

Sub-Provincial Fiscal Expenditure Decentralization Structure: A Case in China

Yochu Tong, Yongyou Li*

This paper uses the data from the post-1994 tax reform in China to investigate the vertical and spatial structures of sub-provincial fiscal expenditure decentralization (SPFED) in China. The study shows that, on the whole, SPFED tends to be gradually biased toward the county level, but inter-provincial differences are obvious, and the provincial centralization is more obvious in less economically developed regions. In terms of expenditure items, the province level enjoys a relatively higher level of economic expenditure decentralization (EED), and the county level enjoys a higher level of social expenditure decentralization (SED). In terms of internal structure, the difference in the level of EED shared by the province, prefecture and county levels is relatively smaller and the difference in the level of SED is relatively larger. In terms of spatial structure, in less developed regions, the province level enjoys a higher EED but a lower SED; in developed regions, the prefecture and county levels enjoy a higher EED but the prefecture level enjoys a relatively lower SED. These findings can provide empirical evidence for the reform of the division of power and expenditure responsibility, as well as the governance of sub-provincial governments.

Keywords: vertical division of government functions, vertical allocation of fiscal expenditures, vertical imbalance

1. Introduction

In a large country with a multi-level government system, the question of how to reasonably decentralize government expenditure functions is the key to rationalizing the boundaries of responsibility and power, giving full play to the enthusiasm of all levels of government, and achieving organizational efficiency, as well as a prerequisite for modernizing governmental governance, and even national governance. However, this issue has been controversial in the experience of major countries in the world (Lockwood, 2002). Because it is related to a country's choice of decentralization system, social governance style, etc. (Gadenne and Singhal, 2013), exploring this

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issue requires a country-specific analysis. In China, there has been a tradition of administrative decentralization, but fiscal expenditure decentralization (FED) did not begin until the 1980s. This decentralization chronology has shaped a distinctive feature of Chinese-style governance, namely, decentralization reforms at the national level that primarily address the fiscal relationship between the central and local levels, and decentralization reforms at the local level where local governments have a wide range of discretionary power. As a result of this feature, local governance in China, especially local fiscal governance, shows great regional variability, which is mainly manifested by the provincial diversity of fiscal revenue and expenditure decentralization. As with the horizontal features of the governance model described above, the decentralization chronology of administrative decentralization in the first place and fiscal decentralization in the second also shapes the vertical feature of Chinese-style governance, i.e., the compatibility of horizontal and vertical governmental governance. This governance model, combined with the departmental management of government functions, has resulted in differences in the degree of different government functions, which corresponds to the decentralization of fiscal expenditure, giving rise to differences in the degree of decentralization among different expenditure items. However, this fact has received little attention in the study of decentralization reform in China. The Fourth Plenary Session of the 19th CPC Central Committee pointed out that the miracle of rapid economic development and long-term social stability that China has created, which is rare in the world, mainly stems from a series of institutional and governance advantages in China, which include reform and innovation, keeping pace with the times, self-improvement and self-development of fiscal governance. This was also demonstrated in studies by Gao (2018), Lyu *et al.* (2019a) and others. However, the existing studies on China's fiscal governance have not meticulously presented the vertical and horizontal characteristics of China's FED from the perspective of decentralization, and thus failed to summarize the experiences that can help deepen the FED reform in the new stage based on China's reality from a global perspective.

One of the main lines of reform that has dominated China over the past 40 years is the reform of the fiscal governance model, which has shaped the relationship between the government and the market externally and built the incentive structure for market players, and shaped the relationship between the upper and lower levels of government internally and built the incentive structure for all levels of government to perform their duties and responsibilities. The latter incentive structure forms the basis of the former incentive structure under the government-dominated national governance model. Two important features of the reform of China's fiscal governance model so far in the era of reform and opening up are the asymmetric revenue and expenditure decentralization reform (Jia *et al.*, 2014; Lu and Li, 2018) and the diversified local practices of revenue and expenditure decentralization (Yang, 2018). In fact, these two

features are related to the fiscal relationship and game between the central government and local governments (Lyu *et al.*, 2019b). In terms of asymmetric revenue and expenditure decentralization reforms, in China's successive fiscal system reforms, the adjustment of inter-governmental revenue relations has been dominant, and revenue decentralization has been the focus of fiscal decentralization reforms, with the degree of decentralization varying widely across time, while expenditure decentralization reforms have been underappreciated. This asymmetric revenue and expenditure decentralization reform has given the central government stronger power to decide on revenue redistribution and local governments lower constraint on fiscal expenditure. Under this asymmetric decentralization system, there is a natural tendency for fiscal expenditure responsibilities to be allocated among different levels of government, i.e., lower-level governments bear a greater expenditure responsibility. In countries with a multi-level government system, this is a natural consequence in the absence of a corresponding definition of governmental responsibilities and powers. The higher-level government always try to take the right of revenue as its own and shift the responsibility of expenditure to the lower-level government, as a result of which the latter takes on more expenditure responsibilities than its right to collect revenue. To maintain the sustainability of lower-level government expenditures, higher-level government has to make large transfer payments to subsidize lower-level government. In other words, although lower-level government shoulders greater expenditure responsibilities, it does not enjoy the corresponding expenditure decentralization. Therefore, studies on fiscal decentralization in China exclude transfer payments from higher-level government when measuring the degree of FED (Wu, 2017). However, the influence of the government depends critically on its actual dominance, and the higher-level government subsidies that are not specified for use and for which the lower-level government has full autonomy should not be excluded from the lower-level government expenditures. This fact implies that special transfer payments should be excluded when measuring the degree of expenditure decentralization enjoyed by lower-level government (Xu and Qiao, 2012). But regardless of how transfer payments are treated, in China, lower-level government almost has higher expenditure decentralization than revenue decentralization. However, Since China has many levels of government, the asymmetric revenue and expenditure decentralization is only an overall fact, and the exact extent of expenditure decentralization at each level of government requires a specific analysis. This complexity makes it very difficult to define power and expenditure responsibility, which is going on in China. In the case of unclear market-government boundaries, this difficulty can only be resolved based on detailed facts about the expenditure decentralization of governments at all levels.

