

To verify the above hypothesis, based on China's provincial panel data, this article constructs indicators, such as the change in the provincial fiscal expenditure structure and the deviation of the fiscal expenditure structure from the national average. It uses the term length of the local leaders to measure the budget control of the local party and government leaders. This analysis aims to investigate the impact of the term length of the governor and the secretary of the provincial party committee on the provincial fiscal expenditure structure and how these officials achieve their "goals." In the robustness test, to verify the reliability of the research findings, this article further controls the deviation of the local and central expenditure structure, replaces the sample with "provincial-level" fiscal expenditures, and changes the investigation interval.

Indicator structure description

When describing the fiscal expenditure structure, this article divides total fiscal expenditures into three categories: expenditures for economic construction; expenditures for science, education, culture, and health; and expenditures for public security. This is mainly because the classified expenditures of the budget are not independent but are interrelated. When there are limited financial funds, it is necessary to weigh the proportion of various expenditures. When incumbent officials adjust to the fiscal expenditure structure, these adjustments will inevitably have different effects on different types of fiscal expenditures. Dividing the use of funds into different budget categories can more comprehensively facilitate the examination of the impact of the length of an official's term on the fiscal expenditure structure and the deviation from the expenditure structure of the previous official.

In terms of data processing, to describe the deviation of the expenditure ratio of current officials and former officials, this article calculates the deviation rate for each category of fiscal expenditures. In this article, we use P_{it} to represent the proportion of each fiscal expenditure item relative to the total budget expenditure, use the mean value of the fiscal expenditure ratio during the term of office, \bar{p}_{t-1} , to represent the expenditure structure of the former official, and use dr_{it} to represent the deviation rate of the annual fiscal expenditure percentage of current officials from the average fiscal expenditure percentage of predecessor officials. The calculation formula is shown below.

$$dr_{it} = \frac{(p_{it} - \bar{p}_{t-1})}{\bar{p}_{t-1}} \quad (1)$$

When discussing the “goal” of officials, it is necessary to measure the deviation of the provincial fiscal expenditure structure from the national average (that is, the average value of a certain fiscal expenditure ratio of all provinces across the country). In this article, $t\bar{p}_t$ is used to represent the national average of each fiscal expenditure ratio, and P_{it} is used to represent the fiscal expenditure ratio of each province in that year to calculate the deviation rate tdr_{it} of the fiscal expenditure structure of each province from the national average. The calculation formula is as follows.

$$tdr_{it} = \frac{(p_{it} - t\bar{p}_t)}{t\bar{p}_t} \quad (2)$$

Data explanation and descriptive statistics

This article uses provincial panel data from 1996 to 2018 to study the above models and hypotheses. Due to a severe lack of data from Hong Kong, Macau, and Taiwan of China, these areas were excluded from this study. In addition, China carried out the reform of the classification of government revenue and expenditure in 2007, and the statistical caliber of fiscal expenditure items has undergone significant changes. Based on public information, such as the report “Q&A on Government Revenue and Expenditure Classification Reform” compiled by the Budget Department of the Ministry of Finance, this article links and matches the budget subjects before and after the reform and according to the actual use of funds, selects some of the expenditure items to be classified as three types of expenditures, namely economic construction expenditures, science,

education, culture, and health expenditures, and public security expenditures. Among these categories, economic construction expenditures cover local economic development-related financial expenditures, such as expenditures on agriculture, forestry, and water-related to the primary industry, industrial expenditures related to the secondary industry, business service expenditures related to the tertiary industry, and part of the supporting expenditures; the expenditures for science, education, culture, and health include science and technology, education, culture, media, and medical and health expenditures; the expenditures for public security are mainly expenditures for public security, the procuratorate, and the law department. Table 1 shows the statistical description of the relevant variables.

Measurement model

Step 1. Verify hypothesis 1 and hypothesis 2; that is, under the punctuated equilibrium model, verify if the changes in the term length of the local party and government leaders have a positive effect on the changes in the fiscal expenditure structure but under the gradualism model, have no significant effect on the changes in the fiscal expenditure structure.

In the fixed-effects panel regression, this article selects the deviation rate of the current official's fiscal expenditure ratio and the average expense ratio of the former officials as the explained variable and the official's term length as the core explanatory variable. Since making a change in the expenditure structure is a dynamic process and is related to the degree of change in the previous period, it is necessary to examine the impact of the dynamic change of the expenditure structure. This article adds the changes in the fiscal expenditure structure of the provincial government in the previous year into the regression equation and constructs the following regression model.

$$dr_{it} = \alpha_0 + \alpha_1 \cdot dr_{it-1} + \alpha_2 \cdot TL_{it} + \alpha_3 \cdot X + \varepsilon_{it} \quad (3)$$

The explained variable dr_{it} represents the deviation rate of the i th official's fiscal expenditure percentage from the average expense ratio of the previous official in year t , and dr_{it-1} is the fiscal expenditure deviation rate of the previous year. The core explanatory variable TL_{it} represents the term length of the current official, and X represents other control variables, including the control variables for the officials' characteristics. ε_{it} is the residual term.

