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The collaborative sharing development of regional cultural and creative industries: evidence from China

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Abstract

Regional integration and coordinated development are an effective support for the improvement of regional competitiveness, while the construction of a regional community of cultural and creative industries can well promote the economic interflow and benefit sharing among different cities or regions. In this paper, based on the industrial association theory and industrial cluster theory, it explains the connotation of the collaborative sharing development of regional culture creative industry, then makes further study on two main operating mechanisms—the industrial integration mechanism and the industry chain feedback coupling mechanism—in the coordinated sharing development of regional culture creative industry, and finally gives some suggestions through a typical comparison across different regions in China. Using the Cultural Industry Development Index to evaluate the typical regions, the productivity index, influence power index and driving force index in three sub-indexes measure different development strength, development performance and government promotion efficiency in regional cultural industries. It is showed that the eastern areas kept an overall strong, stable and mature development and other areas with differentiated development were more obvious; while the overall situation of cultural consumption in the eastern region is better than that in the central and western regions. In addition, Sichuan and Inner Mongolia in the western regions entered the national top 10 for the first time. The development of Yangtze River Delta and Pearl River Delta is similar, but the development of Beijing-Tianjin-Hebei Region is different. On the level of regional comprehensive and coordinated development, the Yangtze River Delta urban agglomeration is the best, and its comprehensive development index of economy, society and environment is better than the Pearl River Delta and Beijing-Tianjin-Hebei urban agglomeration.

Keywords: regional cultural and creative industries, industrial integration mechanism, industrial chain feedback coupling mechanism, collaborative sharing

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1. Introduction

With its unique value orientation, extensive coverage and rapid growth mode, the cultural and creative industry has become a strategic industry for the development of countries and cities all over the world. From the perspective of the development of cultural and creative industry in developed countries, cultural and creative industry is not the growth of a single enterprise, but the clustering development trend in a certain environment and space.

With the rise and development of national and global cultural and creative industry clusters, New York, Tokyo, London and other world cities have become the internationally recognized development centers of cultural and creative industry clusters, and the cultural and creative industry clusters in Beijing, Shanghai and other cities in China have begun to take shape. In terms of its contribution to national economic growth, the added value of the cultural industry increased from 2.15% of GDP in 2004 to 4.29% in 2017, an increase of 2.14 percentage points. Its contribution to GDP growth increased year by year, reaching an annual average of 4.7%. The cultural industry is playing an increasingly important role in promoting the sustained and healthy development of the national economy. Among the 10 industrial categories of the cultural industry, the service industry of cultural information transmission, mainly in the form of "Internet +", has developed rapidly, with the added value of 368.7 billion yuan in 2016, 188.4 billion yuan more than in 2013. From 2014 to 2016, the average annual growth rate was 26.9%, accounting for 12.0% of the added value of the cultural industry, 3.7 percentage points higher than that in 2013. The cultural, creative and design services industry has shown a momentum of vigorous development.

In 2016, the added value of the industry reached 584.3 billion yuan, 212.7 billion yuan more than that of 2013, with an average annual growth of 16.3%. It accounted for 19.0 percent, up 2.0 percentage points from 2013. From the perspective of operating revenue, the operating revenue of the cultural information transmission service industry above the scale in China in 2017 was 799 billion yuan, up 34.6% over the previous year. The operating revenue of the cultural, creative and design services industry above designated size reached 1189.1 billion yuan, an increase of 8.6 percent over 2016. It can be seen that the integration of culture with the Internet, tourism, sports and other industries has become the most prominent feature of the development of the cultural industry. The process of digitization and networking in the production, dissemination and consumption of cultural products and services has been accelerated, and new forms of cultural businesses have emerged as The Times require. Digital content, animation games, video live broadcast and other new forms of cultural industry based on the Internet and mobile Internet have become new drivers and growth points for the development of the cultural industry, and "Internet + culture" has become an important trend for the development of the cultural industry.

The integrated and coordinated development of districts and cities is an effective support for the improvement of regional competitiveness, which also requires the coordinated development of industrial agglomeration and urbanization. We will strengthen the role of industrial agglomeration in guiding market factors and factors of innovation and entrepreneurship, give full play to its effects on improving production efficiency, upgrading industrial structure and protecting the ecological environment, and promote the coordinated development of industrial agglomeration and new-type urbanization. Regional production and consumption demand preferences are quite different, and inter-regional coordination has a high cost. However, the per capita cost of public goods is low, and the domestic market is huge. The construction of a regional community of cultural and creative industries can well promote economic interflow and benefit sharing among different cities or regions in the region.