The second feature is related to the regional differences in China's development. Since a "one-size-fits-all" fiscal governance model is not suitable, China's fiscal governance reform has been to make institutional arrangements only for the fiscal

relationship between the central and local governments, with the local government choosing the fiscal system of the subordinate governments under its jurisdiction according to the central government's guidelines. This reform strategy is in line with China's traditional local governance model of "contract responsibility system" and "local governments abiding by their duties in their own localities", which gives local governments a great deal of autonomy in choosing the fiscal governance model within their jurisdictions. Unlike FED, fiscal revenue decentralization is more influenced by the central government. Although there are provincial differences, the differences are not very pronounced. Provincial governments have basically modeled their provincial fiscal systems after the central fiscal revenue allocation scheme, while their FED has followed the tradition of administrative decentralization, with inter-provincial differences making the degree of provincial FED chosen by each province vary significantly. This is one of the reasons why basic public services have not been equalized in China. However, despite the high degree of administrative decentralization that has been in place in China, in order to constrain local governments' behavior, the central government has selectively assessed the performance of local governments in fulfilling their duties and responsibilities. Since the constraint is universal, each locality has a relatively high degree of FED, although there are regional differences in the degree of FED. Because local governments have a limited amount of revenue at their disposal, under "contract responsibility system" model of governance, the choice of decentralization for specific expenditure items varies to a certain extent among provincial governments for the sake of demonstrating their performance and getting their leaders promoted, and shows basically the same characteristics everywhere, i.e., in the period when GDP is the main criterion for promotion, as for the expenditure on economic public goods, the lower the level of government, the higher the degree of decentralization. The reason is that the lower the level of government, the hotter the competition between same-level governments. In comparison, SED of lower-level government began to decline after the 16th CPC National Congress, as the universality of the right to guarantee livelihood expenditures requires higher-level government to assume greater responsibility (Liu *et al.*, 2018). The appraisal, promotion, and financial mechanisms have shaped the different levels of decentralization for different expenditure items in each province. The above analysis is only one side of the story, but the other side of the story is that, although China adopts a multi-level government system, under the omnipotent government and "contract responsibility system" governance model, the expenditure responsibilities of different levels of government actually do not differ much, which is the "isomorphic responsibility of governments at all levels" that has been criticized by many people, such as Zhou *et al.* (2015), Zhu (2017), etc. FED under the "isomorphic responsibility of governments at all levels" is bound to present an important feature that all expenditure items can not be fully decentralized or fully centralized.

The above reality implies that both the definition of power and the division of expenditure responsibility need to be based on facts, and only by clarifying the actual decentralization status of expenditure items will the scientific allocation of power and expenditure responsibilities not be detached from reality. The innovation of this paper is to present the facts of FED in China across all levels of government in a holistic and structural manner. Not many scholars have studied fiscal decentralization in China, and the very limited number of studies by Mao *et al.* (2018) and others only focus on the analysis of the fact of revenue decentralization across all levels of government.

2. Metrics of FED Structure

Measuring the structure of decentralization begins with measuring decentralization, but how to properly measure decentralization has been controversial in both the theoretical and empirical literature. Much of the literature argues that decentralization is multidimensional (Martinez-Vazquez and Timofeev, 2010; Shair-Rosenfield *et al.*, 2014), so it needs to be evaluated from multiple dimensions in an integrated manner. In the case of fiscal decentralization, according to Oates (1972), the metrics should be the extent to which each level of government handles its financial resources. Therefore, the fiscal decentralization or centralization metric based on the share of expenditure and revenue of lower-level government has been considered the best indicator and has become the most commonly used metrics of fiscal decentralization in empirical studies, such as Oates (1972), Baicker *et al.* (2012), and Canavire-Bacarreza *et al.* (2020). Most of the empirical studies on fiscal decentralization in China have used the above metrics as well (Chen and Gao, 2012). In addition to this, there are also studies that choose vertical fiscal gap or fiscal dependence to measure fiscal decentralization, the former being chosen by Sharma (2011), Makreshanska and Petrevski (2016), and the latter by Shah (2004). Others, starting from the autonomous and most complete decentralization, have proposed to measure fiscal decentralization by an indicator of fiscal autonomy, i.e., the tax revenues raised autonomously by the local government. However, vertical fiscal imbalance, fiscal autonomy and fiscal dependence are all derived based on the share of fiscal revenue and expenditure of lower-level government. Returning to the study by Oates (1972), fiscal decentralization is mainly based on the influence of lower-level government on fiscal resources or the influence of higher-level government on fiscal activities of lower-level government. Fiscal activities are focused on both revenue and expenditure, and the allocation of the right to issue bonds is often inherently based on fiscal revenue and fiscal expenditure decisions. Therefore, this paper argues that fiscal revenue and fiscal expenditure are two suitable windows to examine the degree of fiscal decentralization in an economy.

Objectively speaking, however, it is difficult to be very rigorous in measuring the fiscal decentralization of an economy simply by using revenue decentralization or

expenditure decentralization. This is because some studies, e.g. Brueckner (2009) and others have found that in some economies, the degree of fiscal decentralization varies in both revenue and expenditure. Moreover, in a strict sense, fiscal decentralization is an institutional arrangement, that is, to clarify the right to decide on revenue and expenditure shared by different levels of government in an economy through the system. However, from the existing empirical literature, the metrics of fiscal decentralization, whether it is revenue decentralization or expenditure decentralization, use fiscal statistics, i.e., the share of lower-level government revenues and expenditures in general government revenues and expenditures. In terms of the revenue side, the problems with the metrics have been well analyzed in the prior literature, such as Chen and Gao (2012), Liu Keg and Jia (2008), etc. Comparatively speaking, using the share of fiscal expenditures of lower-level government to measure FED is relatively more reasonable, although it is equally problematic. This is because fiscal expenditures reflect the actual use of financial resources by governments at all levels, and if direct administrative intervention by higher-level government on lower-level government is not considered, such as prescribing how lower-level government should use financial resources, then fiscal expenditures by governments at all levels reflect their actual influence on overall financial resources.

When measuring the FED between different levels of government within different jurisdictions of a country, it is more logically sensible to exclude the earmarked special subsidies that local governments receive from higher levels of government from their own government expenditures. The dependence of local governments, especially county governments, on transfer payments from higher levels of government is high, and the actual needs and economic capacity of local governments also affect the earmarked transfers they can receive. In other words, fiscal expenditures are affected by the characteristics of local economy, and a considerable proportion of higher-level-government transfer payments have the characteristics of special expenditures, so this factor should be corrected in the index to reduce the bias of the results. Unfortunately, however, in the financial statistics before 2014 in China there is no data on special transfer payments by county and by item, thus the above-mentioned data exclusion cannot be achieved in this paper due to the lack of appropriate data.

