

Regional Difference and the Equalization Paths of Public Cultural Services: Based on Theil Index Measurement

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Abstract

Unequal provision of public cultural services in deferent regions of China is the significant factor of residential satisfaction degree in government offering public service. Through analyzing the related data of fiscal expenditure of public cultural service, this article proves the fact that there is a great difference between regions in public cultural service in China. From the relevant Theil index, we can find that there were large difference of public cultural expenditure among the eastern, western and middle regions in China, the difference between the eastern and western regions is larger than the one between the middle and the western regions, while the relative difference among regions is being narrowing. Overall cultural differences in public culture expenditure are mainly caused by differences within the region, and the regional difference is being reduced. Regional differences within the region mainly caused by the gap among the eastern provinces of China. According to results of the analysis are discussed in the short and long-term path, the article proposes paths on how to promote the equalization of public cultural service area.

Key words: Public cultural service; Regional difference; Equalization

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INTRODUCTION

Public cultural service is the major component of the government's public services. It is a general term of the institutional systems, provided by the public sectors especially government, aiming at securing citizens' right of basic cultural life, and meanwhile, offering citizens public cultural products and services, which mainly includes public cultural service facilities, public cultural service resources and public cultural service contents, as well as the safeguard mechanism of human resources, capital, technology and policy support mechanisms etc.. During the Twelfth Five-year Plan in China, the domestic system construction of public cultural service has achieved a remarkable result, with the relevant basic ideas formed, preliminarily finishing the construction of the six-level public cultural service network which includes the country, province, city, prefecture, town, village and urban community. As the rural public cultural service ability increases, its vitality is also being improved. However, there are still some problems, such as the immature equalization to be improved, the imperfect public service system and the inefficient service quality, among which the equalization problem is the most outstanding one.

The equalization of public cultural service means that, among different districts and cities, the government offers the public communities the public cultural services which are in different standards in different periods and finally lead to an approximate equalization instead of an absolute equalization. So, why is promoting public cultural service equalization necessary? As for the theoretic solutions to this problem, they can be listed from three aspects: First, from the perspectives of politics and laws, public cultural service equalization is the requirements of securing and fulfilling their needs for basic cultural rights. Only by enabling citizens to share the cultural rights and the results of cultural development and progress equally can a harmonious society, with democracy and civilization, come into being. This is the foundation of endowing

people life with dignity as well as the justice and peace of human society; secondly, from the perspective of economic development, it is the important approach and objective requirement in solving the problems of economic development differences among different districts; thirdly, from the perspective of social welfare, it is an major reflection of the total social utility getting improved, after covering “all aspects”, “all districts” and “all citizens”.

Generally speaking, the public cultural expenditures of government at all levels are believed to have a direct influence on the public cultural service level, while the public cultural expenditure would be effected by the fiscal decentralization, governments’ competitiveness, transfer payment, GDP per capita, fiscal autonomy, urbanization rate and so on.

Specifically, there exist large gaps in the economic development among different local governments, which, under the circumstance of fiscal decentralization, would have a direct effect on local income-expenses capability and the preferences of local governments. The obvious differences in the arrangements of public cultural expenditure projects would bring about an imbalanced investment in the development of public cultural organizations which is mainly supported by the government’s fiscal expenditure, and finally cause the different fiscal abilities in offering public cultural services in different districts.

On the other hand, the costs of public cultural service among districts should be different. In general, in the underdeveloped and vast, sparsely populated areas, the unit cost of public cultural service will be higher, and the gaps of fiscal capacity larger. Besides, without a strong enough transfer payment from the middle government and the provincial government, it would be difficult to fulfill the financial gap and the capacity gap in the underdeveloped areas, which make their ability of offering public cultural services worse. All of the above elements could have an influence on the public cultural service levels to a certain extent.

Now that the public cultural service equalization means that the government offers ultimate approximate equal public cultural services in different districts, towns and countries, according to the scholars’ viewpoints in related literatures, at present, there exists a serious non-equalization in the public cultural services among districts in China. But how do we measure the non-equalization? What’s its extent? How it is caused? Based on the research conducted by Ma (2007), there are three modes in analyzing the public cultural service equalization, which includes the equalization of financial ability per person, the standardization of public services, and the safeguard of the minimum level of public services. However, each mode has a dual nature, in which the mode of the equalization of financial ability per person is much more

exercisable and inspectable, while the standardization of public services tends to focus on the concrete details. Therefore, this article conducts respective analyses of the equalization among districts brought by the public cultural expenditure and the public cultural service standard.

