

Measurement and Influencing Factors of High-quality Development of Digital Culture Industry in Yangtze River Delta

Linmin Zhang*

School of Economics, Anhui University of Finance and Economics, Bengbu 233030, China

Abstract

Promoting the high-quality development of digital culture industry is an objective requirement to comply with the development trend of digital industrialization, and it is also a necessary way to improve the quality benefit and core competitiveness of digital culture. Therefore, an in-depth understanding of the connotation and characteristics of the development of digital culture industry and the evaluation of its high quality development level are conducive to providing a theoretical basis and practical basis for the development of digital culture industry in each region. As the backbone of digital economy development, the Yangtze River Delta region actively responds to the government's strategy of digitization of cultural industry and explores the high-quality development of digital cultural industry in depth. This paper grasps the connotation of high-quality development from the five dimensions of "innovation, coordination, green, openness and sharing", constructs indicators for measuring the high-quality development of digital culture industry by applying the entropy value method, analyzes the problems in the development of digital culture industry in the Yangtze River Delta, and further studies the influencing factors by using the Tobit model, and proposes the promotion path for the high-quality development of regional digital culture industry accordingly. The path of promoting high-quality development of regional digital culture industry is proposed.

Keywords

Digital Cultural Industry; Yangtze River Delta; Measurement; Tobit Model.

1. Introduction

The advent of digital technology has accelerated the development of new industries and new modes of cultural industries, and promoted the integration of cultural industries across industries and elements. The digital cultural industry is an important part of the digital economy, and its high quality helps promote the upgrading and transformation of cultural industries. The Fifth Plenary Session of the 19th CPC Central Committee pointed out that the theme of promoting high-quality development, implementing the "digital strategy of cultural industry", "prosperous cultural undertakings and cultural industries, and strengthening national cultural soft power", digital cultural industry is facing the urgent requirement of high-quality development. Urgent requirements[1]. September 22, 2020, education, culture, health, sports and other aspects of the experts speaking on behalf of the seminar stressed the need to adapt to the trend of digital industrialization, industrial digitalization, the transformation and upgrading of traditional cultural industry, improve quality and efficiency, and enhance core competitiveness. Especially after the epidemic, information technology, Internet technology-led information culture, network culture further developed into digital intelligence technology-led digital intelligence culture, promoting the process of digitalization of the cultural industry. At present, the development of China's digital culture industry is facing many problems such as digital technology, cultural products and services need to be upgraded, the new industry is not enough to breed, the supply structure needs to be optimized, the online consumption mode still

needs to be cultivated, the international competitiveness is weak, and the digital core capacity is missing[2]. The high-quality development of digital cultural industry is the current call for modernization of cultural industry development. Digital technology is becoming increasingly popular, Internet platforms are increasingly active, and various new cultural industries have emerged one after another, which undoubtedly creates good conditions for the improvement and soundness of modern cultural industry and market system.

2. Research on High-quality Development of Digital Culture Industry

In 2020, the Ministry of Culture pointed out in the Guidance on Promoting the Innovative Development of Digital Culture Industry that digital culture industry is the creation, production, dissemination and service of cultural and creative contents by relying on digital technology. The academic community mainly focuses on the research related to the high-quality development of digital cultural industry: First, it affirms the influence of digitalization on the high-quality development of cultural industry, and believes that the digital development of cultural industry has a new development opportunity in line with the requirements of epidemic prevention, and technology has an irreplaceable role in promoting the innovation of cultural content forms, upgrading of cultural products and innovation of cultural communication methods. Second, relying on digital technology, the implementation of "culture +" in order to promote the development of new business models of high quality. The digital transformation of the cultural industry facilitates the efficient integration of the cultural industry with the tourism industry, the financial industry, the game industry, etc. Zhang Lingyun proposes that "culture + education" go hand in hand, using technology to innovate the education model as a grip to inherit culture and change the business model[3]. The cross-border integration of cultural industries has greatly extended the chain of cultural industries. Thirdly, the research on some regions has enriched the research system of high-quality development of digital culture industry as a whole. For example, Yao Ting researches the digital transformation path of cultural tourism industry in southwest China[4]. Hua Jian studies the new dynamic energy of digital culture industry based on the integration of Yangtze River Delta[5]. In general, the research on the high-quality development of digital culture industry is still in the exploratory stage, and there is a lack of systematic research on the high-quality development of digital culture industry. The Yangtze River Delta region has an early start of digital economy, rich cultural resources and talent reserves, and has the scale advantage of developing digital cultural industry. The upgrading of cultural industry is significant for the integrated development of the Yangtze River Delta region, but there are relatively few studies on the development of digital cultural industry in the Yangtze River Delta, and there are almost no highly relevant studies exploring the measurement of high-quality development of digital cultural industry in the Yangtze River Delta.