2. Materials and Methods

The methodology of this study is grounded in a comparative analysis framework, combining industrial association theory and industrial cluster theory as its theoretical foundation. The authors adopt the Cultural Industry Development Index as the primary analytical tool, which consists of three sub-indexes including productivity index, influence power index, and driving force index. These indexs is used to evaluate the development strength, performance, and policy promotion efficiency of regional cultural and creative industries. The data for these indexes are drawn from secondary sources, particularly official statistical yearbooks and the Cultural Industry Development Index reports published by the Cultural Industry Research Institute of Renmin University of China. This approach enables the authors to assess the structural and performance differences among regions, while also providing a measurable framework to analyze collaborative sharing mechanisms, such as the industrial integration mechanism and industrial chain feedback coupling mechanism.

In executing the analysis, the study employs quantitative regional comparison to examine disparities and similarities between different parts of China, including the Eastern, Central, and Western regions, as well as the three major metropolitan clusters—Beijing-Tianjin-Hebei, Yangtze River Delta, and Pearl River Delta. The authors use time-series data from 2014 to 2017 to track changes in the development indexes, allowing for both cross-sectional and longitudinal assessments. By integrating statistical indicators with theoretical constructs, the study identifies regional patterns, evaluates the degree of coordinated development, and highlights areas of imbalance. This mixed theoretical–quantitative approach ensures that the findings are not only empirically grounded but also aligned with broader concepts of industrial integration, value chain association, and regional economic cooperation.

3. Results

3.1. Analysis on the mechanism of collaborative development and sharing of regional cultural and creative industries

Shared economy can maximize the realization of resources sharing, utilization and integration, sharing and coordinated development of regional cultural creative industry is dominated by cultural creative industries, with the aid of the industrial chain link will contact area between the behavior main body (government and companies) benefit maximization of domain resources integration, make the public share differentiation and the service, and driving the development of other industrial convergence, then promote domain, the coordinated development of regional social economy. The mechanisms of collaborative development and sharing of regional cultural and creative industries mainly include industrial integration mechanism and feedback coupling mechanism of industrial chain.

3.1.1. Industrial integration mechanism

Cultural and creative industries mainly include culture and art, press and publication, radio and television, software, design services and tourism, etc., which meet the public's cultural experience and consumer demand through the creation, creation and innovation of cultural content and creative results. Culture creative industry has the function of industrial convergence, fusion mechanism is through the creative to infiltrate the production and other relevant departments, make the culture with creative, market and technology, such as organic combination, promote the cultural connotation of relative industries, promote cooperation between industry, domain and restructuring, the emerging forms at the same time, also brought new economic growth point.

3.1.2. Industrial chain feedback coupling mechanism

Generally speaking, a well-functioning cultural and creative industry chain mainly includes four links: planning and development, production and operation, communication and marketing, and service feedback. When a creative source is generated, cultural and creative enterprises usually take the lead and organize related resources to carry out research and development planning. This link is at the front end of the whole cultural and creative industry chain, and its overall planning and creative level largely determines the implementation effect of subsequent links and the market performance of the enterprise. The second is the production and management link, which is the operation process of the enterprise to transform the initial creativity and planning into tangible products or intangible services. In the case of tangible products, the place of production and the place of consumption can be separated, and entrusted processing, off-site storage and delayed listing can be carried out. The next step is communication and marketing, which is related to product promotion and market development in order to make cultural and creative products (services) flow to customers more smoothly and efficiently. Finally, there is the service feedback link. Due to the continuous new demands of customers and the fierce competition among industrial market subjects, cultural and creative enterprises will continuously improve their service level and accelerate the development of new products. In order to promote the transformation of the four links, in the process of cultural creativity industry chain and chain on each subject can form three types of cultural products, services and intellectual property, and create the products in the industry market value, service value, social value, commercial value and investment value, such as multiple value, enrich and strengthen the whole industrial chain system finally.