1. REGIONAL DIFFERENCES IN THE SUPPLY OF PUBLIC CULTURAL SERVICES: REGIONAL EQUALIZATION OF PUBLIC CULTURAL SERVICES

1.1 Differences in Scale of Expenditure on Public Cultural Differences

According to the classification of Chinese current economic statistics division, the structure tables of the regional public cultural expenditure were made as shown in Table 1.

From the perspective of absolute number of public cultural expenditures, the regional number increased progressively during 2004 to 2014. In contrast to the mid-western, eastern region had much higher expenditures. The gap of expenditures between eastern and Midwestern was gradually widening.

In 2004, public cultural expenditures in eastern were higher than middle and western, approximately 1.684 billion and 1.885 billion yuan respectively. In 2010, the numbers are up to 4.776 billion yuan and 4.547 billion yuan. By 2014, the absolute value of differences between eastern and mid-western had reached 8.036 billion and 6.734 billion yuan respectively. In just five years from 2010 to 2014, the differences expanded 68% and 48.1% respectively. In 2004 and 2014, the absolute value of the difference expanded 377% and 257%.

The gap of middle and western district was small, but the western absolute value was higher than the middle one. As the average growth rate in western was higher than the middle, the expenditure gap was gradually narrowing. In 2013, the absolute difference showed the trend of decreasing. The gap between the eastern and middle was greater than the middle and western gap from 2004 to 2014 had been enlarged.

It could be seen that the disparity in eastern and western regions was evidently, the average proportion of public expenditure on culture was 53.8% in eastern, 24.7% in middle and 21.5% in western respectively from 2004 to 2014. From the relative scale, almost total public expenditure on culture in the eastern region accounted for more than half of the country.

Although the distinction between eastern and mid-western was sharp, the eastern proportion had trended down over these eleven years. Meanwhile, growth in western and middle districts was gaining. To some degree, the public cultural expenditure on different districts was gradually equalization.

From the perspective of growth ratio in these years, the average growth rate was 17.3% in eastern, 19.1% in middle and 20.1% in western. Eastern growth ratio was lower than others. The public cultural expenditure growth rate in middle increased progressively with years from

2010 to 2013, while growth rate in western increased from 2009 to 2012. Expenditure tilted toward middle and western districts which were beneficial to interregional balanced development.

Table 1
District Structure for Public Cultural Expenditure During 2004 to 2014

Item	District	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total (billion)	Nationwide	6.316	7.102	8.366	9.403	11.366	13.382	15.803	19.896	24.804	29.231	32.306
	#Eastern	3.11	3.619	4.229	4.928	5.7	6.894	7.972	9.826	12.069	13.853	15.312
	#Middle	1.426	1.717	1.996	2.138	2.477	2.907	3.377	4.426	5.513	7.2	8.018
	#Western	1.225	1.409	1.695	1.815	2.169	2.451	3.081	3.735	5.213	6.107	7.448
Growth ratio (%)	Nationwide	\	12.44	17.8	12.4	20.87	17.74	18.09	25.9	24.67	17.85	10.52
	#Eastern	\	16.37	16.87	16.54	15.65	20.95	15.64	23.26	22.83	14.78	10.53
	#Middle	\	20.39	16.29	7.11	15.84	17.34	16.17	31.06	24.57	30.6	11.36
	#Western	\	14.96	20.3	7.12	19.45	13.03	25.69	21.26	39.56	17.14	21.97
Proportion (%)	Nationwide	100	100	100	100	100	100	100	100	100	100	100
	#Eastern	53.98	53.66	53.4	55.49	55.09	56.27	55.25	54.63	52.95	51.01	49.75
	#Middle	24.75	25.45	25.21	24.07	23.95	23.73	23.4	24.61	24.19	26.51	26.05
	#Western	21.27	20.89	21.4	20.44	20.96	20.01	21.35	20.77	22.87	22.48	24.2

Source: *China Statistical Yearbook of Cultural and Cultural Relics*.

1.2 Differences in Per Capita Public Cultural Expenditure

In terms of absolute values of per capita, it clearly showed an increasing trend in all regions in China as Table 2 shown. Eastern absolute values of per capita were also higher than the middle and west, while the western was higher than the middle.