In summary, the existing studies related to the high-quality development of digital culture industry are mostly theoretical analyses, with few empirical types, and few studies have been measured and analyzed by constructing high-quality evaluation indexes of digital culture industry. In view of this, this paper intends to construct an evaluation index system for the high-quality development of digital culture industry with the help of available data of the Yangtze River Delta from 2011 to 2020 to explore the differences, influencing factors and promotion paths of the high-quality regional digital culture industry, which will also further provide reference suggestions for improving relevant policy formulation and promoting the coordinated development of industrial economy in the Yangtze River Delta region.

3. The Construction of the Index System and Comprehensive Evaluation

3.1. The Construction of the Index System

This paper establishes the evaluation system of high-quality development of digital culture industry in accordance with five dimensions, including innovation, coordination, green, openness and sharing, from the principles of system hierarchy and scientific measurability (see Table 1).

Innovation is the source of vitality for the high-quality development of digital culture industry. It can stimulate the maximum effectiveness of production factors, lead and upgrade the innovation of industrial structure, and is the first driving force of industrial development. The innovation of digital culture enterprises is to focus on digital empowerment, promote the innovation of cultural content, model, industry and scene, and provide strong support for the quality supply of culture. In this paper, the number of employees and the assets of culture, art, science and technology and scientific research institutions are used to characterize the innovation potential, and the expenditure on the development of new products by culture manufacturing enterprises above the scale represents the innovation investment, and the total number of patents granted to culture and related industries and the level of digital technology in each region are used to measure the innovation capacity. The ratio of fixed asset investment in information transmission, computer services and software industry to the total fixed capital investment of the society is used to represent the digital technology level of each region[6].

Coordination is an inherent requirement for the sustainable development of digital culture industry. High-quality development should achieve inter-industry coordination, narrow the gap between regions and urban and rural areas, and achieve overall prosperity. In this paper, we choose the ratio of added value of cultural manufacturing enterprises above the scale to GDP and the advanced industrial structure to measure industrial coordination, and the ratio of cultural consumption of residents to the national average cultural consumption of residents and the difference coefficient of cultural consumption of urban and rural residents to measure regional and urban-rural coordination respectively, in order to promote the virtuous circle and orderly integration of digital culture industry in Yangtze River Delta and achieve common progress.

Green is the most beautiful color for the healthy development of digital culture industry, reducing energy consumption of resources, improving added value, and vigorously exploring green cultural resources are the necessary conditions for the sustainable development of digital culture industry. In this paper, the green coverage rate of built-up areas and the emission rate per unit of GDP are selected to characterize green environmental protection, and the total collection of public libraries and the number of art venues are selected to measure the green cultural resources in each region.

Openness is the only way to the high-quality development of digital culture industry. As culture is both national and global, the increase of openness can expand the cooperation and competition of regional industrial activities, optimize the allocation of resources, improve the industrial atmosphere and technology mechanism for international development, and achieve an innovative win-win situation. The export value of software and IT service industry and the actual utilization of foreign investment are selected to represent the openness dimension.

Sharing is the ultimate destination of high-quality development of digital culture industry. This paper selects the length of long-distance fiber optic cable lines and Internet broadband access ports to measure the hardware facilities, the investment in fixed assets of culture and related industries, and the proportion of cultural utility fees to fiscal expenditures to measure the financial support.