Step 2. Verify hypothesis 3. The deviation from the fiscal expenditure structure of former officials will affect the gap between this specific fiscal expenditure and the national average, and different types of fiscal expenditure will have different effects. Here, the deviation of the provincial fiscal expenditure structure from the national average is taken as the explained variable, and the change in the provincial fiscal expenditure structure is taken as the core explanatory variable. The regression equation used is shown below.

$$tdr_{it} = \beta_0 + \beta_1 \cdot dr_{it} + \beta_2 \cdot X + \beta_t + \beta_i + \varepsilon_{it} \quad (4)$$

The explained variable tdr_{it} represents the deviation rate of a certain fiscal expenditure structure in the i th province from the national average in year t . The core explanatory variable dr_{it} represents changes in the province's fiscal expenditure structure. The definition of the remaining variables is the same as that in the above formula.

Table 1 Descriptive statistics of each variable

	Variable	Mean	Standard Deviation	Minimum	Maximum
Governor	Deviation rate of economic construction expenditures	0.76	1.24	− 0.46	13.06
	Deviation rate of science, education, culture, and health expenditures	0.03	0.19	− 0.43	0.84
	Deviation rate of public security expenditures	− 0.06	0.13	− 0.40	0.56
	Term length	2.93	1.87	1.00	10.00
	Age of Official	57.97	3.86	45.00	65.00
	From the central government	0.29	0.46	0.00	1.00
	From the province	0.55	0.50	0.00	1.00
Provincial Party Committee secretary	Deviation rate of economic construction expenditures	0.75	1.16	− 0.42	9.54
	Deviation rate of science, education, culture, and health expenditures	0.02	0.17	− 0.49	0.60
	Deviation rate of public security expenditures	− 0.06	0.14	− 0.38	0.64
	Term length	3.07	2.15	1.00	14.00
	Age of Official	60.36	3.86	47.00	70.00
	From the central government	0.42	0.49	0.00	1.00
	From the province	0.28	0.45	0.00	1.00
Goals	Absolute deviation ratio of economic construction expenditures from the national average	− 0.00	0.21	− 0.71	0.84
	Absolute deviation ratio of science, education, culture, and health of expenditures from the national average	0.12	0.11	0.00	0.61
	Absolute deviation ratio of public security expenditures from the national average	0.12	0.09	0.00	0.49
The deviation between local and central	Absolute deviation of the ratio of economic construction expenditures	0.16	0.08	− 0.05	0.35
	Absolute deviation of the ratio of science, education, culture, and health expenditures	0.10	0.05	− 0.03	0.25
	Absolute deviation of the ratio of public security expenditures	− 0.02	0.02	− 0.07	0.03
Provincial level control variables	Urbanization rate	0.54	0.14	0.22	0.90
	Aging rate	0.13	0.03	0.06	0.20
	GDP (logarithm)	9.43	1.05	5.83	11.49
	Permanent population (logarithm)	8.11	0.85	5.67	9.34
	Industrial enterprises (logarithm)	8.70	1.42	4.03	11.09
	The added value of the primary industry (logarithm)	6.94	1.14	4.01	8.51
	The added value of the secondary industry (logarithm)	8.62	1.11	4.59	10.63
	The added value of the tertiary industry (logarithm)	8.60	1.08	5.24	10.87

Empirical result analysis

In the empirical analysis, to verify hypothesis 1 and hypothesis 2, this article first analyzes the influence of the term length of the governor and the secretary of the provincial party committee on the fiscal expenditure structure. Second, this article verifies how local leaders can achieve their “goals” by changing the fiscal

expenditure structure, and this study also provides empirical support for hypothesis 3.

The impact of the tenure length of local leaders on the fiscal expenditure structure

Table 2 columns (1)–(3) show the influence of the length of the governor's term on the changes in the expenditure structure. Specifically, the expenditures on economic construction, science, education, culture, and health reflect the characteristics of spending

Table 2 The influence of the length of the leadership term on the changes in the expenditure structure