The average growth of per capita public expenditure on culture was 15.7% in eastern region, 19% in middle and 20.1% in western region. The growth in per capita public cultural expenditure of western region was the fastest. It made great contribution to the balanced development of local public cultural expenditure.

Table 2
District Structure of Per Capita for Public Cultural Expenditure During 2004 to 2014

Item	District	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Proportion (%)	Nationwide	4.55	5.28	6.17	6.87	7.96	9.37	10.98	13.61	17.16	20.35	22.95
	#Eastern	6.52	7.55	8.77	10.14	11.57	13.62	15.58	18.98	23.09	26.26	27.82
	#Middle	3.2	3.83	4.44	4.73	5.45	6.59	7.64	10	12.41	16.15	17.92
	#Western	3.62	4.14	4.94	5.26	6.24	7.3	9.13	11.02	15.28	17.8	22.17
Growth ratio (%)	Nationwide	\	16.25	16.7	11.48	15.79	17.73	17.15	24.01	26.09	18.55	12.8
	#Eastern	\	15.79	16.1	15.6	14.17	17.71	14.35	21.84	21.65	13.74	5.95
	#Middle	\	19.75	15.8	6.56	15.3	20.79	15.99	30.89	24.04	30.15	10.97
	#Western	\	14.12	19.5	6.4	18.77	16.91	25.05	20.78	38.67	16.47	24.55

Source: *China Statistical Yearbook of Cultural and Cultural Relics*.

2. THE MEASUREMENT OF DISTRICT EQUALIZATION IN PUBLIC CULTURAL SERVICE: BASED ON THE THEIL INDEX

2.1 Regional Equalization Model on Public Cultural Service of Theil Index

Used to measure the differences of a set of economic indexes among different periods, districts and hierarchy scopes, the Theil index was originally invented by, H. Theil, an economist, who used the concept of entropy in the information theory to calculate the inequality of distribution. It could figure out the equality of resource distribution through analyzing whether the population matches their corresponding income. When everyone possesses a same income, the income distribution is of absolute equality, and when some groups of people possess a higher of lower income compared to the population proportion, that is called the inequality, which means these groups of people have accounted a deflected income from the average. The lower this value is, the smallest the inequality among districts will be.

Over the past few years, Theil index has been applied to analyze the disequilibrium of regional economic development and its financial inequality. In terms of the public cultural expenditure, for individuals, if every individual obtains equal public cultural expenditure, it means that the difference between the public cultural service and the average should be 0; while the higher the deviation coefficient is, the more unfair it is. Taking population proportion as weight, it adopts the Theil index to estimate the equalization of regional public cultural expenditure distribution from 2004 to 2014. As the supplement of the public cultural expenditure Gini coefficient, when measuring the non-equalization of regional public cultural expenditure, this method could divide the overall difference of regional public cultural expenditure into two parts, the inter-regional and the intra-regional. In the meantime, it estimates their respective contributions to the overall difference, and separately explains the main reasons for the overall difference. Furthermore, based on the population, it is able to conduct a fairer measurement of the regional financial equalization degrees under the financial support from the middle government.

$$T = \sum_{i=1}^n \frac{n_i}{N} \times \log \left(\frac{n_i / E_{ci}}{N / E_c} \right). \quad (1)$$

The Calculation Formula of Theil index:

“ T ” is for Theil index, “ i ” is for selected sample unit, the number of sample unit “ n_i ” and “ E_{ci} ” represent the total population and total public cultural expenditure of each region. Therefore, Theil index can be divided into two parts. One part is for calculating the disparity of expenditure on interregional public culture. The other part is for calculating the disparity of expenditure on intra-regional public culture.

The result is as following:

$$T_{\text{interregion}} = \sum_{i=1}^n \frac{n_i}{N} \times \log \left(\frac{n_i / E_{ci}}{N / E_c} \right).$$

Interregional Theil index could be divided into:

$$T_{\text{interregion}} = n_e \times \log(n_e / E_{CE}) + n_m \times \log(n_m / E_{CM}) + n_w \times \log(n_w / E_{CW}). \quad (2)$$

T_{total} , $T_{\text{interregion}}$ and $T_{\text{intra-region}}$ represent public cultural expenditure on total, inter-region and intra-region respectively. The right-hand sides of quality 2 represent the disparity of different regions. n_e , n_m and n_w represent population of different regions accounted for the proportion of total. E_{CE} , E_{CM} and E_{CW} represent eastern, middle and western regions accounted for the proportion of total.