Table 1. Table of evaluation index system for high-quality development of digital culture industry in Yangtze River Delta

Tier 1 Indicators	Secondary indicators	Tertiary indicators	Properties
Innovative Development	Innovation potential	X1: Number of employees in culture, art, science and technology, scientific research institutions (people)	+
		X2: Cultural and artistic science and technology, scientific research institutions assets (yuan)	+
	Innovation input	X3: above-scale cultural manufacturing enterprises to develop new products funding (million yuan)	+
	Innovation Capability	X4: Total number of patents granted to cultural and related industries (pcs)	+
		X5: Digital technology level (%)	+
Coordinated Development	Industry Coordination	X6: The proportion of added value of cultural manufacturing enterprises above the scale to GDP (%)	+
		X7: Advanced industrial structure	+
	Regional Coordination	X8: Ratio of cultural consumption of residents to the national average cultural consumption of residents	+
	Urban-rural coordination	X9: Difference coefficient of cultural consumption between urban and rural residents	-
Green Development	Green	X10: Greening coverage rate of built-up area (%)	+
		X11: Emission rate of exhaust gas per unit of GDP (%)	-
	Green Resources	X12: Total public library collections (million volumes)	+
		X13: Number of Art Venues (pcs)	+
Open Development	Degree of openness	X14: Software and IT services exports (USD)	+
		X15: Actual utilization of foreign investment (million yuan)	+
Shared Development	Hardware	X16: Length of long-distance fiber optic cable lines (million miles)	+
		X17: Internet broadband access port	+
	Financial Support	X18: Fixed asset investment in culture and related industries	+
		X19: Share of cultural expenses in fiscal expenditure (%)	+

3.2. Data Sources and Processing

The data in this article are mainly obtained from the statistical yearbooks of the three provinces and one city in the Yangtze River Delta, the National Bureau of Statistics, the China Economic Network and EPS statistics and other official related data websites.

Since the data of digital culture industry high quality development level indicators have different levels of magnitude and quantity, in order to facilitate the investigation and comparison, the raw data are pre-processed by standardized methods, as follows.

① The indicators are divided into two categories: positive indicators P with larger values and negative indicators N with smaller values.

② Assume there are r years, n cities, and m indicators, and take $X_{\theta ij}$ as the first θ year city i of the j. The positive indicator is set as $X_{\theta ij} = \frac{X_{\theta ij} - \text{Min}(X_{\theta ij})}{\text{Max}(X_{\theta ij}) - \text{Min}(X_{\theta ij})}$ and the negative indicator is set as $X_{\theta ij} = \frac{\text{Max}(X_{\theta ij}) - X_{\theta ij}}{\text{Max}(X_{\theta ij}) - \text{Min}(X_{\theta ij})}$ where Max、Min are the maximum and minimum values of the data, respectively.

3.3. Determination of Indicator Weights

In this paper, we choose the entropy value method to determine the weight of digital culture industry indicators. The smaller the entropy value of the indicator, the greater the degree of

dispersion is indicated, and the greater the influence of this indicator on the comprehensive score. The specific calculation steps are as follows.

① Calculate j under the indicator i of the indicator for the first sample $P_{\theta ij} : 1.P_{\theta ij} = \frac{X_{\theta ij}}{\sum_{\theta} \sum_i X_{\theta ij}}$ (1)

Calculate the share of the first sample under the indicator

② Calculate j the information entropy value of the index: $e_j = -k \sum_{\theta} \sum_i P_{\theta ij} \ln(P_{\theta ij})$, $k = \frac{1}{\ln n}$;

③ Obtain the j The weights of the indicators w_j : $w_j = \frac{1-e_j}{\sum_j (1-e_j)}$, the weights of each index were obtained as shown in Table 2.

Table 2. Index weights of high-quality development of digital culture industry in Yangtze River Delta

Tier 1 Indicators	Secondary indicators	Tertiary indicators	Weights
Innovative Development	Innovation potential	X1: Number of employees in culture, art, science and technology, scientific research institutions (people)	0.0421
		X2: Cultural and artistic science and technology, scientific research institutions assets (yuan)	0.1892
	Innovation input	X3: above-scale cultural manufacturing enterprises to develop new products funding (million yuan)	0.0554
	Innovation Capability	X4: Total number of patents granted to cultural and related industries (pcs)	0.0807
		X5: Digital technology level (%)	0.0572
Coordinated Development	Industry Coordination	X6: The proportion of the added value of cultural manufacturing enterprises above the scale to GDP (%)	0.0352
		X7: Advanced industrial structure	0.0705
	Regional Coordination	X8: Ratio of cultural consumption of residents to the national average cultural consumption of residents	0.0420
	Urban-rural coordination	X9: Difference coefficient of cultural consumption between urban and rural residents	0.0054
Green Development	Green	X10: Greening coverage rate of built-up area (%)	0.0198
		X11: Emission rate of exhaust gas per unit of GDP (%)	0.0121
	Green Resources	X12: Total public library collections (million volumes)	0.0306
X13: Number of Art Venues (pcs)		0.0767	
Open Development	Degree of openness	X14: Software and IT services exports (USD)	0.0714
		X15: Actual utilization of foreign investment (million yuan)	0.0244
Shared Development	Hardware	X16: Length of long-distance fiber optic cable lines (million miles)	0.0423
		X17: Internet broadband access port	0.0508
	Financial Support	X18: Fixed asset investment in culture and related industries	0.0578
X19: Share of cultural expenses in fiscal expenditure (%)		0.0362	

