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Analysis of the Influencing Factors of My Country's Tourism Economy and its Temporal and Spatial Evolution under the Background of Rural Revitalization

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Abstract

In recent years, with the improvement of people's living standards, my country's tourism economy has also grown rapidly. This article uses time series statistical data from 1995 to 2016 and uses econometric analysis methods to establish a model of influencing factors of my country's domestic tourism economy. During the modeling process, issues such as multicollinearity, autocorrelation, heteroscedasticity, and distribution lag model were dealt with. According to the test of explanatory variables such as the number of tourists, passenger turnover, employment rate, GDP per capita, and household consumption expenditure, the model shows , The number of domestic tourists is the main factor affecting my country's tourism economy.

Keywords

Tourism Income; Influencing Factors; Multicollinearity; Autocorrelation; Heteroscedasticity.

1. Introduction

My country's tourism industry has become a hotspot for economic growth in the new national economy. Tourism is the pillar industry of the leisure industry and a comprehensive industry that includes many leisure and entertainment. With the increasing improvement of people's material and cultural life, the tourism industry is to a certain extent It can represent the direction of consumption development and play an increasingly important role in the development of the entire social economy. It can not only show typicality in a specific environment, but also show the commonality of leisure consumption in the same environment. There is more and more research on tourism consumption. Profound meaning. The development of the tourism industry has built a platform for mutual exchanges between tourist destinations and tourist sources. Tourists will have a comprehensive impression of the tourist destination from the travel process, and the tourist destination will show tourists the overall image of the region in this process. The tourism industry promotes the economic growth of tourism cities and the development of related industries, provides social employment opportunities, promotes the improvement of social culture and ecological environment, strengthens regional exchanges and interactions, and promotes the improvement of population quality. The economy, culture, and environment of China are important to promote the industry. Moreover, the tourism industry is a large-scale industry, and data can be easily found in the China Statistical Yearbook. It is more convenient to research. Therefore, this article uses my country's relevant data from 1995 to 2016 to study my country's tourism economy[1-3].

2. Theoretical Model and Data

After a comprehensive analysis, taking my country's tourism consumption income as the dependent variable, the independent variables affecting domestic tourism consumption income are the number of domestic tourists RS, passenger turnover rate ZZL, employment rate JYL, per capita GDP, and household consumption expenditure CZ. In order to eliminate the influence of

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price factors and make the domestic tourism consumption income and per capita GDP in different years more comparable, the national consumer price index (with 2005 as the base period) is used. After adjustment, RY and RGDP are obtained[4-5].

Variables and symbols:

(1) RY: Tourism consumption income. Tourism consumption income is often accompanied by the degree of tourism development. Tourism consumption income is a more appropriate indicator to measure the degree of development of tourism economy. Since this article studies domestic tourism consumption income, this article chooses domestic tourism consumption income as the explained variable.

(2) RS: Number of domestic tourists. The number of tourists can be a large measure of the degree of tourism development. Tourism consumption income and tourist numbers are often positively correlated. Because this article studies domestic tourism consumption income, this article chooses domestic tourist numbers as one of the explanatory variables.

(3) ZZL: Passenger turnover rate. It is the product of the number of passengers transported and the distance transported, which can reflect the total number of passengers transported in a certain period of time. It is chosen as a representative indicator of the total number of passengers transported by the transportation department in a certain period of time.

(4) JYL: Employment rate. An indicator reflecting the degree of employment of the labor force. It can be used as a standard to measure the travel time available to residents.

(5) RGDP: GDP per capita adjusted by the consumer price index. GDP is an indicator to measure the development of social productivity. It can measure the perfection of the environment required for tourism consumption in the external system, and it can also measure the demand for tourism of residents. Therefore, RGDP is selected to reflect the income of residents.

(6) CZ: Resident consumption expenditure. Refers to the expenditure of non-commodities such as the purchase of commodities and the enjoyment of culture by individuals and households of urban and rural residents. Tourism consumption is non-material expenditure for enjoying culture, so household consumption expenditure will also affect my country's tourism consumption income.