$$T_{\text{intra-region}} = \sum_{i=1}^n \sum_{j=1}^n \frac{n_i n_j}{N n_i} \times \log \left(\frac{n_{ij} / E_{cij}}{n_i / E_{ci}} \right). \quad (3)$$

Intra-regional Theil index also could be divided into three regional Theil index.

$$T_{\text{intra-region}} \times n_e \times T_e + n_m \times T_m + n_w \times T_w, \quad (4)$$

$$T_{\text{intra-region}} + T_{\text{intra-region}} = T_{\text{intra-region}} + n_e \times T_e + n_m \times T_m + n_w \times T_w, \quad (5)$$

$$T_e = \sum_{i=1}^n \frac{n_i}{N_e} \times \log \left(\frac{n_i / E_{ei}}{N_e / E_{ce}} \right),$$

$$T_m = \sum_{i=1}^n \frac{n_i}{N_m} \times \log \left(\frac{n_i / E_{mi}}{N_m / E_{cm}} \right),$$

$$T_w = \sum_{i=1}^n \frac{n_i}{N_w} \times \log \left(\frac{n_i / E_{wi}}{N_w / E_{cw}} \right).$$

N_{ij} , E_{cij} and E_{ci} represent each province’s total population, total public cultural expenditure and public cultural expenditure of each region. T_e , T_m and T_w represent the Theil index of eastern, middle and western region. n_e , n_m and n_w represent population of different regions accounted for the proportion of total. n_i is for the serial number of province, N_e , N_m and N_w represent eastern, middle and western population. E_{ci} is the serial number “ i ” of public cultural expenditure. E_{ce} , E_{cm} and E_{cw} represent eastern, middle and western total expenditure on public culture.

For further analysis of the regional distribution of public cultural expenditure differences, we are about to find out how much of it has been driven by regional differences between the extent and differences within the region. Therefore, the Theil index can help to parse the differences in the rate of contribution. Spout (5) divides both sides by T , the result is:

$$1 = \frac{T_{\text{interregion}}}{T} + n_e \times \frac{T_e}{T} + n_m \times \frac{T_m}{T} + n_w \times \frac{T_w}{T}. \quad (6)$$

Among them, the first part of the right-hand of equality is interregional differences in rates of contribution to the overall difference. The remaining three respectively represent for each regional difference in contribution to the overall difference rate. Contributonal ratio reflects the size of the factors which influence the overall difference.

2.2 Statistics and Analysis

The results could be seen as following tables through calculating different regional related statistics.

Table3
TI Score and Contribution Ratio of Public Cultural Expenditure in Eastern, Middle and Western Districts

Year	Interregional Theil index(T1)	Eastern	Middle	Western	Total	Interregional contribution ratio
2004	0.02332	-0.05841	0.05468	0.02704	0.06598	0.3534
2005	0.02218	-0.05751	0.05029	0.02939	0.06749	0.32867
2006	0.02159	-0.05664	0.05146	0.02677	0.06841	0.31557
2007	0.0275	-0.06281	0.05817	0.03214	0.07717	0.35638
2008	0.02598	-0.06114	0.05828	0.02885	0.07239	0.35895
2009	0.0251	-0.06087	0.05541	0.03056	0.07114	0.35283
2010	0.02231	-0.05717	0.05649	0.023	0.06601	0.33803
2011	0.01936	-0.05458	0.0481	0.02584	0.07302	0.26515
2012	0.01612	-0.04883	0.05011	0.01484	0.0673	0.23948
2013	0.01074	-0.04198	0.03603	0.01669	0.05864	0.1832
2014	0.00772	-0.03351	0.03685	0.00438	0.0578	0.13351

Table4
Eastern, Middle and Western Districts' Inner Disparity and Contribution Ratio for Total Disparity