④ Calculate the development index of high quality level of digital culture industry for each sample $l_i : l_i = \sum X_{\theta ij} * w_j$, at this time, there are 4 groups of indices calculated according to the entropy value method, and the 4 groups of data are averaged to arrive at the index of high-quality development of digital culture industry in each province and city.

3.4. Comprehensive Evaluation Analysis

Table 2 and Figure 1 show the comprehensive rating and the rating of five dimensions of the high-quality development level of digital culture industry in the Yangtze River Delta region, respectively. From this, we can get that the average value of high-quality development water of digital culture industry in the Yangtze River Delta region is 0.3394, and the standard deviation is 0.3197, with an overall increasing trend during the period of 2011-2020, and the annual

average value increases from 0.2677 in 2011 to 0.4316 in 2020, which is an increase of 61.23 percentage points. Specifically, the comprehensive evaluation can be divided into three stages. The first stage is 2011-2014, the average value of the comprehensive score is fluctuating upward posture, maintaining above 0.26, with small differences among provinces and cities, ranking Jiangsu, Zhejiang, Shanghai and Anhui in order. However, the scores of Jiangsu and Zhejiang reached their respective troughs in 2013, with the mean value falling from 0.2894 in 2012 to 0.2693 in 2013, a drop of 6.94%. This is mainly due to the decline of "green" and "innovation" indicators in the five dimensions from 2012 to 2013. "The score of "innovation" indicator decreased from 0.969 in 2012 to 0.0884 in 2013, mainly due to the decrease in investment in developing new products and the decrease in the total number of authorized patents in culture and related industries by culture manufacturing enterprises above the scale. " indicator score decreased from 0.0584 in 2012 to 0.0394 in 2013, mainly due to the significant rebound of two green resources, namely public library collections and the number of art galleries, which shows that green resources, especially those related to the cultural industry, are key factors for the high-quality development of the digital cultural industry, and the digital upgrade of the industry requires the cultural The digital upgrading of the industry requires the improvement of cultural carriers, and the green concept should be consistent. During this period, the indicators of "coordination, openness and sharing" among the five dimensions have been steadily increasing, but the change in score is small.

The second stage is the 2014-2018 period, the average value of the composite score grew faster, from 0.2809 in 2014 to 0.3790 in 2018, with an average annual increase of 8.73%. Among them, Zhejiang Province had the most significant growth rate, overtaking Jiangsu to become the first comprehensive score ranking. 2014-2015 Zhejiang rose by 33.7%, also driving the Yangtze River Delta region to the largest increase during this period, rising by 17.5%. During the second phase, most of the five dimensions showed an upward trend, with the "innovation" dimension scoring the highest, mainly due to the hot development of the digital culture field during this period, with many digital culture industry enterprises either listed in shells or adjusting their business direction, divesting traditional industries and cutting into the digital culture field. At the same time, the digital intelligence of cultural resources such as public libraries, museums, art galleries and other cultural venues has been enhanced, leading to the increase in the "green" dimension. However, the "coordination" dimension declined slightly during this period, mainly due to the failure to take into account the coordination of industrial structure and regional coordination during the early stage of digital culture development, resulting in the increasing disparity in the cross-section of the Yangtze River Delta region.