According to the value chain theory, cultural and creative enterprises can obtain the corresponding value in each link above, but the added value of different links varies greatly, among which the planning, development, communication and marketing links have higher added value, while the production and operation links are general. For a single cultural and creative enterprise, the above four links can be regarded as the basic links of its production and operation. If it extends to the level of regional cultural and creative industry, there will be more other market players and value-added links. When a certain cultural and creative enterprise is integrated into the regional industrial chain system, it can better support its new product development, factor supply and market development activities with the help of the regional industrial public research and development platform, industrial parks and intermediary service agencies, and at the same time expand the value-added effect of the original basic links. In addition, other subjects in the cultural and creative industry chain system, including suppliers (economic and commercial), government departments, social institutions, related industries and stakeholders, will exert certain influence on the development of cultural and creative industry through their respective ways of action. So, in the study of cultural creative industry development models and countermeasures, in addition to the analysis of industry value chain system, also should give attention to two or morethings arrives and industrial development is closely related to the regional factors and environmental factors, which ensures that the research of the development of the industry and its implementation process is not away from its source --, regional economy, but also more in line with the current Chinese culture creative industry development present situation.

The value chain of cultural and creative industry is an organic whole composed of various value-added links of cultural and creative industry. Cultural and creative industries and their related industries make use of the value chain association to realize the cooperation with various links of different industries in the value chain, and closely link with the value chain of related industries, forming a value chain or value network, so as to improve the overall efficiency of cultural and creative industries and related industries. For example, the value chain of the cultural and creative industries and the real estate industry permeates and integrates with each other to form a dual dynamic source, so as to promote product production, product promotion, product circulation and derivative development, forming a "creative real estate" integrating culture and real estate. Secondly, the value chain association between industries reflects a strategic management idea and forms a unified system through the value chain association. The value chain of cultural and creative industry is a dynamic process of value increment through cultural products. By connecting, integrating and influencing each other in each stage of the value chain of related industries, the coordinated development of cultural and creative industries and related industries can be promoted to achieve economic benefits.

4. Discussion

4.1 Comparison of the development of regional cultural and creative industries in terms of collaborative development and sharing

4.1.1. The overall development of the eastern region is strong, stable and mature, while the development of other regions shows obvious differentiation

In the first half of 2018, the revenue of cultural and related industries in the eastern region reached 3244.3 billion yuan, up 9.7 percent year-on-year, accounting for 77 percent of the total business volume of the nine industries. Revenue in the central region reached 582.8 billion yuan, up 9.6 percent year-on-year. Revenue in the western region reached 350.9 billion yuan, up 13.4 percent year-on-year. Revenue in northeast China was 44.7 billion yuan, up 2.4 percent year-on-year. According to the data, among the nine industries, the industry with the highest operating revenue is content creation and production, achieving 882 billion yuan of operating revenue, up 11.9% year on year. Second place went to the production of cultural consumption terminals, where revenue reached 7911 billion yuan, up 4.2 percent year-on-year. Next on the list was cultural auxiliary production and intermediary services, with revenue of 778.3 billion yuan, up 8.2 percent year-on-year. Revenue of creative design services reached 514.3 billion yuan, up 15.1 percent year-on-year, ranking the fourth place. Cultural communication channels ranked fifth with 450.1 billion yuan, up 10% year-on-year. News and information services revenue reached 374.4 billion yuan, up 29.4 percent year-on-year, ranking sixth. Revenue of cultural equipment production reached 331.3 billion yuan, up 0.7 percent year-on-year, ranking the seventh. Revenue from cultural, entertainment and leisure services reached 66.3 billion yuan, up 0.2 percent year-on-year, ranking eighth. Revenue from cultural investment and operation reached 34.9 billion yuan, up 3.5% year-on -year, ranking ninth.

Announced by the people's university of China cultural industry research institute of China provinces, cities and culture industry development index (2016), the results showed that the comprehensive index, the comprehensive index of provinces and cities, compared with 2015, there is a certain range of change, consistent with the 2015 of the top five provinces and cities, but minor changed, more than Shanghai, Beijing top again; The scores of scientific research environment, public environment and cultural resources in Tianjin increased greatly, and it once again entered the top ten in China after three years. Liaoning also ranked in the top 10, with its cultural resources, cultural capital and social influence ranking top. Among the top 10 provinces and cities in the composite index, except for Sichuan and Jiangxi, the rest are located in the eastern region. In terms of the productivity index, the overall change and fluctuation of the ranking is relatively small compared with 2015. Among the top ten provinces and cities, except for Sichuan, Jiangxi and Henan, the others are all from the eastern region. In terms of growth rate, Guangdong, Shandong, Sichuan, Zhejiang and Jiangsu ranked top five in terms of growth rate of productivity. In terms of influence index, the economic and social impact of cultural industry in eastern China is obvious. In terms of growth rate, Liaoning, Guizhou, Gansu, Inner Mongolia and Guangxi ranked top five. In terms of driving force index, compared with 2015, there are more provinces with a large increase, such as Jiangsu, Chongqing, Tianjin, Jiangxi and Zhejiang. In terms of growth rate, Shanghai, Zhejiang, Tianjin, Qinghai and Guangdong are listed in the top five.