	Governor			Secretary of the Provincial Party Committee		
	(1) Economic construction	(2) science, education, culture, and health	(3) public security	(4) Economic construction	(5) science, education, culture, and health	(6) public security
Term length	0.226***	0.008***	− 0.003	0.144***	0.004*	− 0.003
Deviation rate from the previous expenditure structure (previous period)	0.387***	0.567***	0.566***	0.474***	0.573***	0.603***
Governor from the central government	− 0.047	− 0.020	0.009	− 0.127	0.010	0.025*
Governor from this province	0.022	− 0.046***	0.001	− 0.094	− 0.014	0.025*
Governor's age	− 0.024***	− 0.002*	0.001	0.006	0.001	0.001
Secretary of the Provincial Party Committee comes from the central government	0.158**	− 0.031***	0.000	0.063	− 0.017	− 0.006
The Secretary of the Provincial Party Committee is from this province	− 0.071	− 0.013	− 0.010	0.075	0.011	− 0.014
The age of the provincial party secretary	0.012	− 0.002	− 0.000	− 0.001	− 0.004***	− 0.001
Urbanization rate	1.679	0.391	0.486**	1.939	0.473*	0.764***
Aging rate	− 8.206***	− 0.476	− 0.582*	− 1.821	0.029	− 0.131
GDP (logarithm)	− 3.192**	− 0.032	0.170	− 0.807	0.038	0.193
Permanent population (logarithm)	− 0.015	0.206	− 0.358***	− 0.408	0.184	− 0.381***
Industrial enterprises (logarithmic)	− 0.086	0.039*	− 0.043**	− 0.099	0.013	− 0.059***
The added value of the primary industry (logarithm)	0.445	− 0.015	− 0.047	0.155	− 0.016	− 0.071*
The added value of the secondary industry (logarithm)	1.335**	0.041	− 0.137*	0.072	− 0.012	− 0.166**
The added value of the tertiary industry (logarithm)	1.009	− 0.034	0.027	0.644	− 0.016	0.017
Constant	7.574	− 1.511	2.786***	3.541	− 1.621	3.204***
Time effect	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

under the punctuated equilibrium model. The change in the length of the governor's term has a significant positive impact on the deviation rate of the current expenditure structure from the previous governor's expenditure structure, indicating that as the term of the governor increases, the expenditure structure is more likely to deviate from that of the previous governor. For public security and other types of fiscal expenditures, reflecting the characteristics of spending under the gradualism model, the change in the length of the governor's term did not significantly impact the deviation rate of the expenditure structure from the previous governor's expenditure structure. The main reason is that gradual fiscal expenditures are all changed in a "small area" and do not change significantly with the term length of the party and government leaders.

Columns (4)–(6) show the impact of changes in the term length of the provincial party committee secretary on changes in the provincial fiscal expenditure structure. For expenditures on economic construction and science, education, culture, and health, the change in the term length of the provincial party committee secretary has a significant positive impact on the deviation rate of the expenditure structure from that of his or her predecessor. For public security expenditures, the change in the term length of the provincial party committee secretary did not have a significant impact. Therefore, hypothesis 1 and hypothesis 2 are supported.

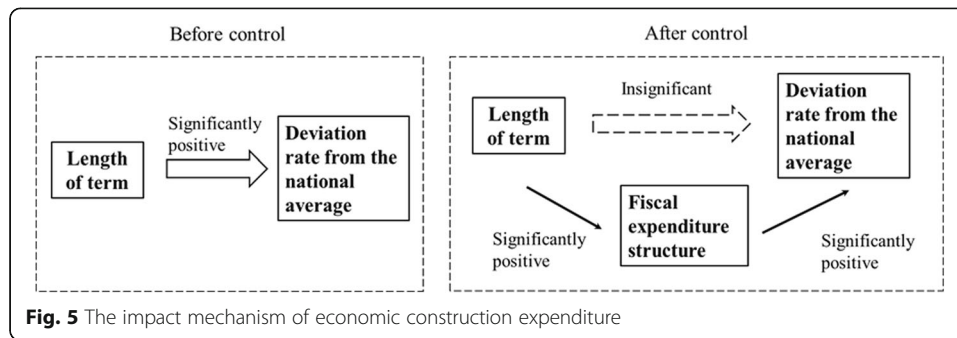
The relationship between changes in fiscal expenditure structure and "goals"

This section will focus on how the governor can achieve his "goal" by changing the fiscal expenditure structure. Different types of expenditures are discussed below. Table 3 shows the empirical ideas in this section.

Figure 5 shows the regression results from columns (1) to (3) in Table 4 and reveals how the provincial fiscal expenditure structure affects the deviation of the proportion of provincial fiscal expenditures for economic construction from the national average. The results of columns (1) and (2) show that the length of the governor's term has a significant positive effect on the deviation rate of the economic construction expenditure from the national average; the deviation rate from the previous governor's expenditure structure also has a significant positive effect on the deviation rate of economic construction expenditure from the national average. The article has shown previously that changes in the length of the governor's term will significantly promote positive changes in the expenditure structure, and the mechanism of "changes in term length—changes in expenditure structure—deviation from the national average" forms

Table 3 Empirical indicators and thinking

	"Goals"	Inspection indicators	Empirical thinking
Economic construction	"Strive for the upper end"	Deviation rate of economic construction expenditures from the national average	Examine whether the length of the tenure has a significant positive impact and whether a complete impact mechanism exists
Public security	"Converge to the average"	The absolute value of the deviation rate of public security expenditures from the national average	Examine whether the length of the tenure has a significant negative impact and whether a complete impact mechanism exists
Science, Education, Culture, and Health		The absolute value of the deviation rate of science, education, culture, and health expenditures from the national average	



a closed loop. When controlling the provincial expenditure structure, the length of the governor's term has no significant impact on the deviation rate of the provincial economic construction expenditure from the national average, and there is a "full mediation" effect. The impact of the length of the governor's term on achieving his or her "goal" occurs entirely through the intermediary variable of the changes in expenditure structure. The positive and negative results of the regression reveal that for economic construction expenditure, the change in the expenditure structure caused by the change in the length of the governor's term has a significant positive impact on the deviation rate of the economic construction expenditure from the national average. At that time, the "goal" is to "strive for the upper end."

