

An Analysis of the Influencing Factors of Network Culture Industry

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Abstract— With the rapid development of the third industry and Internet technology, the soft power of culture is becoming more and more concerned by the state, and the network culture industry is becoming an inevitable trend. Under the new normal of economy, people's living standards and quality of life are improving, and people's consumption of culture is increasingly high, gradually changing from offline to online, so as to meet their convenience. Firstly, this paper introduces the current situation and development background of the network culture industry, and analyzes the characteristics of the innovation of network culture industry. Secondly, the factors affecting the network culture industry are analyzed according to relevant data, and the linear regression analysis is carried out for these influencing factors. Finally, the correlation of these factors is analyzed, and Suggestions are given to the network culture industry to promote the rapid development of the network culture industry.

Keywords— Network culture, industry Innovation, Linear regression, analysis Feasibility analysis.

I. INTRODUCTION

1.1 Concept and development background of network cultural industry

With the rapid development of national economy and the overall improvement of people's living standards, offline entertainment activities have been unable to meet people's growing spiritual needs. The development of cultural industry enriches people's life and brings a lot of fun to people's life. The network culture industry is a new industry based on the Internet and centered on creativity. It has the characteristics of originality, strong integration, long industrial chain and large industrial relevance (2014). The network culture industry mainly includes network games, network animation, network publishing, digital learning, mobile Internet content and other network services and content. The 18th National Congress of the Communist Party of China pointed out that we must adhere to the direction of advanced socialist culture, establish a high degree of cultural consciousness and cultural self-confidence, and stride forward towards the grand goal of building a socialist cultural power. Therefore, to promote the development of network culture industry will promote the rapid economic growth, optimize and upgrade the industry, improve the soft power of culture and realize the combination of online and offline culture industry.

1.2 Development status of network culture industry

The rise and development of network culture industry is the inevitable result of economic prosperity and social progress. Scholars at home and abroad have studied the issue of cultural consumption from different perspectives. Chen Rong(2005), Song Qihui(2005) studied the development of network technology and created a new cultural industry formed by network culture, and the development of network technology provided a new channel for traditional culture to spread and sell, so the combination of traditional culture and network technology gradually formed a network cultural industry different from the traditional cultural industry. The emergence of network culture has its internal and external

factors. Shi Anbin (2003) analyzed that the influence of technological factors on the network culture industry exceeded the cultural factors and became the leading factor. Therefore, Liu Guangwei (2010) also proposed that the development of information technology has expanded the development space of the network culture industry, and provided the necessary foundation and platform for the network culture industry. But Peng Lan (2007) and other scholars put forward that the formation of network culture is based on the combination structure and movement mode of several main driving factors, such as personal demands, netizens' interaction, mainstream culture, technology economy and politics. In the study of the management of the network cultural industry, Yin Lamei (2011) pointed out that the government should implement market access to the digital content industry based on economic, political and cultural legitimacy, but also should pay attention to reasonable boundaries. Zhang Jingyuan and other scholars (2011) think that our government's deficiencies in policy system, policy laws and regulations, policy supervision and policy support have become factors restricting the development of China's network culture industry. Yimei Hu and Olav jull s Ø rensen (2011) emphasized the impact of user innovation on online games, emphasized that user innovation ability and different innovation modes should be mixed, so that online innovation and user innovation can form a successful experience effect on online games in China's open environment. Minhyung Lee and other Korean researchers (2016) used the least square regression method to determine the impact of digital products on physical products. Using the monthly music album sales and streaming media data of Korean official music channels, we found that online streaming media services had a positive impact on music record sales. Orapin laohapensang (2009) uses the theory of planned behavior (TPB) as the theoretical basis to explore the factors that affect online shopping and explore the influencing factors of Thai consumers' online shopping. At present, the research on the value chain of network culture industry is not rich enough, mainly on the development of online games and online literature. The research on other fields needs to be

further deepened. In this paper, combined with the research and analysis of other scholars, to study the influence factors of online games, online animation, online video and online music.