China's cultural consumption index (2016) shows that China's comprehensive cultural consumption index keeps growing, from 73.7 in 2013 to 81.5 in 2016, with an average growth rate of 3.4%. First-level indicators, cultural consumption environment, willingness to cultural consumption, cultural consumption ability index and the degree of cultural consumption are on the rise, the index rose fastest cultural consumption environment, the average annual growth rate of 8.8%, to illustrate the three years of China's cultural consumption environment had the very big improvement, constantly enrich cultural products and the quality gradually improved, consumer channels is becoming more and more diversified, facilitation, cultural consumption for residents to create a good atmosphere.

From a regional perspective, the comprehensive index of cultural consumption of Beijing, Tianjin, Shanghai, Guangdong, Jiangsu, Zhejiang and Shandong ranks in the top ten of China for four consecutive years, and these seven provinces and cities are all located in the eastern region. It can be seen that the overall situation of cultural consumption in the eastern region is better than that in the central and western regions. In addition, the western regions of Sichuan and Inner Mongolia entered the national top 10 for the first time. In terms of the first-level indicators, the eastern region accounts for more than half of the top ten provinces in terms of cultural consumption environment, willingness, ability and level. Compared with the central and western regions, the residents in the eastern region have relatively higher income and consumption levels, pay more attention to the quality of life and spiritual enjoyment, and have greater demands on the types and quality of cultural products.

Table 1. Cultural industry development index score and ranking in Chinese provinces and cities (2014 - 2017)

Ranking	Comprehensive index				Productivity index				Influence index				Driving force index			
	2017	2016	2015	2014	2017	2016	2015	2014	2017	2016	2015	2014	2017	2016	2015	2014
1	BJ	BJ	SH	BJ	JS	JS	SD	GD	BJ	BJ	BJ	SH	BJ	BJ	BJ	BJ
	84.29	84.72	81.44	82.10	82.80	81.92	82.14	83.90	88.47	87.32	88.23	84.70	83.85	87.51	82.47	83.5
2	SH	SH	BJ	JS	SD	SD	JS	JS	JS	SH	SH	JS	ZJ	SH	SH	LN
	80.71	80.60	81.41	81.10	80.86	80.71	81.29	80.80	84.19	82.59	87.67	84.60	82.69	81.45	82.30	81.50
3	JS	JS	JS	ZJ	GD	GD	GD	SD	SH	GD	ZJ	BJ	HAN	ZJ	FJ	QH
	80.69	80.12	79.76	79.70	80.62	80.16	80.37	80.80	84.00	81.42	83.56	83.60	82.66	79.96	80.85	80.30
4	ZJ	ZJ	ZJ	GD	ZJ	ZJ	ZJ	BJ	SD	JS	GD	ZJ	CQ	JS	LN	NX
	80.28	79.72	79.54	79.60	79.37	78.67	77.82	79.10	78.92	80.30	82.03	83.60	82.29	79.03	80.70	80.10
5	SD	GD	GD	SH	BJ	SC	SC	ZJ	GD	ZJ	JS	GD	SH	QH	QH	XZ
	77.85	79.23	79.49	78.80	76.84	76.06	76.45	78.30	78.65	80.00	81.72	79.70	80.20	77.33	80.20	78.90
6	GD	SD	SD	SD	SC	SH	HEB	SC	HUN	SD	SD	HUN	TJ	CQ	GZ	JS
	77.37	74.98	78.12	77.70	76.57	74.93	75.04	76.80	78.33	76.77	80.27	79.00	77.99	77.24	78.48	78.00

