

The Integrated Development Strategy of Cultural and Creative Industries in the Era of Big Data

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ABSTRACT. Cultural and creative industry is the result of the integration of cultural industry and related industries in the process of industrial upgrading, and its formation and development cannot be separated from the support of cultural and creative industry policy. This paper mainly studies the development strategy of cultural creativity integration in the era of big data. This paper mainly summarizes the connotation of cultural and creative industry, analyzes the impact of big data on the integration of cultural and creative industry, and analyzes the impact of big data on the integration policy of China's cultural and creative industry. The experimental results show that the estimated coefficient of China's cultural and creative industry policy is 0.000785, and the 5% level significantly indicates that the cultural and creative industry policy has a positive impact on the cultural and creative industry. It shows that the policy of cultural and creative industry has certain effect on the integration of cultural and creative industry.

KEYWORDS: Big Data, Cultural and Creative Industries, Industrial Integration, Development Strategies

1. Introduction

In recent years, as China's economy has entered a new normal, under the economic background of overcapacity reduction, industrial development is advancing with The Times, gradually shifting from the secondary industry dominated by manufacturing to the tertiary industry dominated by service industry. As one of the emerging tertiary industries, cultural and creative industry plays an important role in the industrial upgrading under the new normal of economy. The contribution of cultural and creative industries to economic growth depends on the mutual integration between cultural industries and related industries. Cultural industries realize the integration of factors by absorbing production factors of other industries, thus forming more cultural and creative elements. Based on the theory of economic growth, the growth of factors of production can promote the growth of output. Therefore, the importance of cultural and creative industries derived from

the integration of cultural industry and related industries to economic growth is increasing with the passage of time [1-2]. The development of cultural and creative industries is a high-quality development for the economy, so the integration of cultural and creative industries is conducive to the high-quality development of the economy.

At present, the government and enterprises have an increasing demand for cultural big data services, and the traditional service system cannot fully meet this demand. In order to meet this urgent need, it is urgent to combine the new service with the cultural and creative industry. The popularization of mobile Internet and the promotion of smart terminals provide basic support for mobile phones to acquire big data. As an industry of content and data production, cultural industry has a large number of users, and the resulting cultural content data and consumption data are from a wide range of sources with a huge amount of data. The big data of cultural industry mainly comes from the direct data of users and can be obtained in a timely manner. In addition, the data can also be directly applied to the formation of product value, which has great commercial value.

Based on the analysis of the development history and current situation of cultural and creative industries, this paper explores the influence and influence of regional industries in politics, economy, culture and society from the theoretical perspective, providing data basis and theoretical basis for further theoretical development and improvement. In terms of practical significance, the study in this paper is conducive to the objective cognition of the current situation of China's cultural and creative industry, and to a certain extent, it can effectively promote and accelerate the adjustment of industrial structure, improve the profit efficiency of products and the level of science and technology.

2. The Impact of Big Data on Cultural and Creative Industries

2.1 The Connotation and Characteristics of Cultural and Creative Industry

(1) Definition of Cultural and Creative Industry

Different countries have different definitions of cultural and creative industry according to their national conditions. So far, international organizations and experts in the field of economy and culture are still discussing the connotation of cultural and creative industry and trying to make a more accurate description. The United Nations educational, scientific and cultural organization in accordance with the basic key elements of cultural creative industry, and combined with the basic function of the social, cultural creative industry is defined as using wisdom thinking and innovation ability, by means of high and new technology, the cultural products innovation, improving the quality of cultural products, and the protection of intellectual property rights situation maintenance creator returns, on the basis of the cycles to generate the culture of high value-added products, the industry chain of continuous increment of forming [3].

(2) Classification of cultural and creative industries

Since the academic community has not given a unified definition of the connotation of cultural and creative industry, there is no unified understanding in the world at present. Different countries and organizations have put forward different categorization propositions and tendencies due to the influence and constraint of their own historical development and political form [4]. At present, more and more academic circles believe that the behavior and development mode of introducing culture into wisdom and technological innovation belong to the category of cultural and creative industry. The classification standards recognized by most countries come from the EU. From the perspective of product form, cultural and creative industries are divided into original ecological form, interactive form and cultural extension form.

(3) Features of cultural and creative industries

Innovation is the driving force of the cultural and creative industry. Based on unique methods and segmented industry skills, it endows traditional culture with new connotations and services through new technological means.