II. AN EMPIRICAL ANALYSIS OF THE FACTORS INFLUENCING THE DEVELOPMENT OF NETWORK CULTURE INDUSTRY

2.1 Use of empirical methods

First, introduce the basic knowledge of linear regression model: the theoretical linear regression model of random variable y and general variable $X_1, X_2, X_3 \dots X_p$ is as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p + \varepsilon$$

Where $\beta_0, \beta_1, \dots, \beta_p$, is $p + 1$ unknown parameter, which is called regression constant $\beta_0, \beta_1, \dots, \beta_p$ which is called regression coefficient. Y is called the interpreted variable (dependent variable), while X_1, X_2, \dots, X_p are p general variables that can be accurately measured and controlled. ε is called the interpreted variable (independent variable). There are five basic hypotheses in the multiple linear regression model:

Hypothesis 1: assumption of mean value of random error term $E(\varepsilon_i) = 0, i = 0, 1, 2, \dots, n$;

Hypothesis 2: the same variance of random error term $\text{var}(\varepsilon_i) = \sigma^2, i = 0, 1, 2, \dots, n$;

Hypothesis 3: random error term is irrelevant;

Hypothesis 4: the random error term obeys the following normal distribution

$$\varepsilon_i \sim N(0, \sigma^2), i = 0, 1, 2, \dots, n$$

$$\text{cov}(\varepsilon_i, \varepsilon_j) = 0, (i \neq j, i, j = 0, 1, 2, \dots, n)$$

Only when the obtained empirical regression equation which is $\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \dots + \hat{\beta}_p x_p$ has passed the tests in the regression analysis and meets the four hypotheses mentioned above, can we make it clear that the empirical regression equation at this time fits our sample data well and can be controlled and predicted by the regression model at this time.

2.2 Establishment and test of regression model

Through literature analysis, the network culture industry is a more detailed indicator in the whole empirical study. In order to test the output value of the culture industry, this paper selects the sum of the sales revenue of the four commonly used categories of online games, online animation, online video and online music in 2011-2015 as the dependent variable of linear regression, and selects the per capita GDP and network penetration rate As an independent variable of linear regression, this paper studies the impact of per capita GDP and network penetration rate on the network culture industry and forecasts the trend of the output value of the network culture industry. Due to different value units and distribution ranges among indicators, in order to eliminate possible heteroscedasticity, the corresponding data are processed. See Table 1 for the analysis data results.

TABLE 1. Correlation between Internet culture industry and influencing factors

| | | Per GDP | Network penetration rate |
|--------------------------|---------------------------------|------------|--------------------------|
| Per GDP | Pearson correlation | 1 | .995 |
| | Significance (bilateral) | | .000 |
| | Sum of square and cross product | 1.220E8 | 104506.120 |
| | covariance | 3.049E7 | 26126.530 |
| | N | 5 | 5 |
| Network penetration rate | Pearson correlation | .995 | 1 |
| | Significance (bilateral) | .000 | |
| | Sum of square and cross product | 104506.120 | 90.368 |
| | covariance | 26126.530 | 22.592 |
| | N | 5 | 5 |

From the correlation, we can see that the correlation coefficient between Internet culture industry and per capita GDP and Internet penetration rate is greater than 0.9, which shows that the development of Internet culture industry is closely related to per capita GDP and Internet penetration rate, and the correlation is significant at the significance level of 0.01. That is to say, the impact of per capita GDP on the network culture industry is positively correlated. With the improvement of people's living standards, the consumption of network products will be correspondingly improved, and thus the consumption of network products will be increased. There is also an internal link between the influencing factors, that is, the per capita GDP will have a corresponding impact on the network penetration rate, and the network penetration still has a long way to go. Next, regression analysis is carried out between the network culture industry and the influencing factors, and the analysis results are shown in Table 2.