Yet, the share of fiscal expenditure without excluding transfer payment is not optimal but still reasonable. For a country with a multi-level government system like China, administrative decentralization gives local governments a great deal of right to decide on fiscal system reform. In different regions, expenditure interventions among different levels of government are influenced by the same central government, and the central government's earmarked subsidies to intervene in local expenditure are for the whole province (including autonomous regions and municipalities directly under the central government, hereafter referred to as provinces). Although within provinces, higher-level governments also provide special subsidies to lower-level governments

through their own revenues to intervene in lower-level government expenditures, the amount is relatively small according to China's current sub-provincial fiscal statistics, and the special subsidies corresponding to each level of government expenditures mainly come from the central government. In other words, although there are special transfer payments in the central government's transfer payments to sub-provincial governments, the transfer payments are likely to be coordinated when they reach the provincial treasury. In the end, whether general or specific transfer payments, their corresponding expenditures still reflect the degree of decentralization enjoyed by sub-provincial governments. Thus, if the sub-provincial governments within a province are viewed as a whole, the share of fiscal expenditure at a particular level of government can approximate reflect the expenditure right that this level of government receives from whole government. In China, the administrative structure within each province is basically the same, and a horizontal comparison between provinces can reveal the decentralization bias and structural differences of fiscal expenditures in different provinces. Moreover, FED based on the metrics can also be applied to specific fiscal expenditure items, such as whether there are inter-provincial differences in the decentralization structure of education expenditure. In addition, if the government hierarchy is stable, a vertical comparison can be made for the same province with respect to the overall FED structure and item-specific FED.

Based on the above logic, the measurement of China's SPFED can then be carried out in the following steps. The first step is to determine the sub-provincial government hierarchy. The SPFED structure is measured according to the requirement of "one level of government having one level of finance", where four levels of government are involved—provincial governments, prefecture-level municipal governments (including prefectures and autonomous prefectures, hereafter referred to as prefectures), county-level governments (including districts, county-level cities, and autonomous counties, hereafter referred to as counties), and township governments. Because of the incomplete government fiscal statistics at the township level, this paper brings township government fiscal expenditures into the fiscal expenditures of the corresponding county-level government, so the actual measured SPFED structure only involves the province, prefecture-level city and county. The second step is to clarify the statistical scope according to the requirement of calculating the share of fiscal expenditure of government at each level in the province's total fiscal expenditures. Statistics on government expenditures are supposed to cover all government expenditures, but in China they are not fully covered by government budget. Except for the general public budget for which there are more consistent and continuous statistics, the revenue and expenditure data of governmental fund budget, social insurance fund budget and state-owned capital operation budget are incomplete, and the annual statistical scope has changed over the years during the investigation period. Therefore, in order to maintain the consistency of data for all

regions and all time periods, the statistical scope of fiscal expenditure data used for calculation in this paper only covers the general public budget.¹ The final step is to clarify the fiscal expenditure data of all levels of government. According to the current fiscal statistics in China, the fiscal expenditure data disclosed to the public by each level of government actually includes the fiscal expenditures of all levels of government within the area under its jurisdiction. For this reason, when calculating the sub-provincial FED structure, the fiscal expenditure of each level of government only involves its own budget. Specifically, the formula for calculating the FED of the three levels of government is as follows.

FED degree of a government at XX level =

$$\frac{\text{Final accounts of fiscal expenditure of a government at XX level}}{\text{Final accounts of fiscal expenditure of the whole province}}$$

Based on the same idea, we examine the temporal trends and regional differences in the decentralization levels for specific fiscal expenditure items. Considering that too many expenditure items may lead to unfocused analysis, this paper focuses on economic expenditure and social expenditure according to functional classification. Economic expenditures in the period of 1995–2006 included expenditure for capital construction, additional appropriation for enterprises circulation capital, enterprises innovation funds, science and technology promotion funds, operating expenses of departments of industry, transportation and others, operating expenses of department of commerce, operating expenses of departments of agriculture, forestry, irrigation, meteorology and others, and expenditure for supporting agriculture production. Economic expenditures in the period of 2007–2015 included agriculture, forestry and irrigation expenditure, transportation expenditure, resource exploration and information expenditure, commercial service expenditure, and financial expenditure. Social expenditures in the period of 1995–2006 included operating expenses of cultural, sports and broadcasting, operating expenses of education, operating expenses of science, operating expenses of health, pensions, and relief funds for social welfare, social security subsidiary expenses, expenditure for price subsidies, etc. Social expenditures in the period of 2007–2015 included expenditure for education,

¹ The problem of data has an impact on the measurement results of this paper, but the paper focuses on comparing the regional differences and temporal trend of the structural characteristics of FED among governments at all levels in various regions of China. Using only general public budget data, the impact will not be too great. There are two reasons for this. First, all regions adopt the same budget management system, and the impact of system changes on the statistical scope is the same in all regions, so even if there are metric biases, the impact of these biases on all regions should be the same. Second, in terms of extra-budgetary funds and government funds, local governments have a lot of discretion. If these data are included in the calculation, the calculation results will be greatly biased due to the differences in statistical scope among regions.

expenditure for science and technology, expenditure for culture, sports and media, expenditure for social security net and employment effort, expenditure for medical and health care, and family planning, expenditure for energy conservation and environmental protection, expenditure for urban and rural community affairs, and expenditure for affairs of housing security. The specific calculation formula is as follows.

$$\begin{aligned} &\text{XX FED degree of XX – level government} = \\ &\frac{\text{XX final accounts of fiscal expenditure of XX level of government}}{\text{XX final accounts of fiscal expenditure of the whole province}} \end{aligned}$$

3. SPFED Structure: Aggregate Dimension

Using the above metrics, this part of the paper presents sub-provincial government FED degrees in an overall and then classified manner so as to analyze their spatial structural characteristics and temporal trends.

3.1. Trends in Decentralization Structure

In terms of the hierarchical structure, according to the mean values of FED degrees of local governments at all levels shown in Table 1, the county level has the highest FED degree, nearly 50%; the prefecture level is slightly higher than the province level, but both are less than 30%. This indicates that below the province level, FED is more inclined to the county-level government. The characteristics of this decentralization structure are consistent with the purpose of making full use of the information advantage of the government that is nearest to the population.

Table 1. FED Degrees of Local Governments at All Levels

Variable	Time span	Observed value	Mean value	Standard deviation	Minimum	Maximum	5% quantile	95% quantile
Province level	1995–2015	647	0.277	0.118	0.092	0.680	0.123	0.258
Prefecture level	1995–2015	646	0.290	0.129	0.875	0.676	0.148	0.562
County level	1995–2015	583	0.480	0.110	0.163	0.726	0.271	0.643
Aggregate of prefecture and county levels	1995–2015	647	0.723	0.118	0.32	0.909	0.510	0.878

Note: Incomplete statistics of observed data lead to differences between prefectures and counties; both “prefecture level” and “county level” refer to the mean value of all prefecture-level cities and the mean value of all counties within a province.

