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Analysis on the Cost Allocation and Economic and Social Benefits of Reality Shows

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Abstract:Reality shows are an innovative form of shows that combine the flexibility of the ruleset, the authenticity of the participants' performance, and the participation and interaction of the audience. Reality shows originated in Europe and the United States. They were introduced to China in the late 1990s. They have experienced a development process from imitation to localization. They are currently in a stage of rapid growth. With the rapid development of reality shows, a series of issues such as its public welfare, cultural nature, and value orientation have also been reflected. Scholars in various disciplines such as sociology and communication have analyzed and put forward the reality show from development suggestions from different perspectives. Based on the research of previous scholars, this paper measures the economic effects of reality shows from the perspective of cost-benefit, and measures the public welfare of reality shows from the perspective of external effects, and the cost allocation of various types of reality shows different suggestions were made.

Keywords: Reality Shows; Economic Effects; Cost Allocation

1. Literature review

Many scholars have done in-depth research on the development of reality shows. According to different research perspectives, this paper divides the research of domestic scholars into the following categories:

First of all, it is to analyze the problems of the program itself and find solutions to promote the better development of reality shows. Representative papers include those of scholars such as Du Yue and Lu Mingtao. Du Yue (2014) attributed the popularity of star reality shows to two reasons: the change in the consumption patterns of celebrities, and the show to meet the personal and social-psychological needs of the audience. And put forward the strategy of innovative program content and avoiding excessive commercialization on the issue of sustainable development of reality shows. Lu Mingtao (2016) believes that "restricted reality orders" will increase the mass participation in reality shows, enhance cultural implantation, enrich plot settings, and encourage the development of original programs; the Internet will promote the development of online variety shows and at the same time, it innovates the production concept of traditional programs and improves the interactivity of programs.

Secondly, it analyzes the audience satisfaction of the program and the impact it receives, which reflects the social attributes of reality shows, and puts forward suggestions for the development of reality shows from the perspective of social communication responsibility, on behalf of scholars such as Xiang Bixia. Xiang Bixia (2013) applied "Usage and Satisfaction Theory" and "Learfield's Two-Level Communication Theory" to analyze the psychological needs of the audience, combined with case analysis, and explained the development trend of the reality show. The response strategy is mainly to meet the psychological needs of the audience, increase the participation of the masses, and innovate and develop the derivative industry chain. Li Nixiaoyu and Li Qunwu (2012) analyzed the shortcomings of the player configuration in "It's Not You", mainly due to its exaggeration, hype, and excessive publicity. He also believes that the program should improve the quality of recruitment, reduce the component of making shows, strengthen the sense of social responsibility so as to improve the value orientation and establish the correct orientation.

Finally, it is to learn from the experience of foreign reality shows to solve the problems encountered in the development

of domestic reality shows. Representative scholars include Pan Xiaojun and others. Pan Xiaojun (2010) uses case analysis and domestic and foreign comparative analysis methods to illustrate the relationship between programs and values. Through the comparison of reality shows between China and the United States, it is believed that the values reflected in reality shows should seek common ground while reserving differences and insisting on innovation. Kan Naiqing (2007) used domestic and foreign cases to analyze the development trend of reality shows in Europe and the United States, and explained its enlightenment to reality shows in China. Specifically, the European and American reality show style focuses on being true and not exaggerated, reflecting positive themes, diverse in content, and tending to be local in culture, in line with mainstream social values.