Year	Total disparity T	Interregional disparity T2	Eastern districts TE	Middle districts TM	Western districts TW	Interreional contribution ratio	Eastern contribution ratio	Middle contribution ratio	Western contribution ratio
2004	0.06598	0.04266	0.0668	0.02429	0.03278	0.6466	0.38316	0.13013	0.1333
2005	0.06749	0.0453	0.0698	0.02849	0.03293	0.67133	0.39108	0.14913	0.1311
2006	0.06841	0.04682	0.07	0.02987	0.03635	0.68443	0.38743	0.154	0.143
2007	0.07717	0.04967	0.0777	0.02997	0.03588	0.64362	0.38173	0.13677	0.1251
2008	0.07239	0.04641	0.0721	0.02994	0.03147	0.64105	0.37917	0.14518	0.1167
2009	0.07114	0.04604	0.0761	0.02646	0.02637	0.64717	0.42225	0.1279	0.097
2010	0.06601	0.0437	0.0645	0.0307	0.02916	0.66197	0.3873	0.15918	0.1154
2011	0.07302	0.05366	0.0881	0.0366	0.02325	0.73485	0.48103	0.17074	0.083
2012	0.0673	0.05118	0.0861	0.03518	0.01838	0.76052	0.51173	0.17756	0.0712
2013	0.05864	0.0479	0.079	0.03362	0.01853	0.8168	0.5403	0.19416	0.0823
2014	0.0578	0.05008	0.074	0.04023	0.02398	0.86649	0.52849	0.23351	0.1045

Firstly, according to time series of Theil index of all districts from 2004 to 2014, it can conclude variation tendency of the differences of public cultural expenditure. The Theil index of public cultural expenditure of China experienced an increasing from 2004 to 2008, rising to the highest point of 0.07239 in 2008. And then it began to drop (excluding 2011), especially after proposing the goal of “equalization of public service”, which made the overall Theil index of public cultural expenditure drop sharply, reaching the lowest point of 0.0578 in 2014. It meant that the equality of public cultural expenditure of China improves gradually. In 1990s, it ignored public welfare and equality of public cultural cause because of excessive marketization reform in cultural field, alleviating national finance burden through pursuing efficiency, which led to increasingly serious situation in allocation of public cultural resources. After 2012, however, overall Theil index of public cultural experienced a steep decline, which meant that the middle Government attached great importance to the equality of public cultural, and that the

cultural of the public almost returned to its public welfare attribute, making sure that every citizen can enjoy the right of the fundamental cultural service both equally and justly.

Secondly, the intra-regional differences are the main factors of non-equity in public cultural expenditure. The conclusion can be made as the value of T2 is always higher than that of T1. From the regional distribution of the T1 value of public cultural expenditure among the eastern region, the middle region and the western region (as shown in Table 3), the T1 value of public cultural expenditure in eastern region is negative, which means the proportion of public cultural expenditure in eastern region is higher than that of the national. While the T2 value of public cultural expenditure in middle region and western region is positive, which means the proportion of public cultural expenditure in eastern region is lower than that of the national. Take 2014 for example, the population proportion of the eastern region was 39.77% on a nationwide scale, while it possessed

47.5% public cultural resources on a national wide scale; the population proportion of the middle region and the western region was 32.22%, 27.01% respectively, while the public cultural resources only owned 26.1%, 28.4%. According to inter-regional variation tendency of Theil index from 2004-2014, it indicated that inter-regional differences narrowed from 2007, with wider and wider extent; the contribution rate of inter-regional differences to overall differences declined from 35.34% in 2004 to 13.35%, indicating that the equalization of public cultural expenditure is improving.

Next, with deeper reform of cultural system, the intra-regional distribution equality of public cultural expenditure is higher and higher, while the differences among provinces and cities in middle region and western region are the main factors that influence the overall differences. We can learn Theil index changing conditions of the eastern region, the middle region and the western region, with the highest Theil index of the eastern region, which means the inequity situation of the public cultural expenditure in provinces and cities is more serious in eastern region. Take 2014 for example, four cities, Guangdong, Zhejiang, Beijing and Shanghai, were the main provinces that effect the distribution of public cultural expenditure, with T value of 0.04752, 0.05213, 0.04236, 0.07287, respectively. From 2004 to 2014, the Theil index of the eastern region (T_E) rose from 0.0668 in 2004 to 0.0777 in 2007, and then it fell to 0.0645 in 2010, and reached the highest point of 0.0887 in 2011, then it dropped to 0.074 in 2014, indicating that during the period when the differences of public cultural expenditure in eastern region fluctuated greatly, the rising of Theil index showing that the differences of public cultural expenditure was enlarging; and the declining of public cultural expenditure indicated that the inequity is reducing. The four cities, Guangdong, Zhejiang, Beijing and Shanghai, enjoyed higher public cultural expenditure than that of the national, while Jiangsu province had a higher public cultural expenditure than that of the national from 2004 to 2012, from 2013, with its T value turning positive from negative, indicating the declining of public cultural expenditure, lower than its population proportion. The average value of Theil index of the western region (T_w) was the low eastern from 2004 to 2014, meaning that the equality of public cultural expenditure in provinces and cities in the western region is the highest. Between 2004 and 2014, T_w reached its highest of 0.03635, indicating that the differences of public cultural expenditure among the provinces and cities in the western region was the largest; after which it displayed an overall downward trend, indicating that the differences among provinces in the western region was narrowing and the public cultural expenditure distributing being more and more equal and improving equalization of public cultural expenditure further more. The value of Theil index of the middle region (T_M) was on the rise in general, from 0.02429 in