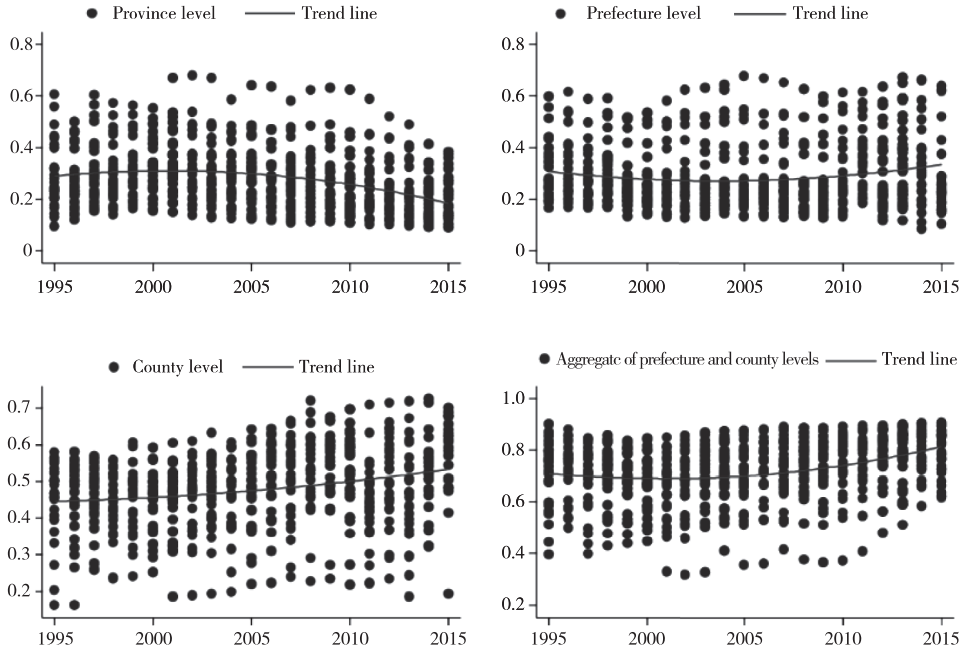


Figure 1. FED Degrees of Province, Prefecture and County-Level Governments

Seen from the temporal trend presented in Figure 1, the provincial FED was basically stable until 2003, but from 2004 onwards it showed a significant downward trend, and by 2015, the FED enjoyed by the provincial government was only about 20%. In contrast, the path of change of FED at the county level was completely different, basically showing a continuous upward trend since 1995 and exceeding 50% after 2010. The FED enjoyed by prefecture-level governments was relatively stable, and only started to rise after the financial crisis in 2008. The above trend of change in decentralization structure is actually related to the reform of “provincial government directly governing county-level governments”. A comparison of the results shows that SPFED is gradually biased toward county-level governments.

3.2. Spatial Differences in Decentralization Structure

Seen from the 5% ~ 95% quartiles and standard deviations shown in Table 1, the regional differences in FED degree are largest at the prefecture level, the differences at the province level are second largest, and those at the county level are smallest. In terms of spatial distribution,¹ provincial FED degrees converge from east to west,

¹ Limited by the length of the paper, the authors did not provide a map of the spatial structure of the FED degrees of the province, prefecture, and county governments from an overall perspective and item-specific perspective. The spatial distribution characteristics of the corresponding cluster convergence can be observed clearly on the map. Interested readers may contact the authors for the map.

prefecture-level FED degrees have a tendency to converge to the east, and county-level FED degrees show the characteristics of polycentric convergence.

The regions with higher degrees of provincial centralization are mainly in the west. As can be seen from Figure 2, except the municipalities directly under the central government,¹ the six provinces with the lowest degree of decentralization at the prefecture level are Guizhou, Yunnan, Qinghai, Xinjiang, Xizang and Gansu, almost all of which are economically less developed regions. Accordingly, the provincial FED degrees of these provinces are higher than those of other provinces. This suggests that the less developed a region's economy is, the weaker the centralization of its prefecture-level governments, and the more concentrated the expenditure responsibilities toward the province level.

Regions with higher levels of county-level decentralization are mainly concentrated in the Yangtze River Economic Belt and ethnic minority regions. In fact, except for Guangdong, Qinghai, Xizang, and the three northeastern provinces, county-level FED degrees are generally high and higher than prefecture-level FED degrees in all provinces. This is in contrast to the conclusion of Yang and Ren (2015) that "except for Liaoning and Zhejiang, most of the prefecture-level cities in other provinces have slightly higher fiscal autonomy than county-level fiscal autonomy". To some extent, this confirms the basic fact that there is asymmetry in the decentralization of revenue and expenditure in China. If we compare the prefecture-county differences in fiscal decentralization among provinces according to Figure 3,² we can find that, except the municipalities directly under the central government, Xizang and the three northeastern provinces have the smallest prefecture-county differences in fiscal decentralization, while Zhejiang, Guizhou, Jiangxi, Yunnan, and Gansu have the largest prefecture-county differences in fiscal decentralization. It can also be seen that the less developed the economy is, the more obvious the feature of province-level centralization will be, and thus county-level fiscal decentralization and prefecture-level fiscal decentralization are not necessarily in an "ebb and flow" relationship.

As shown in Figure 3, the temporal trend of changes in the FED structure of prefectures and counties in each province was basically stable before 2009. However, from 2009 to 2012, most provinces, except the municipalities directly under the central government and Zhejiang, experienced opposite changes in the degree of decentralization at the prefecture and county levels, i.e., the degree of FED at the county level decreased but that at the prefecture level increased. After 2013, however, both returned to the prefecture and county-level decentralization structure of 2009.

¹ Because the system of municipalities directly under the central government is special, this paper only uses them as a reference system in the figures, without elaborating on the differences between them and other provinces in the text.

² For each province, it is equal to the difference between the degree of expenditure decentralization at the prefecture level and that at the county level.

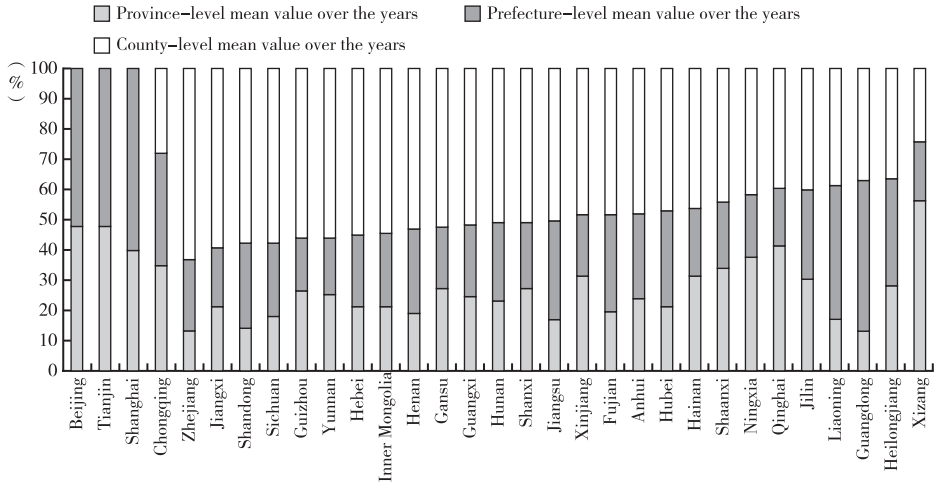


Figure 2. Mean Values of Province, Prefecture and County-Level FED Degrees over the Years