1) Cultural and creative industry is an indispensable part of high-tech industry and high-tech smart industry. Creativity is the lifeline of the development of cultural creativity industry, this request is engaged in the creative industries of creative talents should have abundant knowledge reserves and profound cultural background, related industry management personnel should not only have management professional vocational skills, professional knowledge in the field of economy and to both high quality [5] in the field of culture and art.

2) Cultural and creative industries are characterized by originality. Original and unique, these are the labels of cultural and creative industries, which are the main factors that distinguish them from other cultural and creative industries. Such originality and cooperation in the division of intellectual property rights can create unique value.

3) Cultural and creative industries are characterized by high added value. Innovation is not only the life of products, but also the source of product value. Products and services with creative design will be recognized and even sought after by the market and consumers, and of course, they will produce higher added value.

2.2 Theories Related to Cultural and Creative Industries

(1) Industrial chain

Industrial chain theory can be said to come from Adam Smith and Marshall, who proposed the theory of division of labor and verified it with the operation mode of specific enterprises [6]. The industrial chain initially describes the production activities, usually takes the process and technology as the core, links the related industries together through the chain relationship between the upstream and downstream industries, and forms a relatively complete operation system that can

meet the needs of consumers. Industrial chain theory involves all relevant industrial links, from the upstream of creativity and research and development to the downstream of selling products. To increase the value of the product by adding higher creative and technical added value to the upstream link; By extending the development of derivatives in the downstream links, the added value of products can be increased so as to create greater production value.

(2) Industrial integration

Industrial integration refers to the situation that the integrated industries or industries are "intertwined" through mutual penetration. However, the original industries have not lost themselves, but have achieved "symbiosis" with the new industries to serve the consumers together, which has both inheritance and development. The cultural and creative industry itself is closely related to the cultural and creative industry, but in the field of cultural and creative industry, the boundary of each subdivision industry is not very clear and often overlaps and crosses, which creates opportunities for the integration of cultural and creative industry [7-8].

2.3 Big Data in Cultural and Creative Industries

(1) Connotation of big data resources of cultural and creative industry

Sensors, apps, website clicks, social networks... The vast amount of data that each of us generates in our daily lives is being collected by these terminals. The big data technology can be used by computers to regroup, analyze and process these data. The research objects of human beings on the world are getting closer and closer to the whole, which makes our big data resources more and more close to the description of the whole reality. Big data resources become an important basis for our analysis and decision [9].

(2) Characteristics of big data resources of cultural and creative industries

Against the background of big data, the whole industrial chain of cultural industry is generating and applying data, and the big data resources of cultural industry are constantly changing with the practical development of cultural industry [10]. Big data resources in cultural industry have the general characteristics of big data: large Volume, Variety, low Value density, high commercial Value and Veracity. On the other hand, based on the characteristics of the cultural industry, the big data resources of the cultural industry also highlight the following characteristics:

- 1) Significant data fragmentation
- 2) Strong combination of data
- 3) Data is of high commercial value

3. Empirical Study on the Influence of Cultural Strategies on the Integration of Cultural and Creative Industries

3.1 Controls the Construction of Variables

The control variables of this paper include the level of cultural consumption, the level of urbanization, the level of economic development, public cultural infrastructure, and the scale of cultural industry. The details are as follows: economic development level GDP (per capita GDP); Urban (the proportion of urban population in the total population); Profitability of cultural and creative industry R; Pci for Public Cultural Infrastructure; Cultural industry scale SOCI.

3.2 Establishment of an Empirical Model

Based on the level of economic development, cultural creative industry, cultural industry infrastructure, cultural industry profitability as control variables, policy effectiveness as explanatory variables, is culture creative industry alignment as explained variable, in the last five years data of 31 provinces as the research object, build the provincial panel data regression model to measure the relevant variables. The model is as follows:

$$Y_{it} = \alpha_i + \beta_n X_{nit} + \gamma \text{urban}_{it} + \delta r_{it} + \theta \text{gdp}_{it} + \eta \text{pci}_{it} + \lambda \text{soci}_{it} + \mu_{it} \quad (1)$$

Where, I and T respectively represent the ith province and the T year, and Yi represents the integration degree of cultural and creative industries in each province. Xn represents the effectiveness of the cultural and creative industry policy, where X1 represents the effectiveness of the fiscal subsidy policy, X2 represents the effectiveness of the tax incentive policy, X3 represents the effectiveness of the financial support policy, and X4 represents the effectiveness of the talent support policy. I represents the intercept term of the model,,,,,, represent the coefficients to be evaluated respectively. The u/T represents the t year random disturbance term on the I th cross section. As the maximum value of is 31, the maximum value of t is 5, and I > t, this model does not need to conduct stationariness test of data.