Ranking	Comprehensive index				Productivity index				Influence index				Driving force index			
	2017	2016	2015	2014	2017	2016	2015	2014	2017	2016	2015	2014	2017	2016	2015	2014
7	HUN	SC	FJ	LN	SH	JX	JX	SH	ZJ	SC	FJ	SD	QH	TJ	HAN	ZJ
	75.97	74.47	76.24	77.20	75.16	74.59	74.99	76.10	78.33	75.85	75.97	78.10	77.29	77.13	78.11	77.10
8	SC	TJ	SC	HEB	HEB	HEB	HN	HEB	SC	LN	SC	JX	HLJ	HAN	ZJ	SHX
	74.91	74.40	75.86	75.50	74.78	74.50	74.82	75.70	74.57	75.37	74.81	77.60	76.22	77.06	77.25	76.50
9	TJ	JX	HUN	HUN	HN	HN	SH	HN	TJ	SX	HUN	LN	JS	GD	JL	HEB
	74.86	74.03	75.18	75.10	73.12	74.04	74.34	74.90	74.37	74.90	74.44	76.50	76.14	76.59	77.11	76.50
10	HEB	LN	HEB	JX	HUB	BJ	HUN	LN	SX	HUN	HEB	AH	GX	JX	HUN	SH
	74.33	73.73	74.69	74.20	72.65	73.96	74.10	73.80	74.18	74.72	74.20	76.30	75.98	75.63	76.99	75.40

Notes: BJ= Beijing, SH=Shanghai, JS=Jiangsu, SD=Shandong, GD=Guangdong, ZJ=Zhejiang, SC=Sichuan, HN=Henan, HAN=Hainan, HUN=Hunan, HUB=Hubei, HEB=Hebei, LN=Lining, TJ=Tianjin, JX=Jiangxi, GX=Guangxi, SX=Shanxi next to Gansu, SHX=Shanxi next to Shandong and Hebei, HLJ=Heilongjiang, QH=Qinghai, CQ=Chongqing, FJ=Fujian, AH=Anhui, JL=Jinlin, GZ=Guizhou, XZ=Xizang, NX=Ningxia

Beijing's cultural industry influence index and driving force index ranked first from 2015 to 2017. In 2017, Beijing ranked first in the comprehensive index for consecutive years by virtue of its advantages in economic impact and scientific research environment. Shanghai has a prominent performance in social impacts, market environment and public environment, ranking second in 2017. With the advantage of cultural resources and cultural capital, Jiangsu ranked third. Zhejiang ranks fourth with its advantages in human resources and market environment. The above three provinces and cities have their own bright spots in the development of cultural industry, forming the second echelon. Hebei ranked in the top 10 in China by improving the influence and driving force of the cultural industry. Hunan ranked seventh by deepening the development of cultural resources and strengthening the social influence of cultural industry. Among the top 10 provinces and cities in the composite index, except for Sichuan and Hunan, the rest are located in the eastern region. It shows that the cultural industry in eastern China still occupies a dominant position and the level of cultural development in central and western China still needs to be improved.

In terms of productivity index, Jiangsu ranks first, with Shandong, Guangdong, Zhejiang and Beijing ranking second to fifth. Compared with other regions, the cultural resources, cultural capital and human resources in eastern China are more advantageous. Apart from Sichuan, Hubei and Henan, the rest of the top 10 are from the eastern regions. This year, Beijing, Jiangsu, Hunan, Hubei and Zhejiang ranked in the top five.

In terms of influence index, eastern provinces and cities scored higher in terms of economic influence and social influence. Seven of the top 10 provinces and cities come from developed areas on the east coast. Beijing tops the list thanks to its economic clout; Jiangsu and Shanghai ranked second and third. Sichuan and Hunan, with their advantages in economic influence, and Shanxi, with their advantages in social influence, are the top three provinces in the central and western regions. Beijing, Jiangsu and Hunan ranked among the top five cities in terms of influence growth rate by significantly improving their economic impact index, while Shandong and Hebei ranked among the top five in terms of social impact index.

In terms of driving force index, there is a big gap between the market environment score and the scientific research environment score between the eastern region and the central and western regions. Beijing ranked first for its research environment, while Shanghai ranked first for its market and public environment. Beijing, Zhejiang, Hainan, Chongqing and Shanghai all scored more than 80 points. Heilongjiang, Hainan, Shandong, Chongqing and Yunnan improved their scores in these three aspects by comprehensively optimizing the market environment, public environment and scientific research environment, ranking the top five in terms of growth rate.

