

Measurement of High-quality Development Level of New Infrastructure Empowerment Cultural Industry

-- Based on the Yangtze River Economic Belt

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Abstract

During the 14th Five-Year Plan period, the theme of social development should be to promote high-quality development, which is the inevitable trend for cultural industry to improve quality and increase efficiency under the background of five development concepts and social contradictions. At the same time, China is vigorously developing new infrastructure construction represented by the emerging information high-tech industries such as 5G, big data, cloud computing, Internet of Things, etc., to help the cultural industry break through the existing development defects and achieve new development of the cultural industry to further enhance China's cultural competitiveness in the international arena. Construct the index system of high-quality development of cultural industry, calculate the explained variable, that is, the high-quality development index of cultural industry by entropy method, and calculate the investment in new infrastructure construction as the core explanatory variable, build a panel regression model, and discuss the high-quality development level of cultural industry in Yangtze River Economic Belt and the differential empowerment of different types of new infrastructure investment. Finally, it is found that the new infrastructure plays a significant role in promoting the high-quality development of the cultural industry in the Yangtze River Economic Belt, and the driving effect of the new infrastructure on the high-quality development of the cultural industry is structurally heterogeneous, among which innovative infrastructure investment has the strongest driving effect. In the upper, middle and lower reaches of the Yangtze River Economic Belt, the overall new infrastructure investment level and different types of new infrastructure investment have regional heterogeneity on the high-quality development level of cultural industry. Finally, according to the above conclusions, some relevant policy suggestions are put forward.

Keywords

High-quality Development of Cultural Industry; Entropy Method; New Capital Construction; Regional Heterogeneity.

1. Introduction

For a long time, the development of China's cultural industry mainly depends on the traditional extensive growth path such as resources and location, and its sustainability is weak. Since 2009, the cultural industry has been promoted to a national strategy, and has experienced a high-speed growth stage for more than ten years. However, due to the lack of growth momentum, the growth rate slowed down obviously, the shortcomings gradually became prominent, and the market competitiveness declined, which increasingly exposed problems such as the need to optimize the basic allocation, the low efficiency of resource flow and utilization, the lack of independent innovation ability, and insufficient policy support [1]. The concept of "new

infrastructure" was first put forward in 2018. From its definition, the new infrastructure is based on the new development concept and high-quality development, and promotes the digital transformation of industry and integration and innovation through technological innovation. On the one hand, after large-scale investment in the past, the stock base of traditional infrastructure investment has been very high, and the development space tends to be saturated. The new infrastructure has just started, with good development potential and conditions, which can drive new manufacturing demand, incite larger-scale investment and form a positive cycle. On the other hand, speeding up the new infrastructure is an important manifestation of meeting the opportunity of a new round of scientific and technological revolution. By eliminating backward and low-energy industries through information technology, it can realize the digitalization, networking and intelligent transformation and upgrading of the cultural industry structure, and can provide high-quality and low-price goods for the market.

On the realistic level, the new infrastructure will be deeply integrated into the industrial economic system, which will play a greater role in cultivating new economic growth points of the industry and enabling the high-quality development of the industry. It is necessary to make full systematic planning and overall implementation, and strive to push China's cultural industry to break through the bottleneck of development and achieve steady and far-reaching development with new infrastructure; At the theoretical level, the quantitative research represented by the construction of high-quality index system of cultural industry is the focus of current academic circles. It is also of theoretical significance to explore the relationship between new infrastructure and high-quality development of cultural industry and draw relevant conclusions and suggestions.

2. Literature Review

The new infrastructure concept was first put forward in December 2018, and then scholars began to conduct extensive discussions. He Zili (2020)[2] Lan Hong (2020)[3] Others think that the new infrastructure plays an important role in coping with the short-term impact brought by the epidemic and promoting China to lead the future development of science and technology with the digital economy. Accelerating the investment and construction of "new infrastructure" points out the direction for all trades and industries to resume work and production, and is of great significance in guiding the high-quality development of the national economy. Guo Chaoxian (2020)[4] It is pointed out that "the new infrastructure plays a more significant role in stimulating the primary and tertiary industries than the old infrastructure. New infrastructure has a multiplier effect on economic growth in the short term and provides new kinetic energy for economic transformation in the long run. " Wei Min (2020)[5], Jinyang (2021)[6] By summarizing and analyzing the connotation and influence of "new infrastructure", others put forward to speed up the formation of customized new infrastructure planning schemes, such as speeding up strategic guidance, technical guidance, increasing industrial support, demonstration and popularization, etc.