The third stage is the period of 2018-2020, with an overall upward trend, but the average growth rate of the comprehensive score slows down, mainly due to the impact of the epidemic control, many industries have been hit, offline cultural consumption has declined, and the pace of development of digital culture industry in provinces and cities has slowed down. But at the same time also brought some opportunities, the cultural industry actively explores, cloud live, cloud variety, short video, and other new industries continue to emerge, the development of digital culture industry in 2020 rebounded rapidly. In terms of the five dimensions, the "coordination" dimension declines slightly in 2019-2020, mainly due to the decline in the comparison between the cultural consumption of residents in each province and city and the average cultural consumption of residents nationwide, which affects regional coordination, but the "innovation, green, open, and sharing" dimension steadily increases, and the "innovation, green, open, and sharing" dimension steadily increases. However, the four dimensions of "innovation, green, openness, and sharing" are steadily increasing, which buffer the negative effect of the decline of the "coordination" dimension. Thus, the improvement of the high-quality development level of the digital culture industry in the Yangtze River Delta is not the result of a single factor, but the joint promotion of innovation-driven, coordinated coexistence, green

development, openness to the outside world and common construction and sharing. At the same time, the indicators of the five dimensions change in different trends and contribute differently to the progress of the high-quality development level of digital culture industry.

Table 3. Comprehensive evaluation of the high-quality development of digital culture industry in the Yangtze River Delta

Province and City	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Shanghai	0.2010	0.2230	0.2287	0.2313	0.2241	0.2398	0.2333	0.2439	0.2779	0.3004
Zhejiang	0.3718	0.3871	0.3415	0.3618	0.4837	0.5363	0.5713	0.5723	0.6237	0.6397
Jiangsu	0.4128	0.4413	0.3906	0.3982	0.4435	0.4664	0.4906	0.4788	0.5082	0.5557
Anhui	0.0850	0.1063	0.1164	0.1323	0.1685	0.2008	0.2143	0.2210	0.2229	0.2307
Average value	0.2677	0.2894	0.2693	0.2809	0.3300	0.3608	0.3774	0.3790	0.4082	0.4316
Standard deviation	0.1320	0.1328	0.1060	0.1059	0.1358	0.1434	0.1563	0.1505	0.1641	0.1705

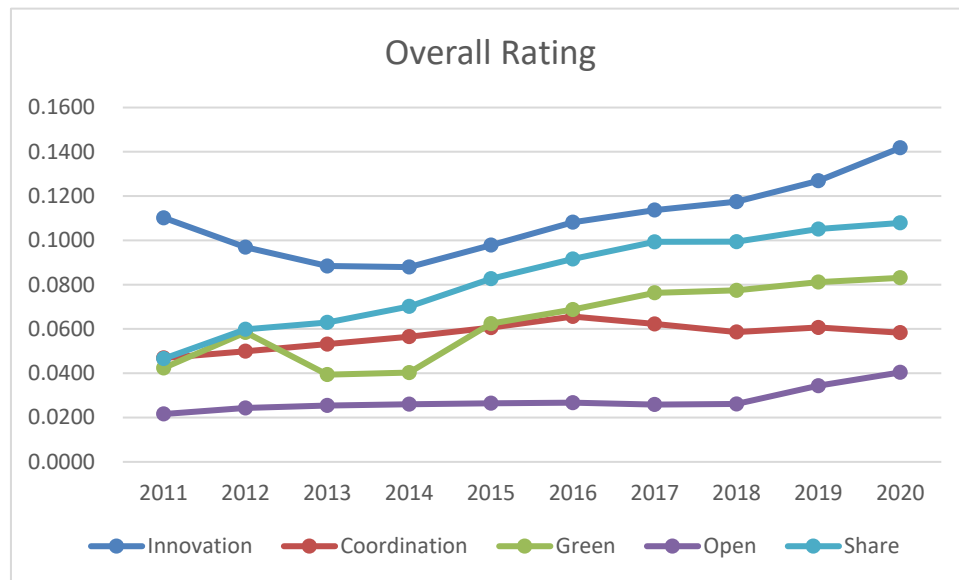


Figure 1. Five dimensions of comprehensive evaluation

4. The Yangtze River Delta Digital Culture Industry Development Influence Factors

4.1. Model Construction and Analysis

The Yangtze River Delta digital culture industry high quality development index is between 0 and 1, which has the characteristics of being cut, and meets the conditions of Tobit model setting of restricted dependent variables, so this benchmark model is set to study the influencing factors of digital culture industry development.