4. Empirical Results of the Influence of Cultural Strategies on the Integration of Cultural and Creative Industries

4.1 Estimate the Overall Effect of Cultural and Creative Industry Policy

Table 1. Estimate of the overall effect of the policy

Variable	Y(FE)
X	0.000785
r	1.421
urban	-8.92E-07

pci	1.42E-04
soci	-4.17E-08
soci	-4.23E-08
Constant	0.323
R-squared	0.8749

As shown in Table 1, the data of R, PCI and Constant are significant under the estimated result of 1%. The estimated value of the coefficient of the cultural and creative industry policy is 0.000785, and the 5% level significantly indicates that the cultural and creative industry policy has a positive impact on the cultural and creative industry. It shows that the policy of cultural and creative industry has certain effect on the integration of cultural and creative industry. There are emerging cultural and creative industries in China, involving cultural and creative design, publishing, new media, science and technology and other fields, including digital creative equipment manufacturing, Internet and modern information technology services, cultural tourism, digital content design and production services, and digital new media services. The policy of cultural and creative industry has provided impetus for the formation of emerging forms of cultural and creative industries, and promoted the integrated development of cultural and creative industries to a certain extent.

4.2 Regional Heterogeneity of the Overall Effectiveness of Cultural and Creative Industry Policies

With the development of digital image, the visual information of medicinal materials tends to be more scientific and accurate. In this experiment, different color spaces are used to describe the color of the cross section of medicinal materials, and the influence of feature extraction in different color spaces on the pattern recognition of medicinal materials is compared. HSV model is a kind of color model which accords with human visual habits. H is the hue, s is the saturation, and V is the brightness.

Table 2. Regional heterogeneity of overall policy effects

Variable	Nationwide	East	Middle	West
X	0.000785	0.001062	0.000617	-0.002297
r	1.421	0.453	2.206	0.324
Gdp	1.32E-06	2.45E-06	3.91E-06	1.87E-07
Constant	0.323	0.369	2.53E-07	0.384

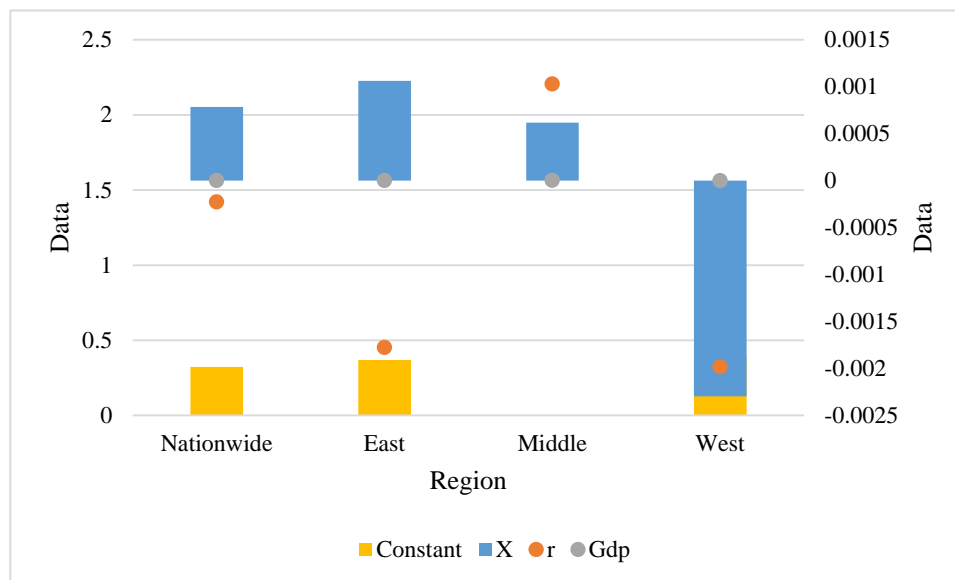


Figure 1. Regional heterogeneity of overall policy effects

As shown in table 2 and figure 1, from the analysis of the impact of the general policy on the integration of cultural and creative industries at the three regional levels, the order of the policy effect of cultural and creative industries is the eastern >, the central > and the western >. The integration of cultural and creative industries needs the support of talents, capital, technology and policies to promote the integration of factors, products, markets, technologies and industries, so as to promote the integration of industries. From a practical point of view, the cultural and creative policy coefficient of the eastern region is 0.001062, which is significant at 5% level.

