

An Empirical Analysis on the Influencing Factors of Tourism Industry Upgrading in Hunan Province

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Abstract : In this paper, firstly, based on the frequency analysis and the availability and representativeness of data, five measurement indicators of factors affecting industrial upgrading are determined, and a multiple regression model is established with the help of relevant data from 2000 to 2016. Secondly, from the perspective of empirical analysis, regression analysis and correlation test of the established model are carried out with Eviews software. Finally, it is concluded that when the total tourism income of Hunan Province is taken as the measure index of the upgrading level of tourism industry, the investment in fixed assets of the whole society, the per capita disposable income of urban residents, the per capita net income of rural families and the number of star hotels are the significant factors affecting the upgrading of tourism industry.

1. Introduction

Along with the continuous promotion of "one belt and one road", it brings enormous development opportunities to the tourism industry of Hunan province. Meanwhile, it is also facing more severe challenges both at home and abroad. Therefore, industrial upgrading is an inevitable choice for the healthy development of Hunan's tourism industry. Through empirical analysis, this paper clarifies the main factors affecting the upgrading of tourism industry in Hunan Province, in order to make a modest contribution to the upgrading of tourism industry and the development of tourism economy in Hunan Province.

2. Empirical Analysis

2.1 Variable Selection and Model Establishment of Empirical Analysis

Through consulting and researching a large number of relevant literatures, according to the frequency analysis and the representativeness of influencing factors and the availability of data, this paper chooses Hunan Province's total tourism income as the explanatory variable Y, and chooses the per capita GDP X1 (yuan), the whole society's fixed assets investment X2 (yuan), the per capita disposable income X3 (yuan) of urban residents and rural households as explanatory variables Y. Six explanatory variables are net income per family X4 (yuan), number of star hotels X5 (yuan), number of national travel agencies X6 (yuan).

Model: $Y = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + b$ (formula1)

2.2 Quantitative Analysis on the Influencing Factors of the Upgrading of Hunan Tourism Industry

The total income of Hunan tourism industry and its influencing factors from 2000 to 2016 are selected as sample data. Data sources: China Statistical Yearbook 2017, Hunan Statistical Yearbook 2017, etc.

2.2.1 Basic Data Processing

The ADF stationarity test for time series shows that the time series is not stationary and the data has problems. Next, the data need to be differentiated. After the second-order difference, the test is

smooth. The results of the second-order difference are shown below. The stationarity test of regression residuals is carried out, and the test passes. Therefore, there is a co-integration relationship among the variables, and the regression is effective.

2.2.2 Analyse and test the data model:

2.2.2.1 OLS analysis

Eviews software shows that there is a linear relationship between the explanatory variables and the explanatory variables. OLS regression of the data in Table 1 shows that the regression results are as follows:

Table1 OLS regression analysis results

Sample: 2000 2016

Included observations: 17

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-638.9041	280.6517	-2.276502	0.0461
X1	-0.022028	0.030833	-0.714411	0.4913
X2	0.096180	0.057809	1.663750	0.1271
X3	-0.179916	0.090830	-1.980803	0.0758
X4	0.687103	0.125339	5.481973	0.0003
X5	0.531925	0.744785	0.714199	0.4914
X6	0.038551	0.023983	1.607383	0.1391
R-squared	0.998821	Mean dependent var	1446.791	
Adjusted R-squared	0.998114	S.D. dependent var	1379.494	
S.E. of regression	59.91647	Akaike info criterion	11.31668	
Sum squared resid	35899.83	Schwarz criterion	11.65977	
Log likelihood	-89.19179	Hannan-Quinn criter.	11.35078	
F-statistic	1411.899	Durbin-Watson stat	2.144087	
Prob(F-statistic)	0.000000			

According to Table 1, the results of regression function are as follows:

$$Y = -638.9041 - 0.022028 * X1 + 0.096180 * X2 - 0.179916 * X3 + 0.687103 * X4 + 0.531925 * X5 + 0.038551 * X6$$

$$Se = (280.6517) (0.030833) (0.057809) (0.090830) (0.125339) (0.744785) (0.023983)$$

$$t = (-2.276502) (-0.714411) (1.663750) (-1.980803) (5.481973) (0.714199) (1.607383)$$

$$R^2 = 0.998821 \quad \bar{R}^2 = 0.998114 \quad F = 1411.899 \quad DW = 2.144087$$