The development of digital culture industry cannot be separated from the improvement of innovation capability, and the application of R&D innovations to various production systems can continuously promote industrial integration and create new values. Therefore, the higher the level of innovation, the easier it is for regions to capture market demand in the digital culture industry market. The proportion of research and development expenditure to regional GDP was chosen to characterize regional innovation investment. Qian Haiyan et al. suggest that there is an obvious "digital divide" between urban and rural areas in terms of Internet penetration and digital-related industries, indicating that the level of urbanization has a certain influence on the digital culture industry, and in this regard, the urbanization rate is chosen to characterize [7]. In addition, the development of digital culture industry should take advantage

of the rich cultural resources, and in the era of "content is king", culture is the core of the industry. In addition, making full use of cultural resources to vigorously develop cultural industries can partially alleviate the problem of employment tensions, and the number of world cultural and natural heritage sites is chosen to characterize cultural resources. Culture is both national and global, and increasing opening up to the outside world can promote international competition and cooperation and form a virtuous cycle for the development of digital culture industry. The proportion of import and export volume (converted into RMB at the current year's exchange rate) to regional GDP is chosen to characterize opening up to the outside world. Finally, the digital culture industry cannot be separated from the construction of information network, and the poor Internet access between regions will weaken the development of digital economy to a certain extent, and the Internet penetration rate is used to measure the level of regional information infrastructure [8].

Based on the above analysis, the benchmark model can be further refined as:

$$Y_{it} = \alpha_0 + \beta_1 inn_{it} + \beta_2 urb_{it} + \beta_3 cr_{it} + \beta_4 ie_{it} + \beta_5 ipr_{it} + \epsilon_{it}$$

Among them, Y_{it} is the explained variable, namely the comprehensive index of high-quality development of digital cultural industry in Yangtze River Delta provinces and cities; α_0 is a constant term; inn_{it} represents regional innovation input; urb_{it} represents urbanization level; cr_{it} represents cultural resources; ie_{it} represents openness to the outside world; ipr_{it} represents regional information base; β_i represents the parameter to be estimated; ϵ_{it} represents the random disturbance term. The data are mainly obtained from the statistical yearbooks of provinces and cities from 2011 to 2020, and the results of processing with Stata software are shown in Table 4.

Table 4. Statistics of influencing factor variables

Variables	Variable Name	Coefficient	Standard deviation	T-test	p-value
inn	Regional innovation input	0.2101	0.1052	2	0.0440
urb	Urbanization rate	-0.0215	0.0094	-2.28	0.0290
cr	Cultural Resources	0.0035	0.0005	7.51	0.0000
ie	Open to the public	0.9163	0.2318	3.95	0.0000
ipr	Regional Information Base	0.0003	0.0027	0.12	0.9020
cons	Constants	0.2364	0.2047	1.16	0.2560

The results show that the impact of regional innovation investment on the high-quality development of digital culture industry passes the significance test at the 5% level with a coefficient of 0.2101, which is positively correlated. It indicates that innovation investment in Yangtze River Delta promotes the development of digital culture industry. On the one hand, strengthening investment in science and technology innovation provides financial support for the development of digital technologies such as big data, cloud computing, and artificial intelligence, which helps to promote the in-depth integration of digital economy and cultural industry; on the other hand, the investment in regional R&D expenditure can further cultivate the regional innovation atmosphere, promote the integration and gathering of innovation resources, and achieve innovation-driven high-quality economic development, thus indirectly promoting the enhancement of digital cultural industry. On the other hand, for every 1% increase in the level of innovation investment, the high quality index of digital culture industry increases by 0.2101%.

The effect of urbanization level on the high-quality development of digital culture industry passed the significance test at the 5% level with a coefficient of -0.0215, which is negatively correlated. It indicates that the increase of urbanization level does not necessarily promote the development of digital culture industry. On the one hand, the increase of urbanization level

promotes consumption and drives the economy to a certain extent, which provides a growing soil for the development of digital technology, but at the same time, the development of urbanization also has a certain impact on the cultural industry, especially in that a large number of cultural heritage and cultural sites in the countryside are not well protected, and for every 1% increase of urbanization level, the digital cultural industry high quality index decreases 0.0215%

The influence of cultural resources on the high-quality development of digital cultural industry passed the significance test at the 1% level with a coefficient of 0.0035, showing a positive correlation. It shows that cultural resources have a great influence on digital cultural industry, and cultural creative content is the soul, which essentially becomes the key factor of digital cultural industry. For every 1% increase in cultural resources, the high quality index of digital culture industry increases by 0.0035%.