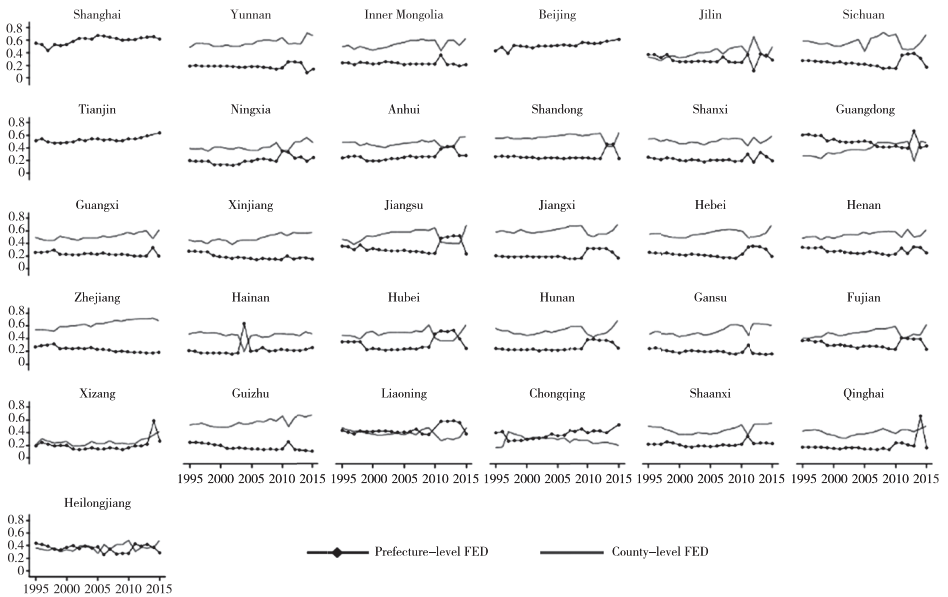


Figure 3. Changes in Prefecture and County-Level FED Degrees in Different Provinces

4. SPFED Structure: Expenditure Classification

4.1. EED Structure

4.1.1. Trend Characteristics

According to the statistics shown in Table 2, in terms of the national average,

among the province, prefecture and county levels of government, the province level has the highest EED degree, nearly 40%; the county level takes the second place, about 36%; the prefecture level has the lowest EED degree, about 25%. Accordingly, it can be concluded that provincial governments dominate in EED.

Seen from the temporal trend in Figure 4, EED has the tendency of being gradually biased toward county-level governments. The degree of decentralization enjoyed by provincial governments showed a downward decline after 2003, and by 2015, the decline was close to 20 percentage points. In contrast, the degree of EED at the county level gradually increased. This change was somewhat related to the reform of streamlining public institutions from 1994 to 2018.¹ In particular, the two reforms of government institutions in 1998 and 2003 both targeted economic management departments, abolishing almost all the economic departments formerly responsible for various industries and focusing on building a service-oriented government. Central ministries and commissions and local governments at all levels significantly streamlined their organizations, eliminating the departments in charge of electric power, coal, metallurgy, machinery, commerce and other industries from the government related departments, and reorganizing “regional management” along with the downward extension of “central management”, as a result of which, the right to decide on economic expenditure was significantly decentralized. Although the degree of EED enjoyed by prefecture-level governments also declined, the trend was not obvious, and the overall decline was less than 10 percentage points. The decentralization of province and prefecture-level governments’ right to decide on economic expenditure significantly increased county-level governments’ right to decide on economic expenditure. It is worth mentioning that from 2003 to 2008, province, prefecture and county-level governments shared basically the same economic expenditure right, a structural feature that to some extent reflects the isomorphism of governmental responsibilities proposed by Zhou (2015), Zhu (2017) and others.

Table 2. The Degree of EED Enjoyed by Each Level of Government

Variable	Observed value	Mean value	Standard deviation	Minimum value	Maximum value	5% quantile	95% quantile
Province level	527	0.392	0.185	0.059	0.944	0.136	0.722
Prefecture level	510	0.247	0.143	0.027	0.760	0.068	0.575
County level	510	0.357	0.172	0.004	0.838	0.046	0.643
Aggregate of prefecture and county levels	527	0.608	0.185	0.056	0.941	0.278	0.864

¹ During the reform and opening up process, China carried out eight large-scale governmental institutional reforms in 1982, 1988, 1993, 1998, 2003, 2008, 2013 and 2018, respectively.

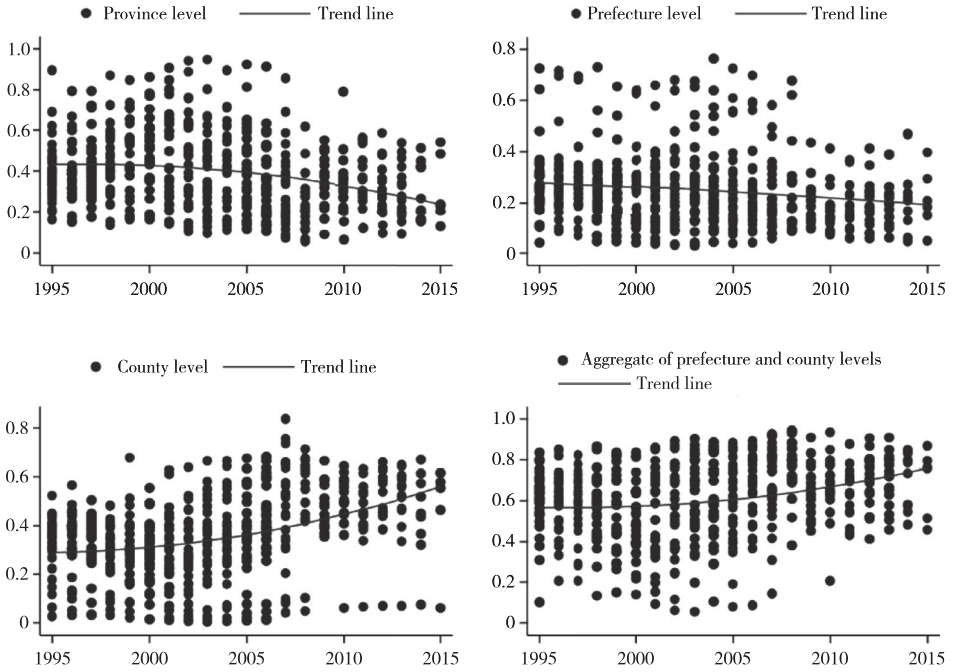


Figure 4. The Degree of EED of Province, Prefecture and County-Level Governments

4.1.2. Spatial Differences

Seen from the 5% ~ 95% quartiles and standard deviations shown in Table 2, the regional differences in FED degree are largest at the prefecture level, the differences at the county level are second largest, and those at the prefecture level are smallest. In terms of spatial distribution, provincial FED degrees obviously tend to converge to the west region, prefecture-level FED degrees have a tendency to converge to the east, county-level FED degrees show no obvious spatial distribution features, and the differences between neighboring provinces are huge. This indicates that the EED structure also has obvious inter-regional differences.