According to the above regression results, under the assumption that other conditions remain unchanged, For every 1 unit increase in fixed assets investment, the total tourism income increased by 0.096180 units. The per capita net income of rural households in China increased by 1 unit, while the total tourism income of Hunan increased by 0.687103 units. For each additional star-rated hotel in Hunan Province, its total tourism revenue increased by 0.531925 units. For each additional travel agency in China, Hunan's total tourism revenue increased by 0.038551 units. However, for every 1 unit increase in per capita GDP, Hunan's total tourism income decreased by 0.022028 units. For every 1 unit increase in per capita disposable income of urban residents in China, Hunan's total tourism income decreased by 0.179916 units. The theoretical analysis is not entirely consistent with the empirical judgment, which may be the problem of the model.

2.2.2.2 Statistical test of correlation

Goodness of fit test: Table 3 shows that $R^2 = 0.998821$, $\bar{R}^2 = 0.998114$, both the resolvable coefficient and the revised resolvable coefficient are very close to "1", that is, the model has a high degree of fitting the samples.

F test: The regression equation as a whole is significant. That is to say, GDP per capita,

investment in fixed assets of the whole society, disposable income of urban residents, net income per capita of rural residents, number of star-rated hotels, number of travel agencies and other variables have a significant impact on total tourism income at a given significant level of $\alpha=0.05$.

T test: That at a given significant level, Only the explanatory variable X4 (per capita net income of rural households) has a significant impact on the total tourism income of the explained variable, while the absolute value of T of other variables (including constant items) is small, which has not passed the test.

2.2.3 Final model conclusion

Through the model test and multiple collinearity correction, the final model results are basically consistent with the theoretical expectations. Four variables, i.e. investment in fixed assets, disposable income per capita of urban residents, net income per capita of rural households and the number of star-rated hotels, have an important impact on the upgrading of Hunan's tourism industry. However, due to the limitations of the study, other factors that have not been taken into account are not excluded. The final result of the model is:

$$Y = -367.9934 + 0.120038 * X_2 - 0.211573 * X_3 + 0.654116 * X_4 + 1.401431 * X_5$$

$$Se = (150.3010) \quad (0.040385) \quad (0.039084) \quad (0.1197280) \quad (0.574636)$$

$$t = (-2.448376) \quad (2.972308) \quad (-5.413243) \quad (5.463348) \quad (2.438817)$$

$$R^2 = 0.998394 \quad R^2 = 0.997859 \quad F = 1865.456 \quad DW = 2.075034$$

The final results of the model show that under other conditions unchanged:

Investment in Fixed Assets in the Whole Society: The total tourism income increases by 0.120038 units for every increase of fixed assets investment in the whole society, showing a positive correlation. $P=0.0117$, The regression coefficient is more significant, which shows that the social fixed assets investment has a greater impact on the upgrading of tourism industry. The more perfect the social public facilities, the better the development of tourism industry.

Per capita disposable income of urban residents: For every 1 unit increase in per capita disposable income of urban residents, the total tourism income decreases by 0.211573 units, showing a negative correlation. $P=0.0002$, The regression coefficient is quite significant, which shows that the increase of per capita disposable income of urban residents will lead to the decrease of total tourism income, which is not conducive to the development of tourism industry. This is inconsistent with social and economic facts, and the total tourism income increases with the increase of per capita disposable income in cities and towns.

3. conclusion

There is a positive correlation between investment in fixed assets and total tourism income in the whole society. With other conditions unchanged, the more investment in fixed assets in the whole society, the more tourism revenue, the more advantageous to the upgrading of tourism industry; The impact of the increase of urban residents' disposable income on Hunan's total tourism income is volatile compared with other factors. The increase of urban residents' income may choose to travel abroad or other cities. There is a positive correlation between the per capita net income of rural households and the total tourism income. It shows that rural residents are a potential source of tourists in Hunan Province, and the development of rural economy and tourism industry is conducive to achieving a win-win situation in improving rural living standards and upgrading tourism industry. There is a positive correlation between the number of star-rated hotels and the total tourism income, but the future trend is to diversify the forms of accommodation. Therefore, while improving the service quality of star-rated hotels, attention should be paid to the management and development of youth travel, residential accommodation and farming accommodation.

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