The term "cultural industry" was first put forward in the west, and from then on, qualitative and quantitative research on cultural industry began at home and abroad. The research on domestic cultural industry started relatively late. The "cultural industry" was officially put forward for the first time at the Fifth Plenary Session of the 15th CPC Central Committee. In 2012, the Multiplication Plan issued by the Ministry of Culture formally proposed to promote the high-quality development of the cultural industry. Based on the existing research results, the academic research on the high-quality development of cultural industry is divided into the following parts: First, the measurement of the high-quality development of cultural industry. Ren Baoping (2018)[7] It is pointed out that promoting the high-quality development of cultural industry is inseparable from building an evaluation index system to measure the high-quality

development level of cultural industry in multiple dimensions. Yuan Yuan (2020)[8]Yu Lei (2021)[9]Other scholars think that the construction of evaluation index system needs to be consistent with the five new development concepts of "innovation, coordination, green, openness and sharing". Yuan Yuan Yuan (2020) proposed that the indicators can be selected from five dimensions: industrial efficiency, cultural innovation, coordinated development, development environment and opening to the outside world, and the index weight can be calculated by entropy weight method to obtain the high-quality development index of cultural industry. Jiang Han (2021)[10]It is pointed out that DEA model can be directly used to measure, and it is concluded that the extensive use of new media in cultural industry can boost the high-quality development of cultural industry. Second, it is the influencing factor of the high-quality development of cultural industry. The investigation of cultural factors mainly focuses on four aspects: economy, society, policy and self-development. He Da (2019)[11]Zheng Zili (2019)[13] Through empirical test, the former points out that the policy of direct intervention by the central government and indirect guidance by the government will have a significant impact on the high-quality development level of the cultural industry, while the latter thinks that promoting the integration of culture and science and technology is the inevitable requirement of the high-quality development of the cultural industry.

Throughout the previous studies, the spatial scale of the existing studies is concentrated on the cultural industries in provinces and cities, while there is relatively little research on the high-quality development level of cultural industries in economic regions, and most of the literature on the Yangtze River Economic Belt is focused on some provinces and cities. Most of the researches on new infrastructure as a driving force only focus on the influence of one representative part on industrial development, not on the investment level of the whole new infrastructure, and lack of discussion on the heterogeneity of different investment types. This paper will fill this gap, use the panel data of the Yangtze River Economic Belt, and calculate the high-quality development index of cultural industry based on entropy method. Starting from the overall investment level of new infrastructure, and distinguishing different investment types, this paper will discuss whether new infrastructure can significantly improve the high-quality development of cultural industry, the differential influence of different new infrastructure investment types, and the heterogeneity of different regions.

3. Theoretical Mechanism Analysis and Research Hypothesis

3.1. The Influence Mechanism

The mechanism of the new infrastructure construction on the cultural industry is as follows:

Firstly, efficient allocation of elements. From the perspective of economics, the high-quality development index of cultural industry can reflect the efficiency of factor allocation. The promotion of new infrastructure has largely realized the sufficiency of intangible resources such as knowledge, technology and data, and changed the traditional development of cultural industries determined by production factors such as resources, regions and policies. On the one hand, the availability of factors is enhanced, and the production cost of cultural industries, especially the trial-and-error cost of transformation, is reduced; On the other hand, the continuous innovation and optimization of elements in the market can better provide diversified and personalized cultural goods that the common people pursue.

Secondly, the restructuring of the value chain of the industrial chain promotes the continuous improvement of the efficiency of the cultural industry, and at the same time, it also promotes the emergence of related emerging industries. New infrastructure construction promotes the transformation and upgrading of cultural industry through digital and intelligent transformation, and improves quality and efficiency. At the same time, the new infrastructure

drives the cultural industry sector to develop in a more efficient, environmentally friendly and sustainable direction.