According to column (4) of Table 4, changes in the length of the governor's term have a significant negative impact on the absolute deviation rate of public security expenditures from the national average, indicating that for public security expenditures, the governor's goal is to "converge to the average." It means that the governor tends to reduce the absolute gap between such expenditures and the national average, gradually approaching the national average. However, the previous analysis has pointed out that for public security expenditures, the length of the governor's term cannot significantly affect the provincial expenditure structure, and the result of column (5) also shows that changes in the structure of provincial fiscal expenditures did not significantly affect the absolute deviation rate of public security expenditures from the national average. It shows that the change in term length has not formed a complete influence mechanism and that the governor has not achieved his "goal" in public expenditures through

Table 4 The relationship between the fiscal expenditure structure and the governor's "goal"

	Deviation rate from the national average			Absolute deviation rate from the national average		
	(1)	(2)	(3)	(4)	(5)	(6)
	Economic construction	Economic construction	Economic construction	Public security	Public security	Public security
Length of governor's term	0.008**		-0.004	-0.004**		0.004**
Deviation rate from the previous governor's expenditure structure		0.044***	0.048***		0.010	0.006
Control variable	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control

(1) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. (2) The table shows the coefficient results of the core explanatory variables in each regression. The control variables at the local leader level are used in Table 2, and the control variables related to provincial economic and social development are controlled during the regression process

changes in the provincial fiscal expenditure structure. Column (6) simultaneously puts relevant variables into the regression equation, and similar results are also obtained. Before and after the control of the provincial fiscal expenditure structure, the magnitude and significance of the influence of the length of the governor's term of office have not changed, which further illustrates that changes in the provincial fiscal expenditure structure cannot be used to examine the officials' "goals" for progressive expenditures, such as public security.

Figure 6 shows the empirical results in Table 5. Columns (1) and (2) separately show the pairwise regression results of relevant variables. The change in the length of the governor's term reflects a negative absolute deviation rate from the national average. However, it is not statistically significant. The change in the expenditure structure has a significant positive impact on the absolute deviation rate of science, education, culture, and health expenditures from the national average. The previous analysis has pointed out that changes in the length of the governor's term will significantly positively promote the expenditure structure, and thus, the positive impact mechanism forms a closed loop. In column (3), when the expenditure structure is controlled in the regression model, the negative impact of the change in term length becomes significant, indicating that other impact mechanisms have been omitted from the existing regression model, leading to the effect of the existing negative influence mechanism being offset.

In columns (4)–(6), to examine whether other types of fiscal expenditures may “crowd out/squeeze out” science, education, culture, and health expenditures, this article further introduces “the deviation rate of economic construction expenditure from the national average” as a new intermediary variable. The regression results in column (4) reveal that the length of the governor's term has a significant positive effect on the deviation rate of economic construction expenditures from the national average. The results in column (5) show that the economic construction indicators have significantly reduced the absolute deviation rate of the proportion of expenditures on science, education, culture, and health from the national average, indicating that financial expenditure on economic construction will crowd out to a certain extent the expenditures on science, education, culture, and health. The regression results in column (6) further show that the expenditures related to economic construction will have a crowding-out effect on science, education, culture, and health expenditures. In column (7), this article adds relevant variables to the regression equation. After controlling the intermediary variables in different directions, the length of the governor's term will significantly negatively affect the absolute deviation rate of the expenditures on science, education, culture, and health from the national average. Although the intermediary variables related to economic construction can explain to a certain extent the negative effects of

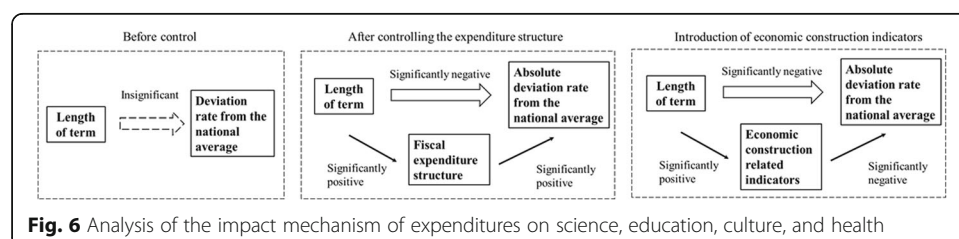


Table 5 An empirical analysis of the “goal” of expenditures on science, education, culture, and health

