Analysis on the Influencing Factors of Domestic Tourism Income

Kaixin Wu, Yu Zhang and Tao Wang

School of international trade and economics, Anhui University of Finance and Economics, Bengbu 233030, China

Abstract

With China's economy moving towards a high-quality development stage, tourism, as one of the service industries, has developed rapidly in recent years. For China, tourism has gradually become an important driving force to promote economic growth. Therefore, this paper makes an in-depth analysis on the development status of China's tourism, combs the main problems, and puts forward relevant suggestions to promote the sustainable and healthy development of China's tourism. Based on the analysis of the factors affecting domestic tourism development, using the relevant statistical data of domestic tourism development from 2001 to 2019, the number of domestic tourists, per capita disposable income of urban residents and per capita disposable income of rural residents are selected as explanatory variables to establish a multiple linear regression model for qualitative and quantitative analysis of the factors affecting domestic tourism income, And put forward relevant suggestions to promote the development of domestic tourism.

Keywords

Tourism Revenue; Influencing Factors; Metrological Analysis.

1.　Raising Question

As a leisure activity, tourism is a new way for people to pursue spiritual life and obtain abnormal experience in addition to meeting their basic material needs. With the rapid development of China's economy and the continuous improvement of people's living standards, tourism activities are also favored by more and more people. Tourism has ushered in development opportunities and the continuous development of tourism economy. At present, it has become an important starting point to drive the economic growth of China's tertiary industry. The development of tourism is important for the development of China's economy and the enrichment of people's spiritual life The construction of ecological civilization is of great significance.

Under the relatively peaceful and stable development environment, China's tourism has rapidly become an emerging industry. The comprehensive contribution of China's tourism industry to GDP is 9.13 trillion yuan, and the total industry income reaches 4.69 trillion yuan, with an annual growth rate of about 16%. With the rapid development of China's tourism industry, the continuous expansion of industrial scale, the improvement of product system and the continuous optimization of market order, tourism has gradually become a new growth point of the national economy. According to the analysis of China's tourism industry, the number of domestic tourists in China increased year by year from 2010 to 2019. The growth rate fluctuated greatly in 2011, reaching 25.58%, the largest growth rate from 2010 to 2019; After 2012, the growth rate of tourists tends to be stable, maintained at about 10%; In 2019, the number of domestic tourists reached 5 billion, with a year-on-year increase of 12.64%.

By 2019, the total revenue of China's tourism industry has reached 4.69 trillion yuan (including the tourism expenditure of inbound tourists and domestic tourists on travel, travel, accommodation, food, shopping, entertainment, and purchasing souvenirs and gifts for

relatives, friends and family), with an annual growth of 16%. The current situation of China's tourism development points out that the proportion of total tourism revenue in GDP has increased from 2.8% to 6.3%.

From the perspective of economic environment, the economic environment shows strong support and transformation leap. China's economy is changing to a well-off economy in an all-round way. In the next 10 years, it will maintain a steady growth rate of 7%, and the national per capita GDP will also increase significantly.[1] After the basic living needs of Chinese people are met in general, the consumption structure will be upgraded to development and enjoyment, and the tourism population Travel rate, tourism expenditure and structure are at the turning point of transformation and upgrading.

From the perspective of social environment, China has vigorously created a scientific outlook on development and people-oriented. The living environment, people's livelihood economy and harmonious society have become the mainstream of China's social development. China's image as the world's safest tourist destination and the two-way interactive effect of outbound and inbound tourism can create a good social environment for the development of tourism, More importantly, on the basis of raising national income, increasing leisure time and providing social security, tourism, as one of the important driving forces to promote social harmony, should and must become an important way for human sharing and social development.