Thirdly, industry empowerment, innovation ability enhancement. Technology innovation is the fundamental measure to improve the high-quality development level of cultural industry. At present, there are some problems in China's cultural industry, such as serious homogenization of products and insufficient independent innovation ability. The new industry "empowerment" process of infrastructure construction is to integrate innovation and cultural resources by relying on new circulation ideas and methods driven by knowledge and data. Through empowerment, independent innovation, technological imitation ability and technological innovation diffusion ability can be improved, and the production efficiency of different industrial sectors can be improved. Therefore, this paper puts forward the following assumptions:

H1: The unique advantages of the new infrastructure will positively promote the high-quality development of the cultural industry.

3.2. Regional Heterogeneity

This paper selects the Yangtze River Economic Belt as the research object, and the concept of the Yangtze River Economic Belt was first put forward by Shangqing Sun (1985)[18]"Yangtze River Industry Intensive Belt", followed by Dai Xiongwu (1991)[19]In its research results, it is pointed out that the research scope of the Yangtze River Economic Belt includes: "Sichuan, Chongqing, Guizhou and Yunnan in the upper reaches of the Yangtze River, Hunan, Hubei and Jiangxi in the middle reaches of the Yangtze River, and three provinces and one city in the Yangtze River Delta, with 11 provinces and cities in total." There are some differences in resource endowment and economic development level among regions along the Yangtze River. Looking at the regional investment policies and industrial layout of "new infrastructure" in China, the spatial distribution of "new infrastructure" investment is uneven, and most of the fund's flow to more developed regions and specific industries. A region's economic development level, industrial base, location conditions and infrastructure will have an impact on the driving force of new infrastructure. Areas with higher economic development level have better economic development foundation and development potential, which can better digest various effects brought by new infrastructure. However, the underdeveloped areas are easily restricted by their own development conditions in the process of promoting the high-quality development of cultural industries by new infrastructure. Therefore, in the case of differences in regional factor resource endowments and fiscal expenditures, it is necessary to divide different regions, discuss the impact of new infrastructure on the high-quality development of cultural industries from the perspective of regional heterogeneity, and put forward the following assumptions:

H2: The driving effect of new infrastructure on the high-quality development of cultural industry is heterogeneous in geographical and spatial distribution.

3.3. Analysis of Structural Heterogeneity

The new infrastructure includes three types of infrastructure construction: information infrastructure, integrated infrastructure and innovative infrastructure. "Information Infrastructure" includes industrial Internet, satellite Internet, intelligent computing center, etc., which aims to optimize and upgrade the industrial structure through the restructuring of industrial chain; "Convergence Infrastructure" aims to realize the digital transformation of information infrastructure enabling industries; "Innovative infrastructure" further provides support for the development of the first two infrastructures, and also provides driving force for the innovative development of the whole economy and society. Therefore, different types of

"new infrastructure" will have obvious structural heterogeneity when acting on the high-quality development level of the cultural industry.

H3: The driving effect of "new infrastructure" on the high-quality development of cultural industry will be different with different types of infrastructure.

4. Research Design and Empirical Analysis

4.1. The Measurement Model Construction

4.1.1. Construction of Benchmark Model

In this paper, Y_{it} is taken as the explained variable and $\ln \text{Infra}_{it}$ as the explained variable, and an econometric model is set:

$$Y_{it} = \beta_0 + \beta_1 \ln \text{Infra}_{it} + \beta_2 \text{GDPPC}_{it} + \beta_3 \text{IPAL}_{it} + \beta_4 \text{GDP3}_{it} + \beta_5 \text{GR}_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Among them, i represents province and t time respectively; TFP_{it} indicates the total factor yield of manufacturing industry in region I in t year; $\ln \text{Infra}_{it}$ indicates the new infrastructure development index; GDP_{it} , IPAL_{it} , GDP3_{it} and GR_{it} respectively represent the per capita regional GDP, the number of patents granted, the proportion of the added value of the tertiary industry in the regional GDP, and the scale of enterprises. μ_i represents the fixed effect that affects the total factor productivity of manufacturing industry, ε_{it} represents the random error term. β_0 is a constant term, β_1 is the regression coefficient of explanatory variables, and β_2 - β_5 is the regression coefficient of control variables.