From the perspective of longitudinal analysis, the average value of China's cultural industry development index basically shows a positive growth trend. After 10 to 11 years of rapid growth, the cultural industry development index has been growing steadily from 2011 to 2014, and after stable adjustment from 2014 to 2016, it has increased significantly again in 2017. The development index of the cultural industry in the eastern region is always higher than the national average index, which reflects the higher development level of the cultural industry in the eastern region. The cultural industry in the central and western regions is developing continuously, and the average index of the cultural industry is steadily increasing year by year. However, the comprehensive development level of the cultural industry still needs to be further improved. In general, China's cultural industry continues to develop steadily after consolidating the development achievements of the previous stage. From a regional perspective, in 2017, while the eastern provinces and cities still occupied the majority of the top 10, Sichuan and Hunan, two central and western provinces, entered the top 10 of the composite indexes. Sichuan has been in the top ten of the comprehensive indexes for two consecutive years. This year, Hunan ranked seventh by improving the development level of cultural industry in an all-round way and focusing on enhancing the influence of cultural industry. Among the eastern provinces and cities, Beijing, Shanghai, Jiangsu, Zhejiang, Shandong and Guangdong have been listed in the top ten for several years in a row, which shows that the cultural industry in the eastern region is very mature and has huge advantages. In terms of growth rate, the top 10 provinces and cities with growth in 2017 are evenly distributed geographically. Heilongjiang, Jilin, Shandong, Hebei, Hainan, Shanxi, Henan and other provinces have achieved certain development in the driving force of cultural industry. Provinces such as Anhui, Hunan and Yunnan have made progress in influencing the cultural industry. Provinces and cities in the central and western regions actively mobilize their own resources to promote the influence and driving force of cultural industry development; Eastern provinces and cities should open up new space for cultural development, enhance the driving force of cultural industry and stimulate the further development of cultural industry.

The variation coefficient of national cultural industry development is a statistical measure of the variation degree of each observed value in the sample. The smaller the variation coefficient is, the higher the equilibrium degree is. In general, the coefficient of variation decreased sharply from 2010 to 2013, increased slightly from 2014 to 2015, decreased again from 2015 to 2016, and increased slightly again from 2017. Although the cultural industry in various regions of China is developing in a balanced way, there are still some unbalanced problems. From the perspective of provinces and cities, the coefficient of variation of 12 provinces and cities exceeded 0.5, among which Hainan, Chongqing and Xinjiang exceeded 0.8 this year. From the perspective of different regions, the average coefficient of variation in the eastern region is 0.046 this year, an increase of 0.004 over last year. The central region was 0.032, an increase of 0.011 over last year. The western region was 0.051, an increase of 0.011. Generally speaking, the cultural industry in all provinces of China shows a trend of balanced development, but there is still a certain degree of imbalance. With the sustained development of the cultural industry in the central and western regions and the steady upgrading of the cultural industry in the eastern region, the development of the cultural industry will be more balanced in the future. In the future development, all provinces and cities should strengthen the balanced development of their own cultural industry and achieve multi-pronged development. While maintaining the original advantages of the cultural industry, they should complement their own shortcomings and realize the all-round development of the cultural industry.

4.1.2. The development of the Yangtze-River-Delta and the Pearl-River-Delta are similar, while the development of the Beijing-Tianjin-Hebei region is quite different

Represented by the Beijing-Tianjin-Hebei region, the Yangtze-River-Delta and the Pearl-River-Delta, China's three metropolitan areas are showing the commonness of the international metropolitan areas and increasingly reflecting their own development paths. The urban circle industry and spatial form are different, and the intensity of inter-city population flow is significantly different. In the Beijing-Tianjin-Hebei region, the phenomenon that Beijing is the only major city is still prominent. The Yangtze-River-Delta is multi-center and the Pearl-River-Delta presents a continuous trend, which is especially obvious between Guangdong, Foshan and Shenzhen-Dongguan. In general, the development degree of urban agglomeration in the Pearl-River-Delta is higher than that in the Yangtze-River-Delta, while the Yangtze-River-Delta is higher than that in the Beijing-Tianjin-Hebei Region. From the perspective of the origin of migrant population, although the radiation scope of the three metropolitan areas have overlapping areas, but each has its own characteristics. Migrants come mainly from the north area of the Beijing-Tianjin-Hebei region, including the most parts of the northeast, north China, the specific province in Shandong, Henan, Liaoning, Jilin, Heilongjiang, etc., and main sources of the central plains and the east China area, Yangtze River delta include southern Jiangxi, Henan, Shandong and so on, the pearl river delta mainly from central and southern China and each region, including Hunan, Hubei, Guangxi, Sichuan, etc. This also indicates that the future development of the three metropolitan areas will influence and drive the regions, which are also potentially competitive regions.