At present, the scale of China's tourism industry is growing year by year. It has played an important role in absorbing employment, driving agricultural development and increasing taxes, and has made outstanding contributions to economic growth and social development. According to the preliminary calculation of the development status of China's tourism industry, the comprehensive contribution of China's tourism industry to GDP in 2020 will be 9.13 trillion yuan, accounting for 11.04% of the total GDP. Tourism directly employed 28.25 million people, and tourism directly and indirectly employed 79.9 million people, accounting for 10.28% of the total employed population in China. Looking forward to 2020, China's macro-economy and residents' income will maintain medium and high growth. With the promotion of a new round of individual income tax reform and a series of central policies to promote and stimulate residents' consumption potential, the vitality of tourism consumption will be further accumulated and released. It is estimated that in 2020, the number of domestic tourists will reach 6.06 billion, and the domestic tourism revenue will be 5.6 trillion yuan, an increase of 9.5% and 10% respectively over the previous year. Tourism enterprises have also said that the government pays more and more attention to the tourism industry, which will provide new space for enterprise development. [2]

2. Theoretical Review

With the rapid development of science and technology and the continuous improvement of management science and management means, the contribution share of production factors such as capital, labor and energy to output growth will gradually decline, and the improvement of factor productivity will become the main source of economic growth. At present, the proportion of added value and employment of China's tourism industry is still relatively low. Maintaining a high growth rate is a necessary condition to reverse this backward situation and enhance the competitiveness of tourism industry. However, "necessary" does not mean "sufficient". If this growth "mainly comes from sweat rather than inspiration, and from harder work rather than smarter work" (Krugman, 1999), its sustainability and competitiveness will be very weak. Because intensive economic growth mainly depends on the improvement of factor productivity, countries attach great importance to the study of productivity theory.

Tourism has the characteristics of intangibility, immediacy, heterogeneity, non physical nature and seasonality. Moreover, service output is a process. Production, distribution and

consumption are carried out at the same time. Consumers often participate in the production process, and the input quality in the production process will also affect the production rate, so how to accurately measure the productivity and productivity progress of tourism has become a very challenging problem. At present, the research in this field at home and abroad is still in its infancy, so it is a frontier topic of tourism research. As Peter F. Drucker, a famous contemporary management scholar, pointed out in the challenge of new productivity: "for most developed countries, the most priority economic issue must be to improve the productivity of knowledge and service work".

Thus, in order to accurately describe the growth trajectory of China's tourism industry and formulate matching policies, we should not only understand the growth rate, but also pay more attention to the formation factors of growth, that is, we should judge whether the growth is mainly driven by the increase of investment or the improvement of efficiency. Tourism started late in China, and there are few studies on the production efficiency of tourism. Therefore, a systematic analysis of the efficiency characteristics and influencing factors of China's tourism development has certain theoretical and practical significance.

3. Model Setting

Selection of explained variables:

At present, the development of China's tourism is still mainly domestic tourism, and domestic tourism income can well reflect the development of China's tourism. Therefore, the total domestic tourism income is selected as the explanatory variable.

Selection of explanatory variables:

Number of domestic tourists: the most intuitive factor affecting domestic tourism income can be determined as the number of domestic tourists. It is predicted that there is a positive correlation between the number of tourists and tourism income

Macroeconomic factors: Based on previous studies, the rapid economic development will improve people's living standards, increase the demand for tourism, and then promote the rapid development of tourism. Therefore, the disposable income of urban residents and the per capita net income of rural residents are selected as explanatory variables, and it is predicted that the two variables are positively correlated with tourism income.

In order to verify the correlation between the above explanatory variables and the explained variables, the econometric model we adopted is:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu_i$$

Where, y is the domestic tourism income (unit: 100 million yuan), X1 represents the number of domestic tourists (unit: million people), X2 represents the per capita disposable income of domestic urban residents (unit: yuan), and X3 represents the per capita disposable income of domestic rural residents (unit: yuan).

4. Collection of Partial Data

In order to estimate the model parameters, the latest statistical data of national tourism development from 2001 to 2019 are collected, as shown in Table 1:

Table 1. National tourism revenue and related data from 2001 to 2019

particular year	Domestic tourism revenue (100 million yuan) / Y	Number of domestic tourists (10000 person times) / x1	Per capita disposable income of urban residents (yuan) / x2	Per capita disposable income of rural residents (yuan) / x3
2001	3522.36	784	6824	2406.9
2002	3878.36	878	7652.4	2528.9
2003	3442.27	870	8405.5	2690.3
2004	4710.71	1102	9334.8	3026.6
2005	5285.86	1212	10382.3	3370.2
2006	6229.74	1394	11619.7	3731
2007	7770.62	1610	13602.5	4327
2008	8749.3	1712	15549.4	4998.8
2009	10183.69	1902	16900.5	5435.1
2010	12579.77	2103	18779.1	6272.4
2011	19305.39	2641	21426.9	7393.9
2012	22706.22	2957	24126.7	8389.3
2013	26276.12	3262	26467	9429.6
2014	30311.86	3611	28843.9	10488.9
2015	34195.05	3990	31194.8	11421.7
2016	39390	4435	33616.2	12363.4
2017	45660.77	5001	36396.2	13432.4
2018	51278.29	5539	39250.8	14617
2019	57250.92	6006	42358.8	16020.7

5. Model Initial Estimation

Table 2. OL regression results

Equation: UNTITLED   Workfile: UNTITLED::Untit...

View Proc Object | Print Name Freeze | Estimate Forecast Stats Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/28/20   Time: 20:22
Sample: 2001 2019
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3115.312	373.7521	-8.335237	0.0000
X1	10.26059	0.945001	10.85776	0.0000
X2	-2.329916	0.172646	-13.49531	0.0000
X3	6.089934	0.644186	9.453691	0.0000

R-squared	0.999531	Mean dependent var		20669.86
Adjusted R-squared	0.999437	S.D. dependent var		17669.71
S.E. of regression	419.1871	Akaike info criterion		15.09918
Sum squared resid	2635767.	Schwarz criterion		15.29800
Log likelihood	-139.4422	Hannan-Quinn criter.		15.13283
F-statistic	10655.91	Durbin-Watson stat		1.362483
Prob(F-statistic)	0.000000			

Use Eviews software to generate Yi, x1, X2, X3 and other data, and use these data to carry out OLS regression on the model. The results are shown in Table 2.

It can be seen from the analysis of main indicators that the determination coefficient is 0.9995 and the corrected determination coefficient is 0.9994. The model fits well. The F statistic is 10655.91, which shows that the regression equation is obviously significant as a whole at the horizontal level. T test shows that x1, X2 and X3 have significant effects on y. However, the coefficient of X2 is contrary to expectations, indicating that there may be serious multicollinearity.

6. Multicollinearity Test

The multicollinearity is tested by the correlation coefficient test method, and the correlation coefficient matrix is shown in Table 3:

Table 3. Correlation matrix

It can be seen from the correlation coefficient matrix that the correlation coefficient between the explanatory variables is high and there is serious multicollinearity.

Modified Multicollinearity

The stepwise regression method is used to test and solve the multicollinearity problem. The univariate regression results of Y against x1, X2 and X3 are shown in Table 5, 6 and 7, and the statistical results are shown in Table 4:

Table 4. Display results

variable	X1	X2	X3
Parameter estimate	10.5518	1.5191	3.9343
T statistic	20.4410	24.9572	34.9149
R^2	0.9934	0.9734	0.9862
Adjusted R^2	0.9930	0.9719	0.9854

Table 5. Schematic diagram (1)

Equation: EQ02   Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/28/20   Time: 20:40
Sample: 2001 2019
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7658.509	656.4241	-11.66701	0.0000
X1	10.55184	0.209192	50.44104	0.0000

R-squared	0.993363	Mean dependent var		20669.86
Adjusted R-squared	0.992972	S.D. dependent var		17669.71
S.E. of regression	1481.275	Akaike info criterion		17.53849
Sum squared resid	37300974	Schwarz criterion		17.63791
Log likelihood	-164.6157	Hannan-Quinn criter.		17.55532
F-statistic	2544.298	Durbin-Watson stat		0.186901
Prob(F-statistic)	0.000000			

Table 6. Schematic diagram (2)

Equation: EQ04   Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/28/20   Time: 20:40
Sample: 2001 2019
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8804.808	975.6801	-9.024278	0.0000
X3	3.934260	0.112682	34.91486	0.0000

R-squared	0.986246	Mean dependent var		20669.86
Adjusted R-squared	0.985437	S.D. dependent var		17669.71
S.E. of regression	2132.299	Akaike info criterion		18.26709
Sum squared resid	77293907	Schwarz criterion		18.36650
Log likelihood	-171.5374	Hannan-Quinn criter.		18.28391
F-statistic	1219.047	Durbin-Watson stat		0.256865
Prob(F-statistic)	0.000000			