The regions with higher degrees of economic expenditure centralization at the province level are mainly concentrated in the west. As can be seen from Figure 5, in the less economically developed regions such as Xizang, Qinghai, Shaanxi, Ningxia, and Xinjiang, the economic functions of prefecture and county-level governments are weak, and the right to decide on economic expenditure is mainly held by the provincial governments. In the developed eastern regions such as Guangdong, Zhejiang, and Shandong,¹ the right to decide on economic expenditure is, to a large extent, allocated

¹ As seen in Figure 5, the percentage of county-level SED is also high in Sichuan, a province in the central region. However, we also note that Sichuan is a more economically developed province in the central region. Therefore, its decentralization structure is somewhat more similar to that of the eastern provinces.

to the prefecture and county-level governments. Precisely speaking, the degree of EED at the county level is higher than that at the prefecture level in all provinces except for the municipalities directly under the central government, Guangdong and the three northeastern provinces.

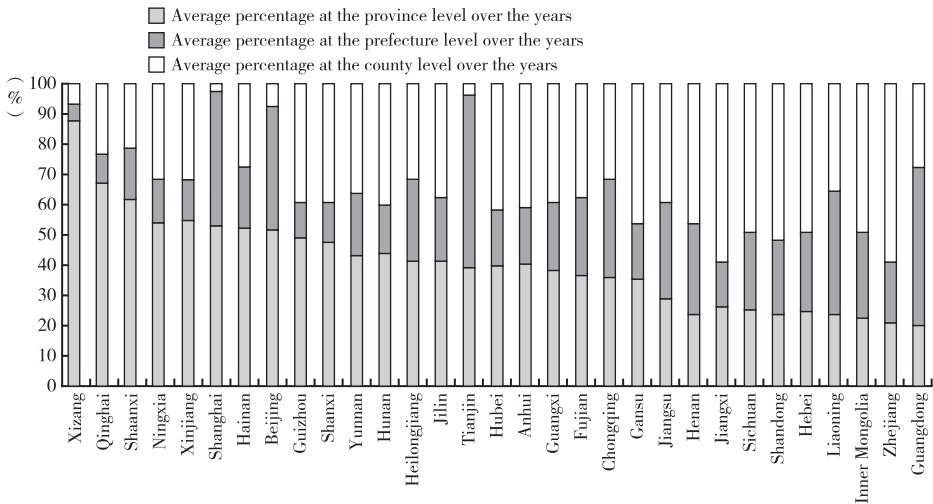


Figure 5. EED Structure in Each Province

Note: In some provinces, the missing data at the prefecture and county levels lead to a situation where the percentages of the three levels of government do not add up to 1, and thus the corresponding stacking columns cannot reach full bars; same below.

In terms of the differences in EED shared at the prefecture and county levels, Xizang, Heilongjiang, Shaanxi, Liaoning, and Jiangsu are the provinces with the smallest differences except municipalities directly under the central government, while Jiangxi, Zhejiang, Shandong, Guizhou, and Gansu are the provinces with the largest differences. This difference explains, to some extent, the more consistent economic relationship between prefectures and counties in Jiangsu, where strong prefecture-level cities correspond to strong counties and weak prefecture-level cities correspond to weak counties. In Zhejiang, however, the prefecture-county relationship is somewhat different from that in Jiangsu, where some strong counties correspond to weak prefecture-level cities while others correspond to strong prefecture-level cities.

Looking along the timeline (see Figure 6), in most provinces the right to decide on economic expenditure has been decentralized to county-level governments. Except for Ningxia and Anhui, the EED enjoyed by prefecture-level governments in all provinces is on a downward trend, and the most significant decrease is seen in Guangdong Province. The degree of EED at the county level, on the other hand, shows a clear

upward trend in all provinces except Xizang, Liaoning and municipalities directly under the central government. This fact shows that the prefecture level is not the bottom for EED in the reform of streamlining administration and delegating power of government institutions.

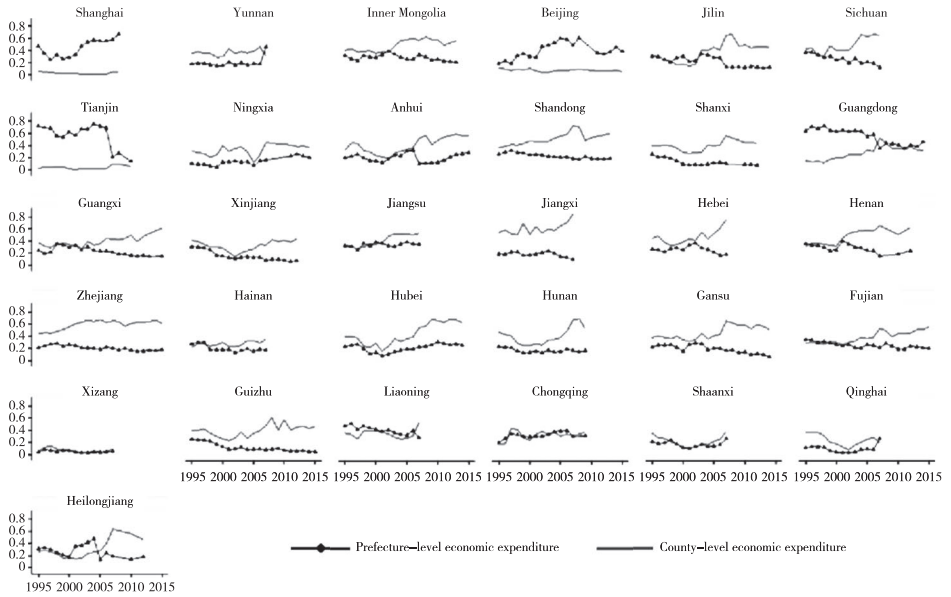


Figure 6. Changes in EED Degree of Prefecture and County-Level Governments in Each Province

Note: The data released by some provinces after 2007 are incomplete, resulting in incomplete curves in the figure; same below.

4.2. Social Expenditure

4.2.1. Trend Characteristics

As seen in Table 3, the SED structure of sub-provincial governments differs significantly from their EED structure. Unlike the EED structure, which is mainly characterized by provincial centralization, the SED is predominantly biased toward the county level, with an average degree of 53.62%, while the province and prefecture levels enjoy a relatively small and basically equal degree of decentralization, with an average degree of 22.04% and 23.98%, respectively. Social expenditure corresponds to non-mobile services and is closely related to differences in residents' preference, making it appropriate for county-level governments to assume primary responsibility for social expenditure.