3. Establishment and Analysis of the Model.

3.1. Modeling Introduction.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	375.7072	167.6402	2.241152	0.0396
RS	0.036598	0.015220	2.404587	0.0287
ZZL	0.000852	0.000552	1.543242	0.1423
JYL	-3.952081	1.710768	-2.310121	0.0346
RGDP	-0.593185	0.116061	-5.110972	0.0001
CZ	0.000948	0.000256	3.708349	0.0019

R-squared	0.998491	Mean dependent var	81.65138
Adjusted R-squared	0.998020	S.D. dependent var	73.11305
S.E. of regression	3.253697	Akaike info criterion	5.424461
Sum squared resid	169.3847	Schwarz criterion	5.722018
Log likelihood	-53.66908	F-statistic	2117.528
Durbin-Watson stat	1.635935	Prob(F-statistic)	0.000000

Figure 1. The output result of the simulated regression equation

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In order to estimate the model parameters, according to the collected statistical data, the least squares regression equation is used to synthesize the observability of the above factors and variables, and the result shown in Figure 1 is obtained.

$$RY=\beta_0+\beta_1 RS + \beta_2 ZZL + \beta_3 JYL + \beta_4 RGDP + \beta_5 CZ + U_i$$

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are the regression coefficient for the random disturbance term.

The model R^2= 0.9985, $\overline{R^2}$= 0.9980, the coefficient of determination is very high, indicating that most of the model can be explained by the regression equation, when α= 0.05, F = 2117.5280, the test P value is passed, the joint significance of the parameters is very high, indicating that the overall pair The impact of the explained variable is significant, but the T-test value of passenger turnover rate ZZL is 1.5432, and the P value fails, indicating that passenger turnover rate has no significant impact on tourism consumption income. The regression coefficient of per capita GDP RGDP is negative, indicating As the per capita GDP increases, tourism consumption income decreases, which is not in economic sense. Contrary to expectations, this situation indicates that there may be serious multicollinearity.

3.2. Multiple Collinearity Test

To determine whether there was a severe multicollinearity between the explanatory variables, a simple correlation coefficient test was used to obtain the degree of correlation between the explanatory variables to determine whether there was a severe multicollinearity. The correlation coefficients were calculated for each explanatory variable and used to obtain Figure 2:

	RY	RS	ZZL	JYL	RGDP	CZ
RY	1.000000	0.995773	0.883833	-0.548247	0.966956	0.994240
RS	0.995773	1.000000	0.911603	-0.548314	0.982936	0.998809
ZZL	0.883833	0.911603	1.000000	-0.637422	0.965767	0.921101
JYL	-0.548247	-0.548314	-0.637422	1.000000	-0.612421	-0.570876
RGDP	0.966956	0.982936	0.965767	-0.612421	1.000000	0.987602
CZ	0.994240	0.998809	0.921101	-0.570876	0.987602	1.000000

Figure 2. Table of the correlation coefficient matrix

According to the figure above, the correlation coefficient of each explanatory variable is high among each other, in general, if the simple correlation coefficient of each two explanatory variables is high, such as greater than 0.8, there is considered more serious multicollinearity, confirming that there is indeed serious multiccollinearity. To correct multicollinearity, stepwise regression was used to address the multicolcollinearity.

A monary regression model was established.

Variables that caused multicollinearity were screened and removed by stepwise regression. When choosing the underlying unitary regression, a regression equation corresponding to the explanatory variable contributing most to the explained variable is usually chosen as the basis, and the remaining explanatory variables are introduced one by one.

The initial unary regression equation was chosen based on the correlation coefficients of each explanatory variable in the figure above. According to the test results of the correlation coefficient, it shows that the number of tourism has the strongest correlation with the tourism consumption income in China. Therefore, the uniary regression basic model with the number of tourists as the explanatory variable was selected. The rest was introduced into the model one by one and the results are estimated in Table 1.

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Table 1. Results of the stepwise regression analysis

model	ZZL	JYL	RGDP	CZ
RS ratio	0.0680	0.0601	0.0810	0.0690
T test	28.3576	39.4659	16.3681	2.6510
Thesecond variable coefficient	-0.0012	0.3840	-0.2566	-0.0001
T test	-3.5683	-0.1278	-4.2711	-0.3386

Judging from the estimation results, the unary regression with the number of tourists as the explanatory variable and the variable regression results as follows. As can be seen from the table above, the T-test values after the introduction of JYL and CZ are too small, indicating that the effect is not significant, while the coefficients after the introduction of ZZL and CZ is incorrect, which do not conform to the economic significance. Therefore, the unitary regression model with the number of tourists as the explanatory variable is retained. Regression results were presented in Figure 3.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-23.89928	2.625243	-9.103645	0.0000
RS	0.060240	0.001242	48.48348	0.0000
R-squared	0.991563	Mean dependent var		81.65138
Adjusted R-squared	0.991142	S.D. dependent var		73.11305
S.E. of regression	6.881308	Akaike info criterion		6.782002
Sum squared resid	947.0479	Schwarz criterion		6.881188
Log likelihood	-72.60203	F-statistic		2350.648
Durbin-Watson stat	0.229950	Prob(F-statistic)		0.000000

Figure 3. Monary regression results

The model estimates result as RY=-23.8993+0.0602RS.
(2.6252) (0.0012).
T=(-9.1036) (48.4835).
R^2=0.9916 $\overline{R^2}$=0.9911 F=2350.6840 DW=0.2300.