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	The absolute deviation rate of the provincial expenditure structure from the national average	The absolute deviation rate of the provincial expenditure structure from the national average	The absolute deviation rate of the provincial expenditure structure from the national average	The deviation rate of economic construction expenditures from the national average	Absolute deviation rate between the provincial expenditure structure and the national average	Absolute deviation rate between the provincial expenditure structure and the national average	Absolute deviation rate between the provincial expenditure structure and the national average
Length of governor's term	-0.002		-0.004**	0.008**		-0.001	-0.003*
Deviation rate from the previous governor's expenditure structure		0.180***	0.189***				0.183***
Deviation rate of economic construction expenditure from the national average					-0.072***	-0.070***	-0.056**
Control variable	Control	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control	Control

(1) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. (2) The table shows the coefficient results of the core explanatory variables in each regression. The control variables at the local leader level are used in Table 2, and the control variables related to provincial economic and social development are controlled during the regression process

changes in term length, they are not a complete substitution effect. There may be other influencing mechanisms that need to be further tested by subsequent studies.

From the regression results, we can see that for financial expenditures, such as science, education, culture, and health, the change in the length of the governor's term has a significant negative impact on the absolute deviation rate from the national average. This proves that the "goal" for expenditures on science, education, culture, and health is to "converge to the average."

Summary

This section further discusses how local leaders can achieve their "goals" by changing the fiscal expenditure structure. Among these expenditures, this article uses the deviation rate of expenditures from the national average as an inspection indicator for economic construction expenditures. The changes in the length of the governor's term are revealed to have a significant positive impact on the deviation of economic construction expenditures from the national average; this effect is completely realized through the deviation of the provincial expenditure structure, and there is a full mediation effect. Regarding public security expenditures, this article finds that the provincial governor's goal is to "converge to the average," but the deviation of the provincial fiscal expenditure structure does not have an intermediary influence. There may be other mediation effects that need further discussion. For expenditures on science, education, culture, and health, the study found an opposite mediation effect. After controlling the mediating variables in different directions, the influence of the length of the governor's term becomes significantly negative; that is, the goal of the governor's expenditure on science, education, culture, and health is intended to "converge to the average." Therefore, hypothesis 3 is verified.

Robustness test

In this part, this article tests the validity of the above regression results. First, it considers the impact of the central government's policy direction on the fiscal expenditures of provincial governments. In terms of the regression of robustness, this article further controls the absolute deviation of the fiscal expenditure structure between the local government and the central government, that is, the influence of the central policy on the budget structure of local leaders. In this way, this study examines whether the influence of the term length of the local party and government leaders on the provincial expenditure structure will change under the control of the central policy direction. Second, this article tests the validity of the data. According to China's relevant laws and regulations, China has implemented a decentralized fiscal structure; therefore, local party and government leaders influence each province's fiscal budget. In the robustness regression, to examine the robustness of the existing regression results, this article replaces the budget data with province-level budget data. Finally, because China carried out the reform of the project expenditure budget system in 2007, resulting in the discontinuity of the expenditure project data before and after that time, this article attempts to use the data after 2007 to ensure that existing empirical results are not affected by the budget reform policy (Table 6).

Table 6 Ideas and methods of the robustness test

	Purpose	Method
Test 1: The influence of central government policy	Controlling the influence of the central policy direction on the provincial fiscal expenditure structure in different periods	Controlling the “absolute deviation of the fiscal expenditure structure between the local government and the central government” in the regression model
Test 2: Change to province-level data	Testing the validity of the data: (1) To determine whether the term length of the local party and government leaders has the same impact on the fiscal expenditure structure of the province and the provincial level. (2) Use data after 2007 to avoid the impact of budget reform and to test whether the conclusion drawn is the same as that above	Replacing the sample with 2007–2018 “province-level” fiscal expenditure data
Test 3: Change in the sample time interval		Using the province-level fiscal expenditure data from 2007 to 2018 to avoid the impact of budget reforms

The influence of central policy direction

In China’s current fiscal system, through special transfer payments and other policies, the central government can influence the local government’s special expenditures (Yao et al. 2019). Therefore, the deviation between the expenditure structure of the local government and that of the central government may, to a certain extent, affect the proportion of the various fiscal expenditures of the local government. When there is a major deviation between the expenditure structure of the local government and that of the central government, in the next budget year, the local party and government leaders may make adjustments based on the deviation between the two parties to ensure the following-through and implementation of central policy guidelines. To control the possible influence of the central policy direction and test the robustness of our conclusions, this article controls the “absolute deviation of the expenditure structure between the local and central government in the previous year” in the regression model.