4.1.2. Construction of Econometric Model based on Heterogeneous Research Design

Based on the heterogeneity of different investment types and different regions in different provinces and cities, the following three regression models are constructed:

$$Y_{it} = c + \alpha_1 \ln \text{Infra} + \alpha_2 \ln \text{Infra1} * \text{dummy1} + \alpha_3 \ln \text{Infra2} * \text{dummy2} + \alpha_4 \ln \text{Infra3} * \text{dummy3} + \beta \text{control} + \mu \quad (2)$$

$$Y_{it} = c + \alpha_1 \ln \text{Infra} + \alpha_2 \ln \text{Infra1} * \text{dummy4} + \alpha_3 \ln \text{Infra2} * \text{dummy5} + \alpha_4 \ln \text{Infra3} * \text{dummy6} + \beta \text{control} + \mu \quad (3)$$

$$Y_{it} = c + \alpha_1 \ln \text{Infra} + \alpha_2 \ln \text{Infra1} * \text{dummy7} + \alpha_3 \ln \text{Infra2} * \text{dummy8} + \alpha_4 \ln \text{Infra3} * \text{dummy9} + \beta \text{control} + \mu \quad (4)$$

In formulas (2), (3) and (4), dummy variables are set, and dummy1-dummy3 all indicate the upper reaches of the Yangtze River Economic Belt. dummy4-dummy6 all indicate the middle reaches, dummy7-dummy9 all indicate the lower reaches, and the corresponding provinces and cities in the corresponding areas take the value of 1, otherwise it is 0. The explanatory variables include $\ln \text{Infra}$, $\ln \text{Infra}i * \text{dummy}t$ ($i=1,2,3$, $t=1,2,3,4,5,6,7,8,9$), where $\ln \text{Infra}i * \text{dummy}t$ ($i=1,2,3$, $t=1,2,3,4,5,6,7,8,9$) indicates the level of information infrastructure, integration infrastructure and innovation infrastructure in the upper, middle and lower regions, with the same control variables as mentioned above. $\alpha_1, \alpha_2, \alpha_3$ and β are the parameters to be estimated, and μ follows the i.i.d random perturbation term.

4.2. Instructions on Selection and Processing of Variables and Data

4.2.1. Explained Variable

Starting from the five new development concepts, this paper points out that since the cultural industry itself belongs to the green industry, to promote the high-quality development of the cultural industry is to practice the green new development concept. Therefore, the evaluation index system of high-quality development of cultural industry is constructed from the four

concepts of innovation, coordination, openness and sharing. On the basis of comprehensive reference to published cultural industry development indexes such as China Cultural Industry Development Index 2012 and China Cultural Industry High-quality Development Index 2020, this paper constructs an index system of high-quality development of cultural industry, which includes five first-level indexes and 11 second-level indexes of "industrial efficiency, cultural innovation, government support, cultural environment and opening to the outside world", as shown in Table 1. On the basis of referring to relevant literature, combined with data availability, the data comes from China Cultural Database, and the entropy method with the highest usage at present is used to calculate the high-quality development index of cultural industry.

Table 1. Index system of high-quality development of cultural industry

Primary index	Secondary index	unit	Index attribute
Industrial efficiency	Number of cultural manufacturing enterprises above scale	individual	straight
	Residents' spending on education, culture, entertainment and services	Yuan	straight
Cultural innovation	Scientific researchers	human	straight
	Patent application of cultural manufacturing enterprises of above scale	piece	straight
Government support	Financial expenditure of culture and media	Ten thousand yuan	straight
cultural context	Number of public libraries	individual	straight
	Total stock	A thousand volumes	straight
	Books and periodicals lending times	A thousand volumes	straight
	Visits to the museum	Thousands of people	straight
	Number of museums	individual	straight
opening to the outside world	Number of cultural exchange activities with Hong Kong, Macao and Taiwan	time	straight