3.3. Heterovariance Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.48735	35.91764	-0.486873	0.6319
RS	0.081597	0.040793	2.000261	0.0600
RS^2	-1.85E-05	8.71E-06	-2.119867	0.0474
R-squared	0.195269	Mean dependent var		43.04763
Adjusted R-squared	0.110561	S.D. dependent var		50.50129
S.E. of regression	47.62781	Akaike info criterion		10.69083
Sum squared resid	43099.76	Schwarz criterion		10.83961
Log likelihood	-114.5992	F-statistic		2.305189
Durbin-Watson stat	0.650304	Prob(F-statistic)		0.126964

Figure 4. White test

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Due to the complexity of real economic activities, tourism consumption changes may be contrary to the assumption of the same variance. To test whether the model has the heterovariance, use the White test to judge the heterovariance, obtain the auxiliary regression equation, and use the test amount of the auxiliary regression equation to determine the heterovariasticity. The test is shown in Figure 4, nR2 =4.2959, with its corresponding p=0.1167, so the original hypothesis is not rejected, indicating that there is no heterovariance in the model.

3.4. Autocorrelation Test

The autocorrelation is due to inertia of economic system, lag effect of economic activity, loss of data processing, spider web model and model setting error, which mainly exists in the time series. Time series data is 1995-2016, and no determination is made whether autocorrelation was conducted for the following test.

(1) DW checkout.

The model has DW=0.2300, n=22, k=1, check the DW test table, yielding d L =0.997, d U =1.174, DW <d L, believing that there is a first order autocorrelation.

(2) Partial correlation coefficient test.

In the residual sequence partial correlation coefficients, the first and second order are large, indicating the existence of first and second order autocorrelations.

(3) BG checkout. (Figure 5): When the lag period is 2, the auxiliary regression equation is as follows. P=0.0000, autocorrelation with probability of 95%. The T test of e t 1 indicates that there is first-order autocorrelation and e t 2 similarity, indicating second-order autocorrelation.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.309899	1.086523	-0.285221	0.7787
RS	0.000247	0.000528	0.468537	0.6450
RESID(-1)	1.387979	0.199075	6.972133	0.0000
RESID(-2)	-0.551389	0.205404	-2.684414	0.0151
R-squared	0.853382	Mean dependent var		2.83E-15
Adjusted R-squared	0.828945	S.D. dependent var		6.715469
S.E. of regression	2.777436	Akaike info criterion		5.043899
Sum squared resid	138.8547	Schwarz criterion		5.242271
Log likelihood	-51.48289	F-statistic		34.92254
Durbin-Watson stat	2.263776	Prob(F-statistic)		0.000000

Figure 5. For the B G test

3.5. General Difference Method

Because the model has an autocorrelation, the model needs to be remedied, so the generalized difference method is used to remove the first-and second-order autocorrelation, and the output result is shown in Figure 6.

The first-and second-order autocorrelations were corrected by the generalized differential method, and the modified model DW=2.1569, close to 2, indicating that there is no first-order autocorrelation, and that both AR (1) and AR (2) are significant at a 95% probability, further indicating the existence of first-and second-order autocorrelations.The reestimated model was tested for the partial correlation coefficient, indicating that there was no autocorrelation.The model R 2 =0.9988 and R 2 =0.9985 were all high, improved from uncorrected, and the T test of RS also passed, indicating that the effect of RS on RY was significant, and the overall F test also passed, indicating that the overall RY effect was significant.

The model result is RY=-75.4483+0.0703RS [AR(1)=1.5378, AR(2)=-5613].