2. Methodology and data

This paper uses a multiple linear regression model to analyze the impact of reality show cost allocation on its revenue, ratings and clicks. Multiple linear regression models are often used to analyze multivariate disturbance problems, that is, the explained variable in a problem is affected by changes in multiple independent variables. The cost allocation problem of reality shows is a typical problem. The economic and social benefits of reality shows will be affected by variable costs and fixed costs. Under such circumstances, it is particularly important to establish a multiple linear regression model through econometric methods to accurately define the impact of program cost allocation on the economic and social benefits of reality programs. The specific model form is shown in equation (1).

$$y_i = \beta_0 + \beta_1 x_i + \beta_2 z_i + u \quad (1)$$

In equation (1), the dependent variable y_i are the economic and social benefits of reality shows, which respectively bring in the income, ratings, and clicks of reality shows. The independent variable x_i is the fixed cost. The coefficient β_1 represents the influence of the fixed cost of the program on its economic and social benefits. In order to understand the influence of the variable cost of the reality show on the program benefit, this paper adds the control variable z_i to the equation (1), which represents the variable of reality show Cost, the coefficient β_2 represents the influence of the variable cost of the program on its economic and social benefits. In the estimation process of the model, this paper uses the least square method in mathematical optimization techniques to find the best function match of the parameters by minimizing the square sum of the error. The least-square method can be used to easily obtain the parameters to be estimated, and minimize the sum of squares of the errors between the obtained parameters and the actual parameters. According to the Gauss-Markov theorem, given the assumption of classical linear regression, the least-squares estimator is a linear unbiased estimator with the smallest variance. Therefore, when the classical assumption is established, there is no need to find other unbiased estimators, and none of them will be better than ordinary least squares estimators. That is to say, if there is a good linear unbiased estimator, the variance of this estimator is at most as small as the variance of the ordinary least squares' estimator, and will not be less than the variance of the ordinary least squares' estimator.

The data used in this paper comes from the following two channels: on the one hand, the data on the cost and revenue of programs and the ratings are from official data collected by the State Administration of Radio, Film and Television; on the other hand, the data on the number of clicks on programs on the network platform is derived from web crawlers. Big data is collected in other ways. The reason for collecting data in multiple ways is that there is no single official channel for statistics on reality shows in China at this stage. Although the State Administration of Radio, Film and Television can provide traditional media data represented by television, the rise of new media such as the Internet makes More viewers watch programs through online video platforms, resulting in the omission of official data channels represented by the State Administration of Radio, Film and Television. On the basis of considering the authority and comprehensiveness of the data, this paper uses the data collected by the above two channels to better meet the data needs of the research model.

3. Results

This paper uses the commonly used measurement analysis software Stata to realize the establishment of the model and the process of data processing. The output results of the multiple linear regression model are shown in Table 1 to Table 3.

The results of the regression of program income are shown in Table 1. The dependent variable of the regression is the income of the reality show, and the independent variables of the regression include the fixed cost (FC) and variable cost (VC) of program production. The first column of the regression results represents the regression results of a total of 310 reality shows in 10 categories in the database, the second column represents the regression results of the entertainment reality show, and the third column represents the regression results of the performance audition reality show. , The fourth column represents the return results of indoor reality shows, the fifth column represents the return results of workplace reality shows, the sixth column represents the return results of non-profit reality shows, and the seventh column represents the return to the wild survival category. The return results of reality shows, the eighth column represents the return results of travel reality shows, the ninth column represents the return results of legal reality shows, and the tenth column represents the return results of education reality shows. The eleven columns represent the return results of the reality show on marriage and love. From the overall regression results, fixed costs have a significant positive impact on program revenue, with an impact coefficient of 1.37; variable costs also have a significant positive impact on program revenue, with an impact coefficient of 12.34. Specific to each type of reality show, fixed cost investment has a significant positive impact on all programs, and it has the most significant impact on reality show performances, which is 16.5. Variable costs have different effects on different types of reality shows. The regression results show that variable costs have the most significant impact on reality shows in entertainment and performance auditions, and have a negative impact on other types of reality shows. Although the impact of reality shows is negative, it is not significant.