Table 7 shows the test results for the impact of the change in the provincial governor and party committee secretaries on the provincial fiscal expenditure structure when controlling the fiscal expenditure structure of the central government. The overall regression results are consistent with the findings in this article. That is, the term length of the local party and government leaders has a significant positive impact on the

Table 7 Robustness test of the influence of central policy

	Governor			Secretary of the Provincial Party Committee		
	(1) Economic construction	(2) Science, education, culture, and health	(3) Public security	(4) Economic construction	(5) Science, education, culture, and health	(6) Public security
Length of governor’s term	0.225***	0.007***	− 0.003	0.147***	0.004*	− 0.003
The absolute deviation between the local and central expenditure structure (previous period)	− 3.082**	− 0.564*	− 3.477***	− 4.150***	− 0.660**	− 4.054***
Control variable	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control

(1) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. (2) The table shows the coefficient results of the core explanatory variables in each regression. The control variables at the local leader level are used in Table 2, and the control variables related to provincial economic and social development are controlled during the regression process

punctuated equilibrium type of expenditure structure, such as the economic construction expenditure structure, but does not have a significant impact on the gradualism type of expenditure structure, such as public security expenditure structure. The research conclusions of this article are robust.

Use the province-level dataset

Just as the central government can influence the provincial fiscal expenditure structure through indirect control methods, such as policy guidelines and special transfer payments, the provincial government can also influence the province-wide fiscal expenditure structure through the indirect regulation of the lower-level government fiscal budget. Therefore, as in the previous regressions, this article used China's fiscal data within the whole province³ from 1996 to 2018 to test the theoretical hypotheses.

The *Budget Law of the People's Republic of China* stipulates the following: "The state implements a policy of each level of budget corresponding to each level of government." In addition to investigating the indirect regulatory effects, therefore, we should also pay attention to whether, under the direct influence of laws and regulations, the term length of the provincial party and government leaders has the same effect on the provincial fiscal expenditure structure and whether the impact is in line with the theoretical expectations of this article.

Table 8 shows the regression results obtained by using province-level fiscal expenditure data. Given the limited availability of sub-item data on provincial fiscal expenditures, the time interval of province-level fiscal data used in this article is 2007–2018. Due to the severe lack of data in Tibet, Hong Kong, Macau, and Taiwan, these Chinese regions were excluded from the regression. According to the empirical results, the effect of the term length of the local party and government leaders on the expenditure structure at the provincial level is consistent with the theoretical assumptions of this article and the main regression results: the length of office term has a more significant impact on the expenditures under the punctuated equilibrium model but has no significant impact on expenditures under the gradualism model.

Change the sample time interval

Consistent with the "Notice of the Ministry of Finance on Printing and Distributing the Reform Plan for the Classification of Government Revenue and Expenditure," after January 2007, China reformed the classification of government revenue and expenditures. The scope of income and expenditure classification, the classification system, and specific subject setting methods have undergone major changes. Although this article has summarized and matched budget subjects before and after the reform as much as possible, there are inevitably omissions due to the limited availability of data. It is impossible to restore the budget subjects before the reform completely. Therefore, in this section, the fiscal data within the whole province are still used, but we excluded data before 2007 to avoid deviations due to the budget account discontinuity occurring around 2007. Table 9 shows the relevant empirical results, indicating that the regression results are similar to the previous regression results. The empirical results

³The fiscal data within the whole province is the total of the whole province, while the province-level fiscal data refers only to fiscal revenues that can be directly controlled by the provincial government and do not include sub-provincial revenues.

Table 8 Province-level data inspection

	Governor			Secretary of the Provincial Party Committee		
	(1) Economic construction	(2) Science, education, culture, and health	(3) Public security	(4) Economic construction	(5) Science, education, culture, and health	(6) Public security
Length of governor's term	0.073***	0.019*	– 0.001	0.074***	0.010	– 0.009
Control variable	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control

(1) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. (2) The table shows the coefficient results of the core explanatory variables in each regression. The control variables at the local leader level are used in Table 2, and the control variables related to provincial economic and social development are controlled during the regression process

obtained by using province-level fiscal data from 2007 to 2018 in the above robustness test support the hypotheses, indicating that the conclusions of this article are robust. The robustness condition holds even when the data impact caused by the budget reform is stripped away, and only the data after 2007 are used. The robustness also holds regardless of whether the fiscal data within the whole province or the province-level fiscal data is used.

Conclusion

Leaders of the local parties and government play an essential role in raising the level of local economic development and improving the quality of public services. With the replacement of local party and government leaders, the new local leaders will assign new weights to different expenditure areas, thereby adjusting the fiscal expenditure structure. However, in the face of strong institutional inertia, how can new local leaders reflect their political intentions and achieve their “goals” in essential areas of their policy decisions, that is, in government budget expenditures? In this regard, this article

Table 9 Provincial data inspection after the expenditure classification reform

	Governor			Secretary of the Provincial Party Committee		
	(1) Economic construction	(2) Science, education, culture, and health	(3) Public security	(4) Economic construction	(5) Science, education, culture, and health	(6) Public security
Length of governor's term	0.296***	0.015***	– 0.007***	0.219***	0.009***	– 0.004
Control variable	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control	Control	Control

(1) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. (2) The table shows the coefficient results of the core explanatory variables in each regression. The control variables at the local leader level are used in Table 2, and the control variables related to provincial economic and social development are controlled during the regression process

proposes a theoretical explanation and uses China's provincial panel data for empirical testing.