Table 3. The Degree of SED Enjoyed by Each Level of Government

Variable	Observed value	Mean value	Standard deviation	Minimum value	Maximum value	5% quantile	95% quantile
Province level	527	0.220	0.117	0.058	0.827	0.092	0.464
Prefecture level	511	0.240	0.125	0.0000	0.691	0.115	0.510
County level	511	0.536	0.184	0.000	0.818	0.059	0.736
Aggregate of prefecture and county levels	527	0.780	0.117	0.173	0.942	0.536	0.908

Seen from the time axis, the degree of SED at the province and county levels shows an opposite U-shaped change, and the degree of decentralization at the prefecture level is relatively stable. As shown in Figure 7, the FED degrees at all levels show a ribbon-shaped distribution, and all of them are characterized by obvious nonlinear changes. Among them, the provincial SED degree gradually increased from 1995 to 2003 (up by about 10 percentage points), and then showed a significant downward trend thereafter (with a total decrease of about 20 percentage points). In contrast, county-level decentralization showed a decreasing trend from 1995 to 2005 (down by about 10 percentage points) and a significant increasing trend thereafter (a total increase of about 12 percentage points as of 2015). The prefecture-level decentralization was basically stable in the period of 1995–2003, but showed an increasing trend from 2003 onward, up by about 8 percentage points as of 2015.

4.2.2. Spatial Differences

Seen from the 5% ~ 95% quartiles and standard deviations shown in Table 3, the regional differences in SED degree are largest at the county level, the differences at the prefecture level are second largest, and those at the province level are smallest. In terms of spatial distribution, provincial SED degrees obviously tend to converge to the west region, prefecture-level SED degrees show no obvious spatial distribution characteristics, and county-level FED degrees show regional convergence characteristics. This indicates that the SED structure also has obvious inter-regional differences.

Although social expenditure in each province mainly occurs at the county level, there are large inter-provincial differences in decentralization structure. As can be seen from Figure 8, except for the municipalities directly under the central government, the FED structures of Zhejiang, Shandong, Sichuan, and Fujian provinces are similar, with the proportion of FED of province, prefecture and county-level governments being about 1:2:7. In central provinces, this proportion is about 2:2:6, while that in western provinces is about 3.5:1:5.5. Thus, it can be seen that in the less economically developed regions, social expenditures are also characterized by provincial centralization.

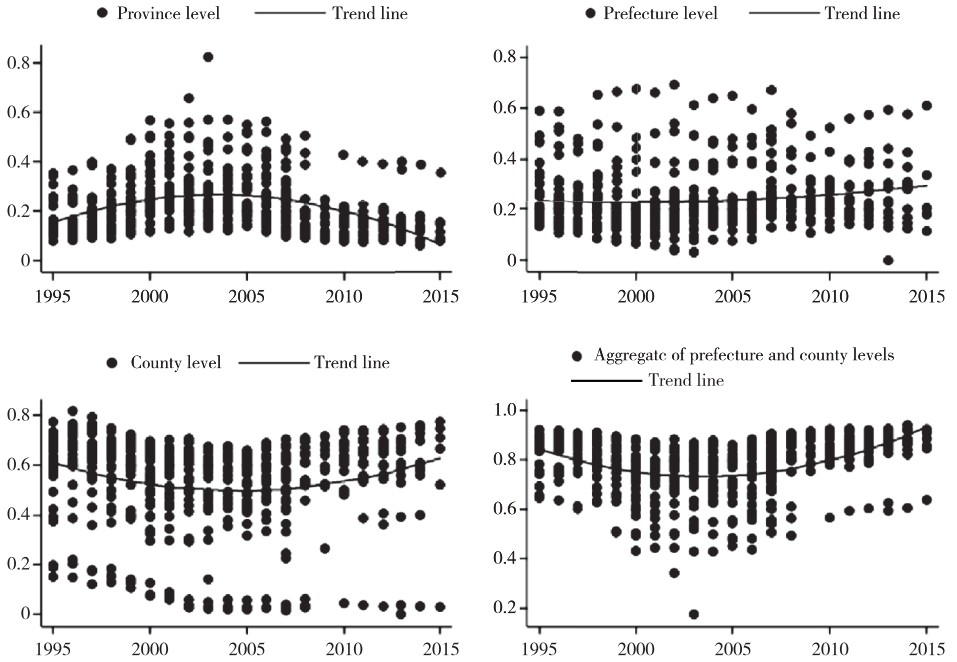


Figure 7. SED Degrees at the Province, Prefecture and County Levels of Government

Guangdong, the three northeastern provinces and Xizang still have the highest prefecture-level SED in China. Thus, against the backdrop of county-level governments bearing the brunt of a large part of social expenditures, a higher degree of decentralization at the prefecture level makes the prefecture-county difference in SED the smallest in these five provinces among all provinces in the country. In contrast, Zhejiang, Shandong, Guizhou, Jiangxi, and Fujian, which have the highest county-level SED degree, have the largest prefecture-county difference in SED in China

Looking along the time axis in Figure 9, unlike the EED degree, the SED degree shows a relatively stable temporal trend in most provinces. The provinces with relatively large changes in SED structure are mainly Ningxia, Chongqing, Shaanxi, Qinghai, and Heilongjiang. Especially in Shaanxi and Qinghai, county-level SED declined significantly between 1995 and 2005. To some extent, this indicates that social expenditure is a big pressure on county-level governments. When county-level governments do not have sufficient financial resources and provincial governments are unable to give subsidies through transfer payments, the former tend to seek special subsidies from the central government and have their expenditures arranged at the province level.