The regression results in Table 2 show the relationship between the ratings of reality shows and their costs. The first column represents the regression results of a total of 310 real-life shows in ten categories in the data. From the perspective of regression coefficients, the fixed cost (FC) has a significant positive impact on the ratings of the programs, with an impact coefficient of 1.47e-06; Variable cost (VC) also has a significant positive impact on program ratings, with an impact coefficient of 4.51e-06. Specifically, for each type of reality show, the increase in fixed costs has a significant positive impact on the ratings of all programs. Among them, the audience ratings of reality show programs in the performance audition category have the greatest impact, with an impact coefficient of 1.33e-05. Variable costs have a different impact on program ratings than fixed costs. Although it has a positive impact on performance talent shows, it is not significant, and it has a negative impact on the other nine types of reality shows, but the only negative impact is It has a significant impact on reality shows in the workplace and marriage and love.

The regression results in Table 3 show the relationship between the number of clicks on reality shows and their costs. The first column represents the regression results of a total of 310 reality show shows in ten categories in the data. From the perspective of the regression coefficient, the fixed cost (FC) has a significant positive impact on the number of clicks of the program, with an impact coefficient of 1.986; Variable cost (VC) also has a significant positive impact on the number of program hits, with an impact coefficient of 16.64. Specifically, for each type of reality show, the increase in fixed costs has a significant positive impact on the number of clicks on all programs. Among them, the number of clicks on reality shows in the performance audition category has the greatest impact, with an impact coefficient of 40.84. Variable costs have a different impact on program clicks than fixed costs. They have a positive impact on performance talent reality shows and travel reality shows. Among them, travel reality shows have no significant impact, but have no significant impact on the other eight types of reality shows. They all have a large or small negative impact, of which the two types of reality shows, education and marriage, have the most negative impact.

Firstly, for reality show producers, the biggest concern is the issue of income maximization. Through the analysis of regression results, this paper finds that for common reality shows, whether it is an increase in fixed costs or variable costs, they can effectively increase program revenue. Compared with fixed costs, variable costs play a more important role. Among them, for reality show performances, increasing variable costs, such as inviting big-name stars to increase celebrity appearance fees, can effectively increase program income. For other types of reality shows, such as workplace reality shows, increasing variable costs, such as star appearance fees, will have a negative impact on program revenue; at the same time, for education and marriage and love reality shows Said that the increase in star appearance fees and other expenditures has no significant impact on program revenue.

Secondly, for one of the representatives of program externalities-ratings, the regression results show that increasing fixed costs and variable cost expenditures can effectively increase the ratings of programs. However, fixed costs and variable costs have different effects on the ratings of different types of reality shows. The increase in fixed costs has a significant positive impact on the ratings of all reality shows, and it has a significant positive impact on reality show performances. The impact of the change in variable costs on the ratings varies with different types of reality shows. For reality show shows, the increase in variable costs can increase the ratings to a certain extent, while for other types of the reality show, the increase in variable costs, such as the increase in star appearance fees, has an insignificant negative impact on the ratings of the program.

Finally, for another representative of program externalities-clicks, the regression results show that increasing fixed costs and variable cost expenditures can effectively increase program clicks; among them, fixed costs are relative to variable costs. The impact of volume is significant. Specifically, for each type of reality show, the increase in fixed costs has a positive impact on the number of clicks on the show, while the variable cost has a different impact on different types of the reality show. The number of clicks on reality shows has a positive impact, while the number of Internet clicks on other types of reality shows has a negative impact, although this effect is not obvious.