To comprehensively and systematically explain the discontinuity of fiscal expenditure caused by the local leaders' challenge to institutional inertia and examine the entire process of finally achieving the "goal," this article first examines the existing stylized facts in China and finds that each expenditure classification in China's provincial fiscal expenditure items conforms to different budget formulation models. Second, by using L-kurtosis to measure the punctuation intensity of various types of expenditures in China, the punctuation intensity of different types of fiscal expenditures is revealed to be quite heterogeneous. Overall, consistent with the characteristics of punctuated equilibrium, economic construction, science, education, culture, and health expenditures are more intensive in terms of punctuation; in line with the characteristics of gradualism, public security expenditures are less intensive in terms of punctuation. Besides, this article also examines the deviation of the fiscal expenditure structure between current local leaders and previous leaders and finds that the deviation of economic construction expenditures is the most obvious, followed by the deviation of science, education, culture, and health expenditures; the deviation of public security expenditures is the least obvious.

Based on stylized facts in China, this article puts forward the following research hypothesis: For fiscal expenditures under punctuated equilibrium, the longer the term of the local leader is, the stronger the personal political authority becomes, and the easier it is to deviate from the average expenditure structure of the previous local leader during his term. For gradualism expenditures, the term length of the local leaders does not have a significant impact. Simultaneously, changes in the expenditure structure can better help achieve the "goals" of local leaders; there are differences in the goals of local leaders for different expenditure areas. Based on empirical research, this article finds the following: First, under the background of controlling the expenditure structure of the central government, regardless of whether the financial data of the whole province or the province-level data is considered, changes in the term length of the local party and government leaders do not have a significant impact on changes in expenditures under the gradualism model. However, for fiscal expenditures under the punctuated equilibrium model, the term length of local leaders and the deviation rate from the previous expenditure structure show a significant positive relationship. Second, regarding economic construction expenditures, the "goal" of local leaders is to "strive for the upper end;" that is, provinces below the national average line of the expenditures are motivated to increase expenditures, and provinces above the average line will also invest more resources. Third, regarding financial expenditures, such as those for science, education, culture, and health, the "goal" of local leaders is to "converge to the average," that is, to target the proportion of these expenditures to approach that of the national average.

The Fourth Plenary Session of the 19th Central Committee of the Party put forward a clear goal of "realizing the modernization of the national governance system and governance capabilities." The Third Plenary Session of the 18th Party Central Committee pointed out that "finance is the foundation and important pillar of national governance," and the core of finance is the government budget. Therefore, budget research is of great significance to the modernization of China's national governance. This research is

just an initial attempt to open up the budget process of the Chinese government. This article grasps the two dimensions, namely institutional inertia in budget operations and the replacement of local leaders, to understand the changes in China's budget structure. In 2015, China revised the *Budget Law* to ensure the openness of government budgets in a legal sense. Researchers should use increasingly abundant public data to open the black box of the "budget process" and study the internal mechanism of budget formulation in China. This will help China's budget decisions become more scientific, open, and transparent and support the modernization of national governance.

China began to compile the *Finance Yearbook of China* in 1992 and made several adjustments to classify income and expenditures. Due to the limitation of data availability, this article fails to further subdivide and investigate the types of fiscal expenditures. In future research, China's various fiscal expenditures can be divided in a more detailed way, and the various fiscal expenditure models in China can be described more comprehensively. At the same time, using a research framework of multi-level government, the research can be extended to the municipal and county-level fiscal data to examine the fiscal budget problem and to provide a new perspective for a more comprehensive understanding of the institutional logic of local fiscal budget.

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Authors' contributions

DY was responsible for the overall design and the construction of the theoretical framework. YZ made contributions to the statistical analysis and the drafting of the manuscript. KY revised and reviewed the full manuscript. The authors read and approved the final manuscript.

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Availability of data and materials

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Declarations

Competing interests

The authors declare that they have no competing interest.

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References

- Baumgartner, Frank R., Christian Breunig, Christoffer Green-Pedersen, Bryan D. Jones, Peter B. Mortensen, Michiel Nuytemans, and Stefaan Walgrave. 2009. *Punctuated equilibrium in comparative perspective*. *American Journal of Political Science* 53 (3): 603–620. <https://doi.org/10.1111/j.1540-5907.2009.00389.x>.
- Baumgartner, Frank R., and Bryan D. Jones. 1993. *Agendas and instability in American politics*. Chicago: University of Chicago Press.
- Bo, Zhiyue. 1996. Economic performance and political mobility: Chinese provincial leaders. *Journal of Contemporary China* 5 (12): 135–154. <https://doi.org/10.1080/10670569608724246>.
- Breunig, Christian, and Chris Koski. 2006. Punctuated equilibria and budgets in the American States. *Policy Studies Journal* 34 (3): 363–379. <https://doi.org/10.1111/j.1541-0072.2006.00177.x>.
- Dalrymple, Tate. 1960. *Flood-frequency analyses, manual of hydrology: Part 3*. USGPO (Washington: UNITED STATES GOVERNMENT PRINTING OFFICE).
- DeCarlo, Lawrence T. 1997. On the Meaning and Use of Kurtosis. *Psychological Methods* 5 (3): 190–204.
- Dye, Thomas R. 1984. Party and Policy in the States. *The Journal of Politics* 46 (4): 1097–1116. <https://doi.org/10.2307/2131244>.
- Flink, Carla M. 2017. Rethinking punctuated equilibrium theory: a public administration approach to budgetary changes. *The Policy Studies Journal* 45 (1): 101–120. <https://doi.org/10.1111/psj.12114>.