4.3 Regional Heterogeneity of the Overall Effectiveness of the Policies of the Four Categories of Cultural and Creative Industries

BP neural network is a widely used feedforward neural network. In this experiment, BP neural network is constructed to recognize the color feature and geometry feature. The input and output of neural network are abrt2014npool. Set 70% of the samples as the training set, 15% of the samples as the test set, 15% of the samples as the verification set, and the number of hidden layer nodes is 10.

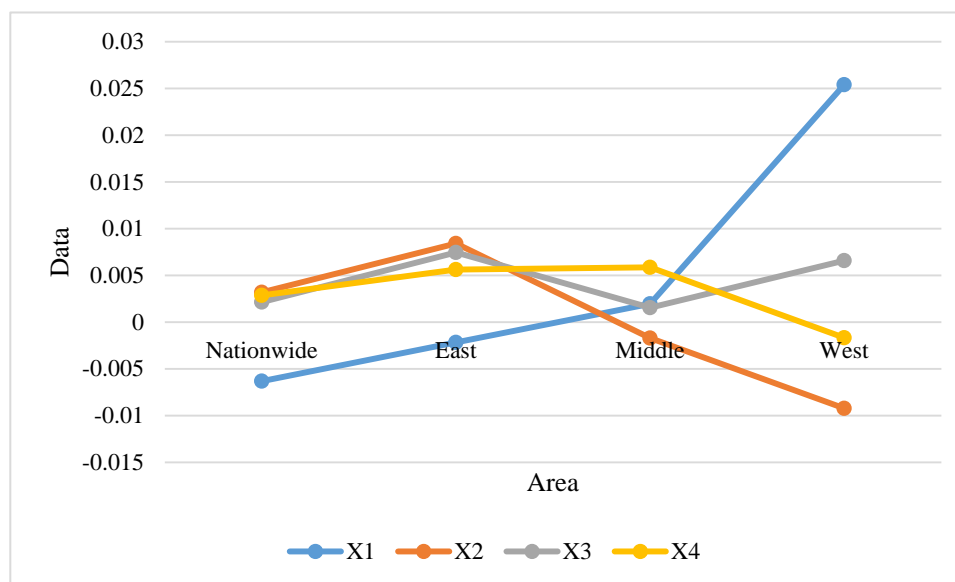


Figure 2. Regional heterogeneity of the effects of policies of the four categories of cultural and creative industries

As shown in figure 2, from the analysis of the four categories of cultural and creative industry policies at the three regional levels, (1) the order of the effectiveness of fiscal subsidy policies is: > in the west, > in the east and the middle. Among them, the effect of the western policy is positively significant at the 1% level; the effect of eastern policy is negative and not significant. The ranking of the effectiveness of the preferential tax policy is: eastern > western > middle. Among them, the effect of the eastern policy is positively significant at the 1% level. The ranking of the effectiveness of the financial support type policy is: eastern > western > middle. Among them, the effect of the eastern policy is positively significant at the 1% level. The effect of the western policy is negative and significant at the level of 5%. The order of the effects of the talent-support policy was: western >, central >, eastern >. Among them, the effect of the western policy is negatively significant at the level of 5%; The policy effect of central China is positively significant at 1% level. The policy effect in the east is positively significant at the 1% level.

5. Conclusions

Big data brings great opportunities to the cultural industry. The optimization of the value chain of the cultural industry is the evolution of media convergence and the emergence of the cultural market. However, due to the limitations of digital divide and data segmentation, data quality problems arising from various links of

data collection, storage, analysis and transaction in the practice of cultural industry are ubiquitous. In the context of big data, the cultural industry needs to make good use of big data, adhere to the innovation of culture and protect the diversity of culture in the context of better understanding of the market demand. Conforming to market demand, respecting the stimulation and guidance of culture on truth, goodness and beauty, and integrating the resources and big data resources of the cultural industry and related industries are the core problems to be solved by the cultural industry in expanding the industrial scale, optimizing the industrial structure and upgrading the industrial form.

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