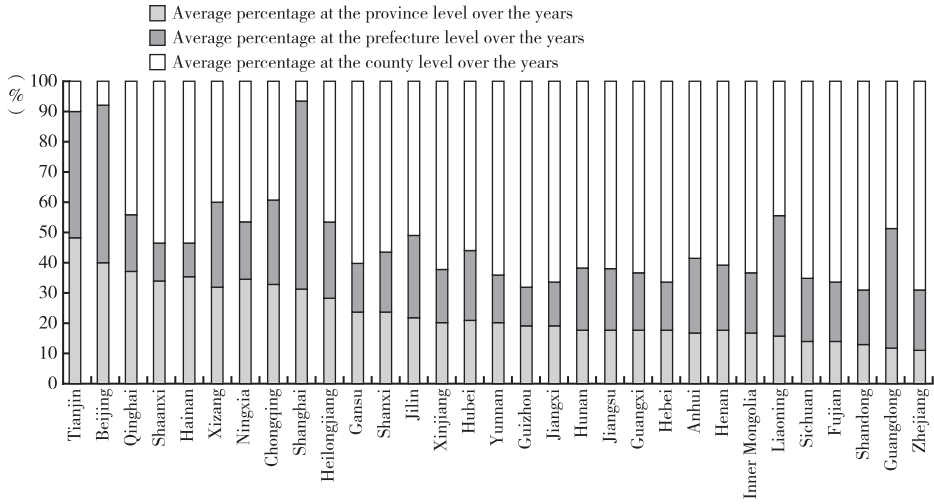


Figure 8. SED Structure at Province, Prefecture and County Levels in Each Province

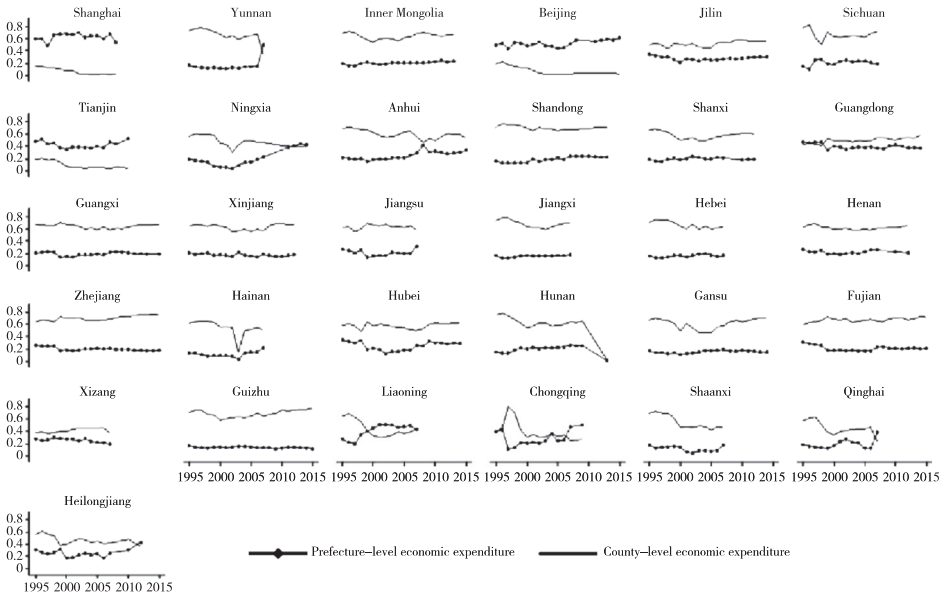


Figure 9. Changes in SED Degree at Prefecture and County Levels of Government in Each Province

5. Conclusion

The alignment of fiscal power with expenditure responsibility has been an important part of fiscal reform in recent years in China. Although a social consensus has been reached on who makes decisions and who assumes the responsibility for expenditure,

the impact of the established vertical allocation of expenditure responsibility on the adjustment of power and expenditure responsibility is realistic. After all, behind the adjustment of power is adjusting the division of government functions and redistributing power. In order to advance the reform, it is necessary to have a full understanding of the current situation and make feasible institutional arrangements based on the current situation and reform objectives. In promoting the reform of power and expenditure responsibility, there is a very important issue of awareness: the reform of power and expenditure responsibility must be carried out within the framework of the decentralization system because the decentralization system establishes the value principle of reform and is based on an effective division of the goals of organizational efficiency. More importantly, the system enables the reform to serve the modernization of the national governance system and governance capacity. As such, this paper places the issue of sub-provincial fiscal expenditure structure within the framework of the decentralization system, detailing the decentralization enjoyed by each of the three levels of sub-provincial governments in China in terms of fiscal expenditure, from the overall to the item. In addition, it further analyzes the decentralization structure of different expenditure items, including spatial structure and temporal trends. Through the presentation of typical facts, some interesting phenomena are unveiled.

In terms of temporal trends, SPFED gradually favors the county level. In other word, the county level becomes the main body of public service power and expenditure responsibility. FED enjoyed by the province level showed a clear downward trend after 2000, while the decentralization changes enjoyed by the prefecture level were relatively limited. According to the results of the comparison, at least from 1995 to 2015, SPFED has undergone significant structural changes, manifested in a reconfiguration of province and county-level FED. With the decline in provincial centralization and the rise in county-level decentralization, the changes are consistent with the effective division of government functions and scientific decentralization.

From specific expenditure items, this paper only distinguishes economic expenditure and social expenditure, due to data limitations. Specifically, EED is predominant at the province level, but there is a decreasing trend in the decentralization enjoyed by the province level over time. As in the case of the province level, EED enjoyed by the prefecture level also shows a decreasing trend over time. This indicates that the economic functions of province and prefecture-level governments are weakening. The increasing EED enjoyed by the county level indicates that economic functions of county-level governments are being strengthened. The spatial structure of EED among the three levels of government illustrates that there are significant regional differences. In economically underdeveloped areas, the characteristics of provincial centralization are distinct, and the prefecture and county levels show obvious “fragile” situation. With regard to social expenditure, the county level enjoys a higher level of decentralization and becomes the main body of responsibility. Its share in decentralization grows in a

non-linear U-shape trend over time, with 2003 as the time inflection point. In contrast, the province level's share in decentralization varies in an inverted U-shape trend over time, again with 2003 as the time inflection point. The prefecture level was relatively stable from 1995 to 2003, with a gentle upward trend thereafter. On the whole, SED is more inclined to the province level in economically underdeveloped areas, while it is to the county level in economically developed areas.

Overall, SPFED in China has been changing, but unlike the gradual upward shift of financial resources, expenditure decentralization maintains a downward trend. Despite the widening regional differences, the relationship between decentralization structure and economic development is still clearly visible. This relationship suggests, on the one hand, that different decentralization structures may have different situations of economic development and that different levels of development may have the decentralization structures that match them. On the other hand, it also shows that the choice of decentralization structure may result in different governmental governance efficiencies vertically by influencing economic and social governance behaviors of all levels of government. Under the decentralization framework, the three levels of government need to have expenditure decentralization arrangements consistent with their functions and establish a more scientific incentive structure while realizing the organizational efficiency of rational division. Strictly speaking, both expenditure decentralization and revenue decentralization are choices of governance structures within governments. Under the current system of administrative power, such choices reflect the perception of higher levels of government about the role of lower levels. Regarding the organizational efficiency in the division, distortions created in the resource allocation can be reduced by having economic expenditures borne by provincial governments and social expenditures by county-level governments. Based on the fact in this paper, the SPFED, despite significant inter-regional differences, has the more obvious feature that the county level enjoys greater expenditure decentralization and the prefecture level less decentralization. While the feature is related to the national strategy of developing county economies, it can also lead to a blocky development pattern across regions and inefficient the inter-county competition.

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