

# Research on the Influencing of Digital Economy on the High-quality Development of Beijing's Cultural Industry

Xiaoyun Hu<sup>1</sup>, Lei Yao<sup>2\*</sup>

email address<sup>1</sup>:18935110035@189.cn,\* Corresponding author's email<sup>2</sup>: 916554736@qq.com

<sup>1</sup>Beijing Institute of Fashion Technology, Yinghuayuan, Beijing,100105, China

<sup>2</sup>Beijing Institute of Fashion Technology, Research Base of Capital Clothing Culture and Clothing Industry, Beijing, 100105, China

**Abstract.** The digital economy has been developing rapidly in recent years, and the cultural industry has also been on a fast track in the last decade. Beijing is rich in cultural resources and has obvious advantages in the cultural industry, which is of great reference value in defining the criteria for high-quality development of the cultural industry. This paper collects relevant data from the six districts of Beijing from 2012 to 2020, uses factor analysis to define the criteria for the high-quality development of Beijing's cultural industry, constructs a relevant evaluation system, and conducts empirical analysis through a panel model to study the impact of the digital economy on the high-quality development of Beijing's cultural industry and provide reasonable suggestions to facilitate the digitalization process of Beijing's cultural industry.

**Keywords:** Digital Economy; Cultural Industry; High-quality Development

## 1 Introduction

At present, economic globalisation is experiencing headwinds, and technological development and industrial change have taken a new step forward, with the digital economy providing crucial support for global economic recovery. As a special productive force, the creation and dissemination of value in culture cannot be separated from the digital economy, and digitisation has become an inherent demand for industrial development<sup>[1]</sup>. At the same time, the development of China's cultural industry has entered a new phase, and a digitalisation strategy for the cultural industry is imperative. The cultural industry is a form of industry with technology and creativity as the main driving force, and which balances social and economic benefits, and has a pioneering role in the digitisation of the industry. It is important to study the impact of the digital economy on the high-quality development of Beijing's cultural industries in order to help build the city and promote the development of its consumer economy.

One of the most important areas of research, both at home and abroad, has been to determine the level of development of the cultural industries. In order to determine the high level of development of the cultural industry, Wei Qutong refers to the new development concept, which consists of the main connotations of high level development, when examining the high level of development of the cultural industry<sup>[2]</sup>. Yuan Yuan et al. evaluated the level of

development of China's cultural industry as a whole through empirical analysis<sup>[3]</sup>. In response to the existing studies, all are different and varied.

## **2 Analysis of the Current Situation**

### **2.1 Development of digital economy in Beijing**

In the field of digital economy, Beijing has been leading in the country. According to relevant data from the relevant authorities, Beijing's digital economy reached 40.4% of GDP in 2021, ranking first in the country, of which the core industries of the digital economy accounted for more than half of the total value of the digital economy. According to incomplete statistics, as of 2022, Beijing's digital economy industry has covered dozens of fields such as artificial intelligence, blockchain, e-commerce, gaming, financial technology, cultural creativity and intelligent manufacturing, among which artificial intelligence, big data and cultural creativity are the three most prominent fields.

### **2.2 Development of cultural industry in Beijing**

After years of development, Beijing's cultural sector has become diversified, clustered and internationalized. According to statistics, as of 2019, the total output value of Beijing's cultural and arts industries has reached RMB 763.4 billion, an increase of 10.5% year-on-year. Among them, digital culture industry, culture and tourism industry, culture and finance industry, animation and game industry and other industries have developed rapidly and become the emerging highlights of Beijing's cultural industry. In addition, the development of Beijing's cultural industry has regional characteristics; from 2012 to 2020, the six districts of Beijing (Dongcheng District, Xicheng District, Chaoyang District, Haidian District, Fengtai District and Shijingshan District) will together account for more than 87% of the city's cultural industry revenue above the scale, and the study of the six districts is representative of the development of Beijing's cultural industry.