4.2.2. Explained Variable

This article refers to Wu Xianfu et al. (2020)[20] The new infrastructure includes: information infrastructure investment, integrated infrastructure investment and innovative infrastructure investment. The information infrastructure index involves the investment in the new generation of information technology services. The fixed investment of information transmission, software and information technology services in 11 provinces and cities in the Yangtze River Economic Belt is selected for measurement. Infrastructure integration is the digital transformation of traditional infrastructure, which is measured by multiplying the traditional infrastructure of various provinces and cities by the integration coefficient of traditional infrastructure and industrial digitalization. Innovation Infrastructure Index: It mainly involves the investment in scientific and technological innovation and public services, and is measured by the investment in fixed assets of scientific research and technical services, health and social work in various provinces and cities.

4.2.3. Control Variables

Starting from the driving force of the high-quality development of cultural industry and referring to relevant literature, this paper selects the following four control variables: ① Per capita gross domestic product (GDPPC). The level of economic development has improved, the industrial structure has been upgraded, the infrastructure and environment of the cultural industry have been further optimized, more market players have entered the cultural industry, the industry has become mature, and the competition has intensified to promote the high-quality development of the cultural industry. ② Number of patent authorizations (IPAL). Stimulating the vitality of cultural innovation, promoting the content innovation of cultural industry and the deeper integration of culture and science and technology are conducive to stimulating the power of high-quality cultural development. ③ Expenditure on education, culture and entertainment services accounts for the proportion of fiscal expenditure (PD). The government's introduction of relevant policies to promote the innovation of cultural system and mechanism and improve the industrial investment and financing system are conducive to the optimization of the cultural industry development environment. ④ Number of graduates (persons) (GR). To promote the high-quality development of cultural industry, talents are the key. Cultivating innovative and practical talents is conducive to strengthening the team of high-level and high-skilled talents in the cultural industry and meeting the needs of the transformation of innovation achievements and the expansion of market scale.

4.2.4. Control Variables

Select the data of 11 provinces and cities in the Yangtze River Economic Belt from 2012 to 2017. The data sources are China Regional Economic Database and China Cultural Database. For the sake of data integrity, some missing data are filled by interpolation. At the same time, in order to reduce the errors caused by heteroscedasticity, each variable is logarithmic.

4.3. Regression Result Analysis

4.3.1. Regression Result

Among the overall regression results, it can be seen from the first column and the second column that the regression coefficient of the total new infrastructure investment is 0.364 when the control variables are not added, which is significant at the confidence level of 1%, indicating that the total new infrastructure investment can obviously improve the high-quality development of the cultural industry, so the hypothesis H1 is verified. In terms of structure, information infrastructure plays a positive role in the high-quality development of cultural industry, while integration infrastructure plays a negative role, but none of them are significant. Infrastructure innovation has a significant role in promoting the high-quality development of cultural industry, with a regression coefficient of 0.387, which is significant at the confidence level of 1%.

The third and fourth columns are the results after adding the control variables. It can be found that after adding the control variables, the overall new infrastructure investment still has an obvious promotion effect on the high-quality development of cultural industry, and the regression coefficient is significant at the confidence level of 1%. For every 1% increase in new infrastructure, the high-quality development index of cultural industry can be increased by 0.246%. In terms of structure, after adding control variables, the information infrastructure still has a positive effect and is still not significant, the integration infrastructure has a negative effect but is not significant, and the innovation infrastructure still has a significant promotion effect, which verifies hypothesis H2. Among the control variables, the per capita GDP can promote the high-quality development of the cultural industry, and it is significant at the confidence level of 5%. The proportion of education, culture and entertainment services in fiscal expenditure has a negative effect, and it is significant at the confidence level of 10%. Both

the number of patent grants and the number of graduates have a positive effect, but they are not significant.