The influence of the degree of openness to the outside world on the high quality development of digital culture industry passed the significance test at the 1% level with a coefficient of 0.9163, showing a positive correlation. It shows that it is the regions with developed economy and higher degree of openness to the outside world that are more conducive to the high quality of digital culture industry, and for every 1% increase in the degree of openness, the index of high quality of digital culture industry increases by 0.9163%.

The influence of information network on the high-quality development of digital culture industry passed the significance test at the 1% level with a coefficient of 0.0003, which is positively correlated. It indicates that the construction of information network in the Yangtze River Delta region contributes to the development of digital economy, but the coefficient is small, indicating that there are still inadequate areas for the construction of digital infrastructure across the Yangtze River Delta. Network facilities are the catalyst for the combination of digitalization and cultural industry, and the lack of attention to infrastructure is a key factor limiting the high-quality development of digital cultural industry.

4.2. Robustness Tests

To verify the stability of the results, in terms of variables, the indicator of regional innovation level was replaced by local expenditure on science and technology (est), and the results of the test are shown in Table 5, where the regression coefficients are in the same direction, indicating that the results are not coincidental.

Table 5. Replacement variable statistics

Variables	Variable Name	Coefficient	Standard deviation	T-test	p-value
est	Regional Innovation Level	0.0064	0.0025	2.57	0.0150
urb	Urbanization rate	-0.0163	0.0062	-2.72	0.0100
cr	Cultural Resources	0.0021	0.0044	4.80	0.0000
ie	Open to the public	0.7574	0.1520	4.98	0.0000
ipr	Internet penetration rate	0.0031	0.0027	1.12	0.2720
cons	Constants	0.3596	0.2121	1.70	0.0990

5. Conclusion and Policy Recommendations

5.1. Conclusion

This paper constructs the index system of high-quality development of digital cultural industry based on the new development concept, uses the entropy value method to derive the comprehensive score of high-quality development in the Yangtze River Delta region during the

observation period, and uses the tobit model to analyze the influencing factors of the development of digital cultural industry, with the following conclusions.

5.1.1. Measurement of the Level of High-quality Development of Digital Culture Industry

On the whole, the development level of the digital culture industry in the Yangtze River Delta shows increasing chronological characteristics, and the differences in cross-sectional development among the three provinces and one city gradually become larger as the chronological growth. Among the five dimensions, the indicators of "innovation, sharing and openness" show a trend of year-on-year growth between 2011 and 2020, with the most obvious increase in sharing development, some fluctuations in innovation development, and a relatively stable increase in open development. The "green" dimension fluctuated more during the observation period, with a decreasing trend between 2012 and 2014. The coordination dimension also declined slightly between 2016 and 2018. Roughly speaking, we can divide the comprehensive score of the Yangtze River Delta into three periods during the observation period: the first period is 2011-2014, with the average value of the comprehensive score fluctuating and rising, and the "green" dimension fluctuating significantly; the second period is 2014-2018, with the average value of the comprehensive score increasing at a faster rate and the five dimensions all showing an upward trend; the third period is The third stage is the period 2018-2020, when the average growth rate of the composite score slows down and the "coordination" dimension decreases slightly.

5.1.2. Influencing Factors of Digital Economy Development

Innovation investment capacity, cultural resource level, openness to the outside world and information network construction can significantly contribute to the high-quality development of digital culture industry in the Yangtze River Delta, but the level of urbanization has a significant inhibitory effect on the development level of digital culture industry in the Yangtze River Delta.

5.2. Policy Recommendations

5.2.1. Enhancing Regional Innovation Capabilities and Extending the Digital Culture Industry Chain

First, strengthen the top-level design and focus on policy integration and innovation linkage. By sorting out the policies in the fields related to the digital culture industry, build a policy information sharing platform to facilitate seamless and efficient inquiries by business entities and form a unified coordination mechanism. Pay high attention to the fundamental, superimposed and butterfly effects brought by the integration of culture and technology on industrial development, and encourage financial and social enterprise capital tilting toward cultural industries with high technology content through innovative measures and tax incentives. Second, strengthen the support of science and technology to achieve a virtuous innovation cycle of the industry. Strengthen the main position of private cultural enterprises in the innovation of the new industry, through strengthening scientific and technological research and development investment, government-enterprise cooperation, break through the bottleneck of scientific and technological mechanisms that restrict the development of digital culture industry, realize the depth of digital technology and cultural content, extend the cultural industry chain, and promote the benign upgrade of digital culture industry. Third, improve the mechanism of talent, cohesion of science and technology innovation and humanistic power.