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(132.7329) (0.0065).
T=(-0.5684) (10.7391).
R 2 =0.9988 R 2 =0.9985 F=4288.9300 DW=2.1569.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-75.44828	132.7329	-0.568422	0.5776
RS	0.070266	0.006543	10.73971	0.0000
AR(1)	1.537771	0.208160	7.387442	0.0000
AR(2)	-0.561274	0.220598	-2.544326	0.0217

R-squared	0.998758	Mean dependent var	88.37235
Adjusted R-squared	0.998525	S.D. dependent var	73.38335
S.E. of regression	2.818184	Akaike info criterion	5.086919
Sum squared resid	127.0746	Schwarz criterion	5.286065
Log likelihood	-46.86919	F-statistic	4288.930
Durbin-Watson stat	2.156933	Prob(F-statistic)	0.000000

Inverted AR Roots	.94	.60

Figure 6. The General Difference Method

4. Research Conclusions and Policy Implications

The model result is RY=-75.4483+0.0703RS [AR (1) =1.5378, AR (2) =-5613].
(132.7329) (0.0065).
T= (-0.5684) (10.7391).
R^2=0.9988 $\overline{R^2}$=0.9985 F=4288.9300 DW=2.1569.

According to the measurement model established, the main factor affecting the change of domestic tourism income in China is the number of domestic tourists. The model shows that for every one million increase in tourism numbers, domestic tourism consumption revenue will increase by 748 million yuan. The model R 2 =0.9988, the revised R 2 =0.9985, is high, indicating that the model is explained by the regression equation. The T test of the explanatory variable RS is 10.7391, and the corresponding P value is about 0. At =0.05, the number of tourists of the explanatory variable on the tourism consumption income, F=4288.9300, indicating the high significance of the model and reflecting the rationality and credibility of the overall model [6].

To increase the income of domestic tourism consumption, the first thing is to increase the number of tourists. The relevant policies in recent years have played a great impetus in the increase of the number of tourism, and we can also clearly see the rapid development of the number of tourism and domestic tourism consumption expenditure. The implementation of the legal holiday policy gives office workers and students more time to travel, which undoubtedly increases the number of tourists.

In addition, the Chinese government has issued some documents to stimulate the development of the tourism industry, enough to show the importance of attaches to the development of tourism and the importance of tourism. To further increase the number of tourists and increase the tourism consumption income, we also need to do the following points.

1) Implement the tourism infrastructure improvement plan to improve the tourism consumption environment. We will strengthen the construction of the central and western regions, connect roads, parking lots, and tourist toilets in scenic spots, and standardize the price and business order of the tourism market.

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2) Implement the tourism investment promotion plan, and create a new tourism consumption market. It includes seven contents, including speeding up the construction of self-driving vehicles, RV camps, vigorously developing characteristic tourism towns, vigorously developing leisure and vacation tourism products, and actively promoting the "Internet + tourism".

3) Implement the tourism consumption promotion plan and cultivate new consumption hot spots. We will improve distinctive tourism commodities, actively develop tourism for the elderly, support the development of research tourism, and actively develop TCM health tourism.

4) Implement the rural tourism promotion plan and expand the tourism consumption space. It includes adhering to the personalized rural tourism and characteristic development direction, improving supporting facilities for leisure agriculture and rural tourism, carrying out actions of millions of rural tourism makers, and vigorously promoting poverty alleviation through rural tourism.

5) Optimize the vacation arrangement and stimulate the tourism consumption demand. Including the implementation of the staff paid leave system, encourage flexible work and rest, encourage the wrong peak vacation and other three contents.

6) Strengthen reform and innovation to promote the sustained growth of tourism investment and consumption. It includes increasing government support, the implementation of differentiated land use policies for Marine tourism islands, and expanding financing channels for tourism.

5. Enterprises Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

References

[1] "China Quarterly Macroeconomic Model (CQMM)" project group. Simulation of the macroeconomic effects of large-scale tax and fee reduction policies-2019-2020 China's macroeconomic outlook [J]. Journal of Xiamen University (Philosophy and Social Sciences) Edition), 2019, 256(6): 98-106.

[2] K.Yan, Z.Jiang. The main focus and policy recommendations for implementing strategic tax and fee reduction [J]. Tax Research, 2019, 414(7): 3-7.

[3] X.J. Li, L.Z.Zhou. Research on the Tax Policy of Expanding Resident Consumption in my country--Based on the Empirical Analysis of the Impact of Taxation on Consumption [J]. Finance and Trade Economics, 2013, 375(2): 18-27.

[4] Xiamen University CQMM Research Group, Z.Y.Lin, Y.W.Wang, et al. Research on the effectiveness of China's tax and fee reduction policies [Z]: Southeast Academic, 2020.

[5] C.L.Liu. Analysis of Structural Tax Reduction Policy under the Constraint of Multiple Objectives [J]. Tax Research, 2009, 295(12): 14-18.

[6] Z.Y.Lin, Z.J.Deng. From the perspective of stabilizing the economy, my country's tax structure adjustment [J]. Tax Research, 2007, 261(2): 41-44.