Table 7. Schematic diagram (3)

Equation: EQ03   Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/28/20   Time: 20:40
Sample: 2001 2019
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11528.53	1458.337	-7.905258	0.0000
X2	1.519050	0.060866	24.95715	0.0000

R-squared	0.973432	Mean dependent var		20669.86
Adjusted R-squared	0.971869	S.D. dependent var		17669.71
S.E. of regression	2963.626	Akaike info criterion		18.92552
Sum squared resid	1.49E+08	Schwarz criterion		19.02493
Log likelihood	-177.7924	Hannan-Quinn criter.		18.94234
F-statistic	622.8594	Durbin-Watson stat		0.198842
Prob(F-statistic)	0.000000			

Among them, the adjustment judgment coefficient of X1 equation is the largest. Based on x1, other variables are introduced into the model one by one, and the estimation results are listed in Table 8 below (the second behavior t-test value):

Table 8. Inspection value

variable / Model	X1	X2	X3	Adjusted R^2
X1	10.5518 / 50.4410			0.9930
X1 / X2	16.9852 / 10.6893	-0.9398 / -4.0671		0.9963
X1 / X3	14.0563 / 4.4389		-1.3142 / -1.1092	0.9931

After comparison, when X2 is newly added, the adjusted judgment coefficient increases, but it does not meet the economic test. The judgment coefficient of the adjustment newly added X3 also increases, but it also does not meet the economic test, and the t-test of its parameters is not significant.

Therefore, the final regression result after correcting the severe multicollinearity effect is:

Y=-7658.51+10.5518X1+u

t= (-11.6670) (50.4410)

R^2=0.9934   Adjusted R^2=0.9930

F=2544.298   DW=0.1870

7. Model Test

Economic significance test

The results of the estimation model show that there is a positive correlation between the total tourism income and the number of domestic tourists, which is in line with the general significance of economics and passes the economic test.

Statistical inference test

Goodness of fit: in the data of OLS regression results, R^2 = 0.9934, and the revised decisive coefficient is 0.9930, which shows that the model fits the sample data well as a whole.

F test: the significance level is 0.05. The critical value of freedom (2,16) found in the F distribution table is 3.63, because f = 2544.298 > 3.63, indicating that the regression equation is significant, that is, the "total number of domestic tourists" does have a significant impact on the "total domestic tourism income".

test: when the significance level = 0.05, the critical value of the degree of freedom of 16 in the t-distribution table is 2.120. From the above data, it can be obtained that the t-statistic corresponding to X1 is 50.4410, which shows that X1 has a significant impact on y at the significance level of 0.05.

Econometric test

Multicollinearity test: after modifying the model variables, the results of stepwise regression achieve the purpose of reducing multicollinearity, but the factor x2 reflecting the disposable

income of urban residents and the factor X3 reflecting 4 rural residents are removed from the model, which may lead to setting deviation.

Heteroscedasticity test: graphic method to test heteroscedasticity:

Table 9. Heteroscedasticity test
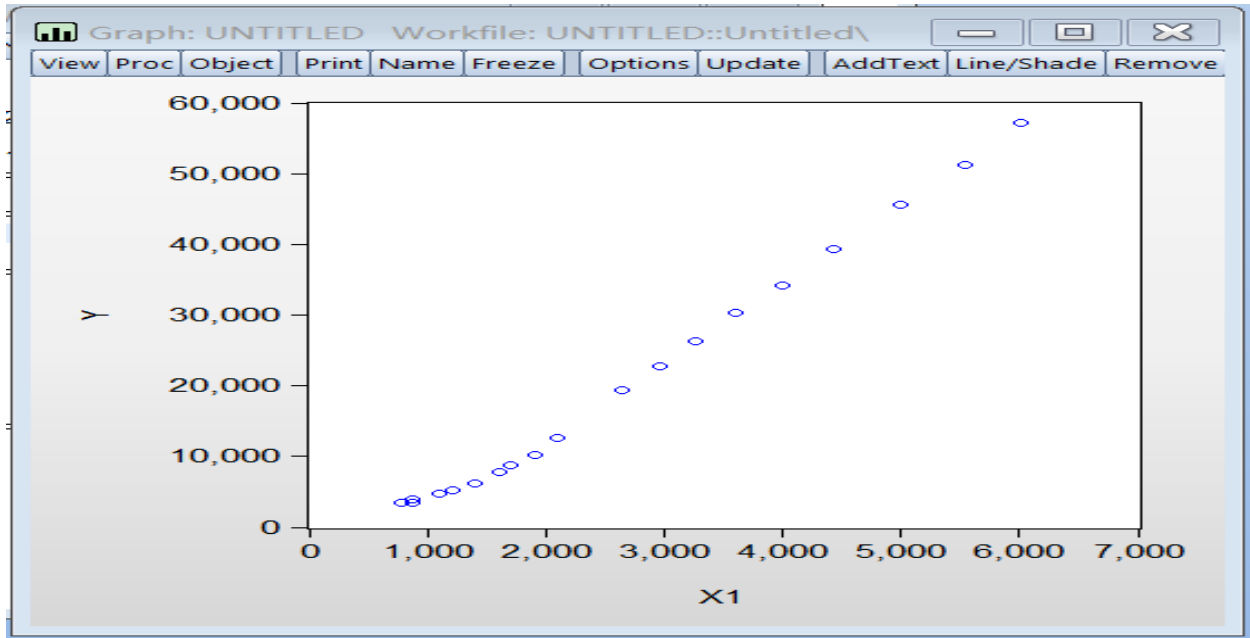
It can be seen from Table 1 that with the increase of the number of tourists, the total tourism income is also increasing, and falls near the regression line, with a small degree of dispersion. Therefore, it can be considered that it has passed the test and there is no heteroscedasticity.

Autocorrelation test

BG test is directly used, and the results are shown in Table 10:

Table 10. BG inspection

From the graph, there is autocorrelation. The t-test of lag phase I and lag phase II passed, so the model has first-order and second-order autocorrelation.

After adjustment, the iterative estimation method is used to estimate the model, and the results are shown in Table 11:

Table 11. Iterative estimation model

Table 11 shows that the estimation process converges after 11 iterations; When the adjusted model DW = 2.4115, n = 19, k = 1 and the significance level is 0.05, the lower limit is 1.18 and the upper limit is 1.40, while 1.18 < 2.4115 = DW < 4-1.40 = 2.6, indicating that there is no autocorrelation in the model; The partial correlation coefficient test (Table 3) also shows that there is no high-order autocorrelation. Therefore, the revised model is:
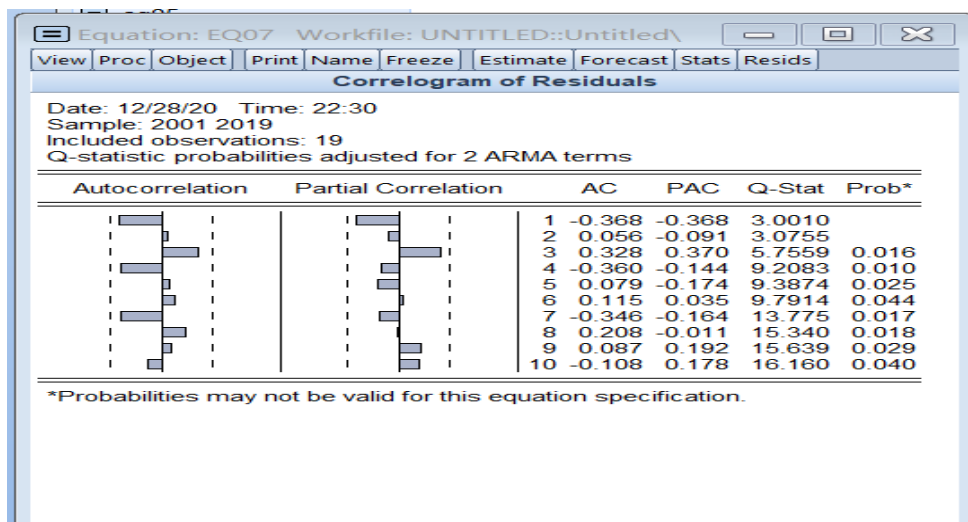
Y=-6834.1+10.7418X1+u

t= (-2.5330) (14.3515)