TABLE 2. Regression Analysis of influencing factors of network culture industry

| Model | Non standardized coefficient | | Standard coefficient | t | Sig. |
|------------|------------------------------|----------------|----------------------|--------|------|
| | B | Standard error | Trial version | | |
| (constant) | -3768.458 | 517.526 | | -7.282 | .005 |
| Per GDP | .141 | .012 | .990 | 11.973 | .001 |

In order to eliminate the influence of multicollinearity, the stepwise regression analysis method is used. Due to the differences in units and large amount of data collected, there may be errors and dimensional effects. According to the results of SPSS analysis, it can be found that the coefficient of network penetration rate does not pass the test, so the factor of network penetration rate is eliminated first. By standardizing the data and making model hypothesis for the sample, the linear regression equation of y to 1 independent variable can be obtained as follows:

$$Y = -3768.458 + 0.141X$$

The impact of per capita GDP on the network cultural industry is significant. We then use the F test to test the regression equation. The analysis data is shown in Table 3. The test statistics are: $F = SSR / SSE$, SSR is the sum of regression squares, SSE is the sum of residual squares. From the results in the above table, we can see the significance p value. Because P is approximately 0, under the condition of significance level of 0.05: $P < \delta$, we can see its regression the equation is highly significant.

TABLE 3. Analysis of variance of network culture industry

| Model | Sum of squares | df | mean square | F | Sig. |
|--------------|----------------|----|-------------|---------|-------------------|
| 1 regression | 2438408.740 | 1 | 2438408.740 | 143.344 | .001 ^a |
| residual | 51032.836 | 3 | 17010.945 | | |
| Total | 2489441.577 | 4 | | | |

The influencing factors of network culture industry also include a series of factors, such as the innovation of network culture content, social and cultural environment. The development of society promotes the development of network culture industry. The innovation of network cultural content directly affects the choice of Internet users. The innovation of content is a big attraction for Internet users. China's network culture needs to be developed from all aspects, and the development of per capita GDP is far from enough. The network culture industry involves not only the traditional culture industry plus all aspects of the Internet, but also some radio and television, etc. to develop the world's leading network culture, all parties need to make unremitting efforts.

III. SUGGESTIONS ON PROMOTING THE DEVELOPMENT OF NETWORK CULTURE INDUSTRY

3.1 Promote rapid economic growth and accelerate per capita GDP growth

According to the empirical analysis, we can find that per capita GDP has an impact on the development of Internet culture. So in order to realize the rapid development of network culture, it is necessary to improve the per capita GDP. Economic development for a country, no matter from which point of view will affect the national living standards and quality of a country. From the perspective of division of labor, the process of economic growth is the process of deepening the specialization of social specialization, which will also affect the output value of network culture industry. The network culture industry is a new industry, and it is also an industry that makes the people of the world more convenient to understand Chinese culture. So it is necessary to increase per capita GDP, which is very helpful to improve China's international status and cultural soft power.

3.2 Accelerate the innovation of network cultural content

Most of the audience of network culture is the young generation. For the young generation, the products that attract them are more creative and more in line with the current trend. Although fashion is a reincarnation, the younger generation is still more inclined to products of their own age, so it is necessary to innovate the content of network cultural products. On the one hand, enhancing the concentration of cultural innovation and creativity is the core magic weapon for the network cultural industry to enhance its competitiveness. Increase the innovation investment, talent investment, technology investment and capital investment in the network cultural industry, integrate the network cultural content innovation into all aspects of the whole network cultural industry chain, realize the integration and penetration of content innovation, and constantly generate new products, new ideas New industries and new cultures; on the other hand, improve the output efficiency of network culture innovation, realize the innovation value-added of network culture content,

promote the organic combination of Internet users' preferences and network culture innovation and creativity, realize the effective interaction with Internet users, and truly follow the people's wishes.

3.3 Increase the network penetration rate

Although according to the empirical research, the network penetration rate has no great relationship with the development of the network culture industry, to some extent, the network penetration rate still more or less affects the development of the network culture. We just know from the concept of network culture industry that the network culture industry is based on the Internet and other communication equipment, so the network is more popular, which will also promote the development of network culture industry. On the one hand, the popularization of Internet will give netizens more opportunities to contact the more common network culture, such as network animation, network games, network music, network video, to truly understand netizens' preferences, to achieve specific analysis of specific problems, so as to produce more attractive network products; on the other hand, the popularization of Internet will be conducive to the realization of innovation of network cultural content, a large number of According to the arrival of the era, the more data collected, it shows that the data reflects more accurate problems than before, and the input-output of some products can be more accurate than these indicators. At the same time, with the advent of the Internet plus era, while paying attention to the diversity of network culture content, we also need to take into account the security of users' information and the degree of user experience satisfaction.

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