According to the needs of the integration of digital technology and cultural industry, support the opening of interdisciplinary disciplines of science and technology and culture in universities around the world, guide large cultural enterprises and research institutes to build talent training bases together, and gather a group of reputable and strategic practice-oriented cultural

science and technology leaders and main forces through the implementation of major digital cultural projects. In addition, relevant departments need to improve the talent introduction and incentive mechanism. For example, retaining talents in short supply for the development of digital culture industry through equity, performance or dividends related to scientific and technological transformation results, etc.

5.2.2. Strengthen the Protection of Cultural Resources and Create a Digital Specialty Industry Base

The rich cultural resources and civilization accumulation are the advantages of the development of digital cultural industry. The Yangtze River Delta should improve cultural protection policies and supervision mechanisms, establish ecological compensation funds, and strengthen the system of consultation meetings on cultural protection in the three provinces and one city. Rely on the advantages of digital economy development in the Yangtze River Delta and the endowment of cultural characteristics resources in each region to create regional characteristic industrial bases. By supporting the development and transformation of original IP with distinctive Chinese cultural characteristics, emphasizing "content is king", developing differentiated regional specialties, overcoming the phenomenon of homogenization of cultural creativity, and creating the convergence and halo effect of brands. At the same time, the Yangtze River Delta region should accelerate the digitalization of cultural resources in public libraries, museums, art groups and other units, deepen the digital classification and collection of traditional material and intangible cultural heritage, use VR virtual technology and 3D design to enhance the development and transformation of traditional cultural resources, introduce immersive experiences for tourists, and enhance the infectious power of venues and their promotional capabilities. In addition, it is imperative to strengthen the policy design of copyright legislation for new cultural industries, especially in the fields of digital audio-visual, online games and digital reading, where piracy and infringement problems are constantly emerging, and to strengthen the protection of intellectual property rights.

5.2.3. Promote Digital Cultural Trade and Build and Share a Global Model of Digitalization

The development of digital culture industry must look at the world while focusing on the local area to promote digital culture trade. Vigorously promote the digital development of cultural industry and reduce the cost of cultural trade. First, give full play to the regulating role of the digitalization of the cultural industry, strengthen assistance for the construction of digital infrastructure in countries along the "Belt and Road", and deepen the connection of cultural facilities; strengthen country studies, actively explore "one country, one policy", distinguish the cultural traditions and values of different countries, and provide customized cultural product services. We should strengthen country studies, actively explore "one country, one policy", distinguish cultural traditions and values in different countries, and provide customized cultural products and services. Second, we should focus on contemporary Chinese values, adhere to the path of localization, and incorporate the Chinese road, Chinese system and Chinese wisdom into it; empower the creative transformation of traditional cultural resources, "shape tourism with culture, highlight culture with tourism", promote the integrated development of "culture and tourism + technology" and The company will also promote the integration of "culture and tourism + technology" and the efficient revitalization of cultural heritage to drive Chinese business cards to "go global". Thirdly, we will enhance our export marketing capability with the help of digital platforms, actively participate in the formulation of global digital cultural trade rules, and reduce trade costs. Through different forms of humanities exchanges such as Confucius Institute online classes, museum "cloud exhibitions", Silk Road "cloud tourism", art festivals and exhibitions and study visits, we will enhance people-

to-people exchanges, strengthen the digital cultural brand effect and cultivate new competitive advantages for exports.

5.2.4. Building a Digital Culture Platform and Consolidating the Foundation of Industrial Integration

Accelerate the construction of network facilities platforms and solidify the foundation for the integration of digital technology and cultural industries. Accelerate Internet coverage, long-distance fiber optic cable coverage, and mobile base station coverage by expanding the government's investment efforts related to new infrastructure. In addition to government investment, encourage active participation of private capital to improve data application scenarios and lay a solid hardware foundation for the integration of digital economy and cultural industry. In addition, in the context of rapid development of financial technology the Yangtze River Delta should increase financial support for digital core technology areas such as artificial intelligence, industrial Internet, big data and blockchain, grasp the historical opportunity of the new round of information technology revolution, cultivate the platform economy and coordinate the overall layout of the development of digital culture industry in the Yangtze River Delta.

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