The policy of talent introduction and the development of the tertiary industry can be adjusted and adapted according to the characteristics of population source areas. The intercity population exchange intensity of the three metropolitan circles ranks Top20, and Shanghai-Suzhou, Guangzhou-Foshan and Beijing-Langfang rank top three. In addition to the above three pairs of cities, the popularity of Baoding, the fourth largest city in China, is on the rise, reflecting the impact of the strategic planning of the national Xiongan New District on the population and economy. From the perspective of the proportion of migrant population, the proportion of migrant population in the Pearl-River-Delta exceeds 53%, the highest among the three regions, and the other two regions also exceed 20%, and the proportion of migrant population in Beijing, Tianjin and Hebei is the lowest. Specific to each city, Dongguan is the most migrant population, and the Pearl-River-Delta included in the top four. The strength of intercity population flow in metropolitan areas is conducive to the identification and judgment of the phenomenon of urbanization, and plays a guiding role in the spatial planning and layout, infrastructure development, and complementary and integrated development of industries of the same city. For cities with a large proportion of foreign workers, the government should formulate special policies to solve the supporting facilities for the migrant population, as well as production and living problems, improve the city's humanistic care for the migrant population, and promote the integration of the migrant population into the city. In the long run, the improvement of demographic dividend is beneficial to the improvement of urban competitiveness.

The Shanghai metropolis circle humanistic urban development report 2017 seven cities of Shanghai metropolis circle humanistic city for the overall development level of evaluation: the development of Shanghai and Suzhou is in the first tier, overall performance is good, but in "cultural environment" is obviously insufficient, need to study and implement the "focus on" the humanistic urban development strategy; The development status of Wuxi and Ningbo is in the second echelon, and the overall development is relatively balanced, but at the same time, there is a large room for improvement in all aspects, which needs to study and implement the "interpenetration battle" humanistic city development strategy; Jiaxing, Nantong and Zhoushan are in the third tier, with poor development balance and few advantageous indicators. It is not only necessary to find ways to highlight the characteristics, but also necessary to lay a good foundation with great efforts. It is necessary to study and implement the specific humanistic city development strategy.

Compared with the western metropolis circle, the greater Shanghai metropolis circle has taken the lead in the economic aggregate, transportation infrastructure and population scale, but lags far behind in the urban soft power, urban management and service, urban culture and spirit. The Yangtze-River-Delta cities remain separate in the cultural construction and evaluation, so to speak for a long time in the homogeneous competition during the Yangtze-River-Delta economic development, and has in fact become one of the main problems and the major contradictions on quality cultivation and construction of the world-class Yangtze-River-Delta urban agglomeration.

4.1.3. The Beijing-Tianjin-Hebei coordinated development is better potential than the Yangtze-River Delta and the Pearl-River-Delta

Beijing-Tianjin-Hebei economic circle is a very special economic circle. It is close to the capital along the coast and has many advantages that cannot be replaced by the Yangtze River delta and the pearl river delta. From the perspective of economic size, the GDP of hebei province is the largest in the three regions. The total GDP of the Beijing-Tianjin-Hebei region in 2016 accounted for nearly 10% of the country's total GDP, and Hebei accounted for 43% of the Beijing-Tianjin-Hebei region's GDP. In terms of recent development, in 2016 alone, the fastest GDP growth rate was achieved in Tianjin, reaching 9%, far higher than the national average, and Beijing and Hebei were 6.7% and 6.8%, close to the national average. From economies of scale (investment in science and technology), Tianjin science and technology input in these three cities is one of the most inside, most patents is Beijing (because of Beijing more than scientific research institutions), but in terms of investment in science and technology, research and development of Tianjin enterprises above designated size projects more than 10000, with more than 35 billion research and development spending, accounting for 40% of the total funds for research of the Beijing-Tianjin-Hebei region.