### **2.3 Digital development status of Beijing's cultural industry**

In this process, the cultural industry is constantly taking advantage of the digital economy to jump to higher levels. Cultural industries are strengthening the learning and application of digital technologies<sup>[4]</sup>. The rapid development of the digital economy has put forward new challenges and requirements for the cultural industry, so it is necessary to keep up with the pace of the digital age in continuous learning and application. For example, as a practitioner in the cultural industry, it is necessary to master the latest technology of digital technology by improving the skills and technical level of digital technology, so as to better apply it in the cultural industry and change the traditional production mode and the life cycle of cultural products.

Applying big data technology to promote the cultural industry is one of the wise means. How to deepen the development of cultural and creative industries is the next key area of digital economy and cultural industries. Through the application of big data technology, it is possible to better grasp the dynamics of the cultural market, achieve intelligent promotion and fine management, conduct a more accurate assessment and prediction of the cultural market, and

better integrate the cultural industry with the digital economy, which is what Beijing is insisting on.

In short, Beijing's cultural industry is developing at a fast pace, with great influence and wide radiation, but there are still upward channels for industrial development and reform opportunities, and the digital economy still has unreleased potential and vitality for the development of cultural industry.

### **3.Variable Selection and Model Assumptions**

#### **3.1 variable selection and model assumptions**

This study calculates and collects variables such as the high quality level of cultural industries in the six urban districts of Beijing, research and experimental development (R&D) expenditure of enterprises in the information transmission, software and information technology service industries above a certain size, the average number of employees in cultural industries above a certain size, the total income of cultural and creative industries above a certain size, the per capita disposable income of urban residents and policy support for the development of the digital economy from 2012 to 2020 Data.

The scale of digital economy development can represent the level of digital economy development to a certain extent; cultural industry employees are the backbone of cultural industry development, and they have an important influence in various aspects such as creative contribution, quality assurance, talent cultivation and industry regulation; the income of Beijing's cultural industry can reflect the economic contribution and development level of Beijing's cultural industry; disposable income per capita is one of the important indices to assess economic development, social The income of Beijing's cultural industry is an important indicator of its economic contribution and development, per capita disposable income is an important index for assessing economic development and social averages, and policy support is an important factor influencing industry development and regional progress<sup>[5]</sup>. Therefore, this paper hypothesizes that the development scale of digital economy, the number of people employed in Beijing's cultural sector, the income of Beijing's cultural sector, the per capita disposable income of Beijing residents and the development policies of Beijing's digital economy have a positive effect on the qualitative development of the cultural sector in Beijing.

Based on the concept of high-quality development of Beijing's cultural industry, this paper attempts to develop a set of indicators with four dimensions - economic impact, social impact, innovation impact and exchange impact - to evaluate the level of high-quality development of Beijing's cultural industry; the higher the impact, the higher the quality of development<sup>[6]</sup>.

This paper uses factor analysis to evaluate the quality development of Beijing's cultural industry, and the final composite score formula is as follows:

$$F=0.794F1+0.206F2 \quad (1)$$

### 3.2 Model Results and Analysis

Considering both time and cross-sectional factors, an empirical study is conducted using panel data of Beijing's six urban districts for the period 2012-2020 using the software EViews, and the model shown below is developed based on the respective original variables:

$$Y_{i,t} = \alpha_i + \beta \cdot X_{1i,t} + \gamma \cdot X_{2i,t} + \delta \cdot X_{3i,t} + \varepsilon X_{4i,t} + \zeta X_{5i,t} + \mu_{i,t} \quad (2)$$

where  $i$  denotes different districts,  $t$  denotes the year of the variable,  $\alpha_i$  denotes the intercept, where  $Y_{i,t}$  and  $X_{1i,t}$  denote the cultural industry quality index and the scale of digital economy development in year  $t$  of district  $i$  respectively;  $X_{2i,t}$ ,  $X_{3i,t}$ ,  $X_{4i,t}$  and  $X_{5i,t}$  are all control variables, representing the average number of employees in the cultural industry above the scale, the cultural and creative industry above the scale  $X_4$  is a significant explanatory variable and  $\mu_{i,t}$  represents other influencing factors that are not included in the model. The results is shown in Table 1.