Table 2. Benchmark regression results

	(1)	(2)	(3)	(4)
Infra1		0.0381 (0.88)		0.0477 (1.20)
Infra2		-0.0338 (-0.74)		-0.0334 (-0.80)
Infra3		0.387*** (6.05)		0.312*** (0.68)
Infra	0.364*** (10.72)		0.246*** (9.38)	
GDPPC			0.834** (4.86)	0.768** (3.29)
IPAL			0.115 (1.62)	0.0964 (1.40)
PD			-0.395* (-1.61)	-0.511* (-2.22)
GR			0.404 (2.21)	0.246 (1.25)
constant term	-8.245648	-8.216358	-18.17195	-15.57024
Individual effect	YES	YES	YES	YES
N	66	65	66	65
R2 value	0.7528	0.7639	0.7864	0.7985

Note: T values in brackets, *, **, *** are significant at the levels of 10%, 5% and 1% respectively.

4.3.2. Investment Structure and Regional Heterogeneity Regression

According to the region and the structure of new infrastructure (Table 3), there are obvious heterogeneity and different effects in different investment structures and different regions: in the upstream region, information infrastructure has a positive effect on the high-quality development level of cultural industry, while integration infrastructure has a negative effect, but none of them are significant. Innovative infrastructure has a significant promotion effect on the high-quality development level of cultural industry, with a regression coefficient of 0.471, which is significant under the confidence level of 1%. Overall, new infrastructure investment. In the middle reaches of the river, information infrastructure has played a positive role, with a regression coefficient of 0.181, which is significant at the confidence level of 5%. The role of integrated infrastructure and innovative infrastructure is not significant, and the overall new infrastructure investment has played a significant role in promoting, and it is significant at the confidence level of 1%. In the downstream areas, information infrastructure and converged infrastructure have the promotion and negative effects, respectively, which are significant at the confidence level of 10% and 1%, while innovative infrastructure has a strong positive effect, with a regression coefficient of 0.613, which is significant at the confidence level of 1%. The overall new infrastructure investment still has a significant promotion effect, which is also significant at the confidence level of 1%. This part verifies hypothesis H3.

Table 3. Heterogeneity regression results

	(5)		(6)		(7)	
	Upstream area		Middle reaches		Downstream area	
Infra	0.519*** (0.0535)		0.301*** (0.0505)		0.367*** (0.0479)	
Infra1		0.0444 (0.0742)		0.181** (0.0779)		0.165* (0.0942)
Infra2		-0.0204 (0.0772)		0.161 (0.114)		0.552*** (0.165)
Infra3		0.471*** (0.147)		0.0157 (0.132)		0.613*** (0.113)
constant term	-9.773*** (0.506)	-9.423*** (0.892)	-7.969*** (0.584)	-7.186*** (0.617)	-7.863*** (0.525)	6.780*** (0.420)
Individual effect	YES	YES	YES	YES	YES	YES
N	24	24	18	18	24	24
R2 value	0.863	0.832	0.717	0.803	0.756	0.875

Note: T values in brackets, *, **, *** are significant at the levels of 10%, 5% and 1% respectively.

4.4. Robustness Analysis

4.4.1. Robustness Test

As the core explanatory variables observed in 2011 and 2017 in the original sample range all have missing values, although the corresponding missing values have been processed, there will still be some disturbance. Therefore, this part adopts the method of shortening the sample interval, adjusting the sample interval to 2012 -2016, to test the robustness.

Table 4. Robustness test

	(1)	(2)	(3)	(4)
Infra1		0.00172 (0.04)		0.0158 (0.41)
Infra2		-0.0331 (-0.23)		-0.0442 (1.09)
Infra3		0.385*** (4.67)		0.291*** (-0.23)
Infra	0.317*** (7.63)		0.158*** (9.38)	
GDPPC			0.654** (3.02)	0.705** (2.47)
IPAL			0.0943 (1.24)	0.0671 (0.91)
PD			-0.0389* (-0.13)	-0.109* (-0.37)
GR			0.560 (2.31)	0.492 (1.84)
Individual effect	YES	YES	YES	YES

Note: T values in brackets, *, **, *** are significant at the levels of 10%, 5% and 1% respectively.