- Fu, Yong and Yan Zhang. 2007. Chinese-style decentralization and fiscal expenditure structure bias: the cost of competition for growth. *Management World* 3:4-12+22.
- Geng, Shu, Baoqing Pang, and Lingna Zhong. 2016. The tenure of local leaders in China and the pattern of government behavior: the political economy of the tenure of officials. *Social Science Digest* 8: 53–54.
- Guo, Ping, and Xiaofei Lin. 2018. The characteristics of local officials and people's livelihood fiscal expenditure: evidence from the secretary of the provincial party committee and the Governor in China. *Sub National Fiscal Research* 3: 70–77.
- Hosking, J.R.M. 1990. L-moments: analysis and estimation of distributions using linear combinations of order statistics. *Journal of the Royal Statistical Society* 52 (1): 105–124.
- Jiang, Yini, and Wen Yi. 2017. Regional differences, characteristics of local officials and educational expenditure behavior. *Journal of Guangdong University of Finance & Economics* 6: 58–66.
- Jones, B.D. 1994. *Reconceiving decision-making in democratic politics: attention, choice, and public policy*. Chicago: University of Chicago Press.
- Jones, Bryan D., and Frank R. Baumgartner. 2012. From There to Here: Punctuated Equilibrium to the General Punctuation Thesis to a Theory of Government Information Process. *Policy Studies Journal* 40 (1): 1–20. <https://doi.org/10.1111/j.1541-0072.2011.00431.x>.
- Li, Hong. 2018. Empirical analysis of public security expenditure and social stability maintenance in the new situation. *Journal of Guangzhou University (Social Science Edition)* 4: 16–24+33.
- Liao, Chuhui. 2004. Dynamic analysis of the regional imbalance of government education expenditures. *Economic Research Journal* 6: 41–49.
- Ma, Jun, and Juanli Ye. 2003. Public Budget Theory: Current Status and Future. *Journal of Wuhan University (Social Science Edition)* 3: 336–344.
- Reddick, C.G. 2003. Budgetary decision making in the twentieth century: theories and evidence. *Journal of Public Budgeting Accounting & Financial Management* 15 (2): 251–274.
- Schick, Allen. 1969. Systems Politics and Systems Budgeting. *Public Administration Review* 29 (2): 137–151. <https://doi.org/10.2307/973694>.
- Sharma, Alok, and Kuldip K. Paliwal. 2006. Subspace independent component analysis using vector kurtosis. *Pattern Recognition* 39 (11): 2227–2232. <https://doi.org/10.1016/j.patcog.2006.04.021>.
- Wang, Xianbin, Li Zhang, and Xu. Xianxiang. 2013. What determines the expenditure bias of local finance—based on the perspective of local officials. *Comparative Economic & Social Systems* 6: 157–167+180.
- Xiao, Jie, Liutang Gong, and Qinghua Zhang. 2015. Change of municipal party committee secretary and mayor, fiscal expenditure fluctuation and time inconsistency. *Journal of Financial Research* 6: 94–110.
- Xu, Yude, Xiaoxuan Yang, and Jianmin Liu. 2019. Change of local officials, fiscal expenditure fluctuations and enterprise systemic risks. *Journal of Central University of Finance & Economics* 11: 3–16.
- Yang, Haisheng, Guowei Cai, and Zebin Li. 2015. Policy discontinuity and loss of fiscal efficiency-empirical evidence from the change of local officials. *Management World* 12: 12–23+187.
- Yao, Dongmin, Jing Li, and Yijing Chen. 2019. Has the special transfer payment driven local special expenditure? A theoretical mechanism and empirical test based on policy texts and provincial and municipal data. *Journal of Finance and Economics* 10: 21–34.
- Zhang, Li, Kangyin Lv, and Manxue Chen. 2017. Empirical test of public security expenditure on crime inhibition. *Taxation and Economy* 1: 50–54.
- Zhang, Muyang. 2013. Local officials and fiscal expenditure structure under the promotion championship. *World Economic Papers* 1: 86–103.
- Zhou, Xiaohui, and Zhaoyun Zou. 2014. Economic growth, government revenue and expenditure, and the tenure of local officials-empirical evidence from the provincial level. *Comparative Economic & Social Systems* 6: 112–125.

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