In terms of fiscal revenue, Beijing's public fiscal revenue is close to that of Tianjin and Hebei combined. In 2016, the share of public fiscal revenue of Beijing-Tianjin-Hebei region was 5.5%, and the share of GDP of Beijing-Tianjin-Hebei region was half. In terms of investment in education, Beijing leads the other two regions by a large margin. Serious inequality in higher education resources restricts the balanced development of talents in the region. In 2015, the average budget of public finance for education in Beijing is about three times of the national level for primary school students, and three to four times of the national level for high schools and universities. Tianjin is close to Beijing in primary and secondary schools, but there is a big gap in higher education, and Hebei is even worse than the national average. In terms of population, Hebei has 70 million people, which is twice as many as Tianjin and Beijing combined. Tianjin and Beijing are 80 percent of the urban population, and Hebei province has been rapidly urbanized in recent years. Compared with the Yangtze-River-Delta and the Pearl-River-Delta, the gap between the urban and rural areas in Beijing, Tianjin and Hebei is very obvious. In terms of utilization of foreign capital, the actual utilization of foreign investment in Tianjin is significantly higher than that in Beijing and Hebei. From the perspective of social financing, the amount of social financing in Beijing is far more than that in Hebei and Tianjin. That is to say, Beijing has taken up a large number of financial resources, but in fact the use efficiency is not high. To further develop, it should provide more financial services to Hebei province or Tianjin.

According to urban blue book-China urban development report no.9 (2016) published by institute of urban development and environment, Chinese academy of social sciences and social science document publishing house, regional coordination is an important part of healthy development of urban agglomerations and the key to realizing regional integration. On the level of regional comprehensive and coordinated development, the Yangtze-River-Delta urban agglomeration is the best, and the comprehensive development index of economy, society and environment is better than the Pearl-River-Delta and Beijing-Tianjin-Hebei urban agglomeration. From the perspective of the difference degree of comprehensive development level, the Yangtze-River-Delta urban agglomeration has the highest level of coordinated development no matter it is the annual mean or the data of each time point. From the perspective of change trend, the difference degree of comprehensive development index of Beijing-Tianjin-Hebei urban agglomeration in 2014 was improved compared with that in 2005. However, the degree of difference among cities in the Pearl-River-Delta urban agglomeration decreased significantly.

In terms of sub-development index, the three major urban agglomerations have the highest degree of difference in economic development level, followed by social development level, and the lowest degree of difference in environmental governance ability. Look from the development trend, the Pearl-River-Delta urban agglomeration level of comprehensive development of improving coordination, Beijing-Tianjin-Hebei, the pearl river delta urban agglomeration economy development level difference degree decreased obviously, Yangtze-River-Delta, Beijing-Tianjin-Hebei urban agglomeration, the level of social development increased the difference degree of three big changes of the difference of urban environment governance ability. In terms of the coordination of economic development, the Yangtze-River-Delta urban agglomeration is better and the difference of economic development index is smaller. The economic development of the Beijing-Tianjin-Hebei region and the Pearl-River-Delta region has a high degree of difference, but the degree of difference has a significant downward trend, from 0.61 in 2005 to 0.48 in 2014 in the Beijing-Tianjin-Hebei region, and from 0.94 to 0.52 in the Pearl-River-Delta region. In terms of social development coordination, the Pearl-River-Delta urban agglomeration has the highest degree of difference in social development index, while the Yangtze-River-Delta urban agglomeration has the lowest degree of difference. In terms of the environmental development index, the gap in environmental governance capability between cities in different urban agglomerations is far lower than that between economic and social development.

5. Conclusions

This study analyzed the collaborative sharing development of regional cultural and creative industries in China using the Cultural Industry Development Index framework. By comparing productivity, influence, and driving force indexes across regions, the research found that the eastern region consistently demonstrates strong, stable, and mature growth, while central and western regions show differentiated development patterns, with notable progress in provinces such as Sichuan and Inner Mongolia. The Yangtze River Delta urban agglomeration leads in terms of comprehensive and coordinated development, followed by the Pearl River Delta, with the Beijing-Tianjin-Hebei region showing unique but uneven performance.

The findings highlight that coordinated industrial integration and the feedback coupling mechanism within industrial chains are critical for improving regional competitiveness and achieving balanced cultural industry development. While disparities remain, especially between eastern and non-eastern regions, the study emphasizes the importance of targeted policy support, infrastructure development, and regional cooperation to foster more balanced growth and strengthen the overall cultural and creative industry ecosystem in China.

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