Through the regression results (Table 5), it can be found that after changing the sample interval, in the overall regression and heterogeneous regression, the regression coefficient of the driving effect of each core explanatory variable on the high-quality development index of cultural industry has changed to some extent, but the sign and significance have not changed, so the original benchmark regression results are still valid, so the benchmark regression is robust.

4.4.2. Endogenous Test

In this part, Locke (2016)[21]selects L.Infra as the instrumental variable. The main logic is that the current new infrastructure will not affect the Infra of the lag phase. L.Infra itself is the Infra, which has a strong correlation with the core variables. Meanwhile, the lag phase variable eliminates the time effect, so it is reasonable to choose the 2SLS method.

Table 5. The first stage of endogenous test

variable	(3)	(5)	(6)	(7)
	lnfra	Lnfra1	Lnfra2	Lnfra3
L. lnfra	0.9845634			
L. Lnfra1		0.9907214		
L. Lnfra2			0.9863545	
L. Lnfra3				0.9585825
constant term	2.949544	5.712958	3.816494	2.659762
Control variable	control	control	control	control
N	55	54	54	55
R2 value	0.9985	0.9931	0.9890	0.9951

Table 6. The second stage of endogeneity test

variable	(1)	(2)	(3)	(4)
	Cultural high-quality development index			
lnfra	0.00489 (0.24)			
Lnfra1		0.00405 (0.35)		
Lnfra2			-0.00528 (-0.09)	
Lnfra3				0.00570 (0.47)
constant term	-20.59492	-20.41406	-20.5045	-20.32618
Control variable	control	control	control	control
N	55	54	54	55
R2 value	0.7507	0.7544	0.7541	0.7506
Cragg-Donald Wald F	24.49 [16.38]	23.33 [16.38]	22.14 [16.38]	24.81 [16.38]

Table 6 shows the regression results of the first stage of 2SLS. It can be found that L. lnfra has a strong positive correlation with lnfra. Table 7 shows the results of the second stage regression of 2SLS for the high-quality development index of cultural industry after adding instrumental variables. It can be found that lnfra has maintained a positive influence on the high-quality development of cultural industry in both the overall regression and the regional regression, and still maintains the original causal relationship, indicating that the main cause between them is

still Infra, and the causal relationship has not changed significantly. In addition, in order to verify whether the lag phase of explanatory variables is an effective tool variable, this paper makes a weak tool variable test. The critical value of F-test under the significance level of Wald F statistics greater than 10% rejects the original hypothesis of weak instrumental variables. Therefore, to sum up, the endogenous test has passed, the positive and negative effects of the core explanatory variables are still consistent with the benchmark regression, and the conclusion is still robust.

5. Research Conclusion and Countermeasures

Based on China's actual situation, theoretical analysis and model demonstration, this paper examines the impact of new infrastructure on the high-quality development of cultural industry, and draws the following conclusions: First, the overall investment in new infrastructure has a strong promotion effect on the high-quality development of cultural industry. Secondly, the investment level of integrated infrastructure and information infrastructure has no significant effect on the high-quality development of cultural industry, while innovative infrastructure has a significant positive effect on the high-quality development of cultural industry. Thirdly, in terms of upgrading, for every 1% increase in overall new infrastructure investment level, the high-quality level of cultural industry can be increased by 0.364%, and for every 1% increase in innovative infrastructure, the high-quality level of cultural industry can be increased by 0.387%.

According to the above conclusions, the following policy suggestions are obtained. First, the central and local governments should actively introduce industrial policies on new infrastructure, and constantly consolidate and develop new infrastructure industries, so as to enhance the total factor productivity of cultural industries and promote the high-quality development of the overall economy. Second, according to the different stages, levels and modes of industrial development in the Yangtze River Economic Belt, we should adapt to local conditions and create a good implementation environment for the new infrastructure to play its role to the maximum. Third, we should focus on the development of innovative infrastructure, that is, scientific research and technical services, health and social work, encourage original innovation, improve the conversion rate of scientific research results, promote the equalization of public services, and optimize social governance. At the same time, we should also take into account the development of other new infrastructure investments.

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