References

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Appendix

Table 1 Results of OLS Return of Reality Show Income

VARIABLES	(1) inc	(2) inc	(3) inc	(4) inc	(5) inc	(6) inc	(7) inc	(8) inc	(9) inc	(10) inc	(11) inc
fc	1.372***	14.53***	16.50***	5.140***	4.707***	5.383***	6.143***	5.438***	6.499***	6.329***	5.241***
	(0.129)	(1.330)	(1.543)	(0.542)	(0.458)	(0.498)	(0.690)	(0.498)	(0.917)	(1.006)	(1.048)
vc	12.34***	3.748***	4.024***	-5.521**	-4.891**	-5.358**	-8.007**	-6.080**	-8.564*	-7.542	-2.197
	(0.428)	(1.144)	(1.243)	(2.593)	(2.194)	(2.204)	(3.371)	(2.312)	(4.483)	(4.858)	(5.172)
Constant	-275.2	-1,567	-1,760	-707.3	-691.3	-807.7	-656.4	-737.9	-657.7	-740.5*	-588.9
	(430.7)	(1,210)	(1,143)	(953.6)	(1,048)	(773.3)	(583.0)	(621.6)	(513.2)	(405.8)	(352.3)
Observations	310	31	31	31	31	31	31	31	31	31	31
R-squared	0.856	0.958	0.956	0.954	0.955	0.959	0.959	0.963	0.956	0.959	0.957

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.

Table 2 Results of OLS Regression of Audience Ratings of Reality Shows

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
VARIABLES	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate	ADrate
fc	1.47e-06***	8.70e-06***	1.33e-05***	4.06e-06***	1.95e-06***	4.41e-06***	5.46e-06***	4.15e-06***	7.60e-06***	7.75e-06***	1.31e-05***
	(2.00e-07)	(9.96e-07)	(3.20e-06)	(1.11e-06)	(3.78e-07)	(1.17e-06)	(1.53e-06)	(1.15e-06)	(2.34e-06)	(2.61e-06)	(2.99e-06)
vc	4.51e-06***	-1.50e-06*	1.88e-06	-4.41e-06	-4.29e-06**	-3.38e-06	-6.31e-06	-2.22e-06	-1.17e-05	-1.01e-05	-3.14e-05**
	(6.68e-07)	(8.56e-07)	(2.57e-06)	(5.31e-06)	(1.81e-06)	(5.18e-06)	(7.48e-06)	(5.33e-06)	(1.14e-05)	(1.26e-05)	(1.47e-05)
Constant	0.00365***	0.000913	6.33e-05	0.000736	0.00111	0.000520	0.000601	0.000510	2.94e-05	-0.000141	0.000277
	(0.000671)	(0.000906)	(0.00237)	(0.00195)	(0.000866)	(0.00182)	(0.00129)	(0.00143)	(0.00131)	(0.00105)	(0.00100)
Observations	310	31	31	31	31	31	31	31	31	31	31
R-squared	0.417	0.865	0.734	0.755	0.742	0.762	0.802	0.790	0.801	0.829	0.852

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3 Results of OLS Regression of Clicks on Reality Shows

VARIABLES	(1) CKquantity	(2) CKquantity	(3) CKquantity	(4) CKquantity	(5) CKquantity	(6) CKquantity	(7) CKquantity	(8) CKquantity	(9) CKquantity	(10) CKquantity	(11) CKquantity
fc	1.986***	12.57***	40.84***	10.15***	3.082***	9.170***	10.72***	7.906***	10.94***	13.76***	18.42***
	(0.625)	(1.293)	(7.101)	(2.072)	(0.497)	(1.924)	(2.504)	(2.192)	(2.774)	(2.936)	(3.542)
vc	16.64***	-3.146***	9.858*	-6.402	-7.545***	-4.206	-11.24	0.132	-10.64	-27.76*	-48.25**
	(2.081)	(1.112)	(5.719)	(9.917)	(2.383)	(8.507)	(12.23)	(10.18)	(13.57)	(14.18)	(17.47)
Constant	12,920***	4,373***	18,850***	15,869***	3,792***	12,810***	9,139***	11,074***	6,222***	4,275***	3,374***
	(2,093)	(1,176)	(5,261)	(3,647)	(1,138)	(2,984)	(2,116)	(2,737)	(1,554)	(1,185)	(1,190)
Observations	310	31	31	31	31	31	31	31	31	31	31
R-squared	0.322	0.871	0.863	0.872	0.783	0.856	0.860	0.825	0.888	0.887	0.873

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1