R^2=0.9991   Adjusted R^2=0.9989

F=5669.960   DW=2.4115

Table 12. Overview

8. Conclusions and Recommendations

Based on the data from 2001 to 2019, this paper demonstrates and analyzes the factors affecting domestic tourism income, and comes to the conclusion that the main factor affecting the total domestic tourism income is the total number of domestic tourists. According to the experimental results, assuming that other variables remain unchanged, for every 1 million people increase in the total number of domestic tourists, the average domestic tourism income increases by 1.07418 billion yuan; Based on the conclusions of econometric analysis, we can draw the following conclusions and relevant suggestions:

1) The total number of domestic tourists directly affects the domestic tourism income to a certain extent. Therefore, how to increase the number of tourists should be put in the primary position of tourism development. China has a large population base, and there is still much room for development to increase the number of tourists. First, we should improve residents' tourism awareness, encourage residents to travel, increase residents' tourism demand, improve residents' consumption structure, publicize consumption knowledge, establish correct consumption concept and consumption awareness, and lead the consumption structure to the direction of combining material civilization and spiritual civilization; At the same time, we should strengthen the publicity of tourism resources, to attract more tourists.

2) Pay attention to the protection of tourism ecological environment. The report of the 19th national congress pointed out that we must establish and practice the concept of "green water and green mountains are golden mountains and silver mountains", and adhere to the basic national policy of saving resources and protecting the environment. Not damaging the ecological environment is the basic principle and bottom line of developing ecotourism.

In the future, to realize the green development of tourism industry, we must re-examine and think about the relationship between industrial development and natural environment. First of all, we should change our ideas, correctly and objectively examine the natural environment we are creating and transforming to promote the development of the tourism industry, face the crises and challenges such as over exploitation of resources and the continuous expansion of serious environmental pollution, and promote the development of the tourism industry on the basis of respecting nature, protecting the environment and inheriting civilization. Among them, the government, especially the local government, should be based on the whole chain of tourism resource planning, development and management, fully implement the concept of green development, strengthen the policy mechanism compatible with constraints and incentives, and realize the comprehensive decoupling of tourism industry development from the consumption of non renewable resources, the destruction of historical and cultural relics and the emission of pollutants. Tourism enterprises should pay more attention to the performance of corporate social responsibility, actively implement and promote green standards in tourism infrastructure construction and tourism product development, reduce the loss of natural and cultural resources and repair the ecological environment system. As consumers of tourism products and services, the public should also establish the concept of green consumption, enhance green tourism literacy, reduce the negative impact of their tourism behavior on resources and environment, and participate in the construction of green tourism environment through voluntary services.

The original intention and ultimate goal of developing ecotourism should be to use tourism income to feedback and promote the protection of ecological environment. Decision makers, managers and tourists should have a scientific understanding of ecotourism and a correct way to open it. For the government, we should strictly implement the dual control of the bottom line of environmental quality and the red line of ecological protection, and strictly implement the eco-environmental damage compensation system. We must not let operators earn enough money but leave ecological debts to the local people. Specific to hotels and other tourism

facilities, we must make controllable environmental protection planning in the early stage. [3] We should pay attention to the innovation of industrial development. In the process of promoting the green development of tourism industry, we need to take innovation as the fundamental driving force to improve the green transformation of tourism industry based on the background of the transformation of China's economic development stage, structural adjustment and development mode. Among them, the focus should be on improving the development quality and efficiency of the tourism industry, optimizing the allocation of labor, capital, land, technology, management and other factors for the development of the tourism industry, promoting the vigorous development of new technologies, new formats and new business models of the tourism industry, promoting the research and development of green tourism products, and promoting the development of the Internet Application of new generation information technologies such as big data in tourism industry. Therefore, we should vigorously develop green ecotourism, release the new demand of tourism market through innovation, create new supply of tourism industry, and promote the transformation and upgrading of tourism industry.

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