2004 to 0.04023 in 2014, reaching its highest in 2014. The population proportion of most provinces in middle region was higher than public cultural expenditure and the differences were bigger and bigger, declaring that the situations in the provinces of the middle region were deteriorating rather than improving.

Finally, in terms of the contribution change rate of the middle and the western region, the intra-regional contribution was on the rise, from 64.66% to 86.65%, which meant that the main factors contributing to the differences of public cultural expenditure lay in intra-regional differences, intra-regional differences being higher than inter-regional differences. Intra-regional differences, the differences of the provinces and cities in the eastern region, were the greatest, while the contribution rate of the middle region and the eastern region increased. It indicated that intra-regional differences of the middle region and the western region contributed less than that of the eastern region, and the intra-regional differences of the eastern region was the main factors that affect the overall differences. According to the data, intra-regional differences of the middle region and the eastern region made a greater contribution to overall differences, the intra-regional equality of the eastern region and the middle region was in a state of decline and deterioration, while the public cultural funding equality among the provinces in the western region was enhancing.

3. THE APPROACHES OF REALIZING REGIONAL EQUALIZATION OF PUBLIC CULTURAL SERVICE

In the short term, construct public cultural service system based on the actual necessity of public cultural service in all districts, adjust local government public cultural service supply capacity by utilizing middle transfer payments based on the general transfer payments, strengthen transfer payments of government public cultural expenditure of the inter-regional and intra-regional provinces and cities in the middle and western region lagging behind, decline the inequality of the public cultural expenditure of inter-regional and intra-regional caused by fiscal revenue differences of inter-regional and intra-regional provinces and cities and finally realize fair distribution and fair use of public cultural resources between inter-regional and intra-regional.

In the long term, improving public cultural capacity by enhancing its economic development and fiscal revenue of backward areas is the ultimate way of realizing the equalization of public cultural service of all areas. It needs the middle Government to redeploy and integrate national financial resources and public cultural resources to build demand-orientated public cultural service supply mode, in addition to increasing public cultural expenditure oriented by the optimal scale, and establishing effective

structural adjustment mechanism, defining the finance rights of governments at all levels reasonably. Improve and standardize the equalization of public cultural services local government fiscal transfer payment system further to ease the plight of public cultural uneven resources and services distribution.

CONCLUSION

The absolute differences of the public cultural expenditure in the eastern region, the middle region and the western region appears an expanding trend, in which the differences of the eastern region and the middle region is larger than that of the middle region and the western region; While the inter-regional relative differences show a trend of shrinking. According to Gini coefficient of provincial public cultural expenditure distribution, calculated and ranged from low to high based on provincial public cultural expenditure per capita, from 2000 to 2014, it showed a declining trend after 2011, meaning an overall improving in the equality of provincial distribution of the public cultural expenditure. According to Theil index method, the overall differences tendency of the public cultural expenditure in China first rose and then decreased from 2000 to 2014, indicating that public cultural resources allocation and use was gradually fair and reasonable after the middle Government proposing the goal of equalization of public service. With T_E , T_w declining and T_M improving, it suggested that the inequity of the cultural expenditure in middle region was worsening. The Theil index of the eastern region was high while the western region was low, which showed that the differences among the provinces and cities in eastern region were more obvious when compared to the middle region and the western region.

The overall differences of public cultural expenditure are mainly caused by intra-regional differences. With inter-regional differences reducing, it contributed 10% effect on overall differences in 2013 and 2014.

Intra-regional differences were mainly caused by the differences among provinces in the eastern region, with an average contribution value of 43.6% and taking on an increasing tendency of internal differences in contribution. The differences of the intra-regional in the western region showed a declining trend, indicating that intra-regional differences of the western region had less effect on the overall differences. The intra-regional differences of the middle region were on the rise, showing that the intra-regional differences made a greater contribution to overall differences.

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