**Table 1.** Regression result

	Coef.	Std.Err	t	P
X1	1.476649	0.212396	6.952352	0.0000***
X2	0.204379	0.002607	78.39372	0.0000***
X3	0.249965	0.015290	16.3484	0.0000***
X4	11.60576	55.58928	5.634897	0.0000***
X5	-11.65313	2.059623	-0.209629	0.8348

In the formula,  $i$  represents different regions,  $t$  represents the year of the variable,  $\alpha_i$  represents the intercept, where  $Y_{i,t}$  and  $X_{1i,t}$  respectively represent the high quality index of cultural industry and the scale of digital economy development in the year  $t$  of region  $i$ ;  $X_{2i,t}$ ,  $X_{3i,t}$ ,  $X_{4i,t}$  and  $X_{5i,t}$  are all control variables, representing respectively the average number of employees in cultural industries above designated size, the total income of cultural and creative industries above designated size, per capita disposable income of urban residents and policy support for digital economy development, among which,  $X_4$  is an important explanatory variable.  $\mu_{i,t}$  represents other influencing factors not included in the model.

Based on the regression results for the six urban districts in Beijing, it can be seen that the regression coefficient for the scale of digital economy development is highly significant, with a regression coefficient of 1.48 and a p-value of 0.0000. At the significance level  $\alpha = 0.01$ , the variable passes the significance test, indicating that the development of the digital economy has contributed to some extent to the qualitative development of Beijing's cultural industries, which is consistent with the hypothesis of this paper. The regression coefficients of labor and income for the cultural industry in Beijing are also highly significant and consistent with the hypothesis of this paper.

## 4. Conclusion and Recommendations

### 4.1 the conclusion of the model

This paper identifies the impact of the digital economy on the high-quality development of Beijing's cultural industries by using factor analysis to construct a system for the high-quality development of Beijing's cultural industries and by using a mixed panel model with the six urban districts of Beijing as the fulcrum. The results show that the digital economy has played a positive role in promoting the development of Beijing's cultural industries. The digital economy has provided new opportunities and platforms, promoted cross-border integration and collaborative innovation in the cultural industry, improved the supply chain and market environment of the cultural industry, and opened up new ideas for the development of Beijing's cultural industry<sup>[7]</sup>.

### 4.2 Policy Suggestions

In response to the booming digital economy, which in turn will radiate further innovation in Beijing's cultural industries, there should be corresponding initiatives. Improve the application environment of the digital economy and vigorously promote the construction of digital infrastructure<sup>[8]</sup>. The sustainable development of the cultural industry requires a complete industrial ecology, and the construction of digital platforms is an important initiative for the digital economy to advance the development of the cultural industry. Encourage and support innovative development to further boost the digitalisation of cultural industries<sup>[9]</sup>. Promote the penetration of new technologies and means into the cultural industry and enhance digital services. The government can increase its support for the application of digital technology, for example, by supporting the development of enterprises through tax incentives. In addition, the cultural industry needs to accelerate its digital transformation by launching actions in various areas such as digital museums and digital books. Cultivate talents to adapt to the requirements of the industry in the new era and provide a talent pool for the transformation of the cultural industry<sup>[10]</sup>. The current digital era requires complex digital talents in all industries, while the lack of digital talents is restricting the digitalisation process of the cultural industry. The government should increase its support for the training of digital talents, introduce corresponding policy measures and attract more talents to enter the digital field through financial support and other means. In addition, digital copyright protection is the premise and guarantee for the digital economy to promote the development of cultural industry. The government can introduce relevant laws and regulations to strengthen digital copyright protection, while strengthening supervision and law enforcement.

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