Research on Dynamic Effects of Financial Support to Tourism Industry Development

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Keywords: Tourism Industry, Financial Support, Dynamic Effect

Abstract. This research chooses the relevant data of nine cities in Fujian Province as the sample and uses variable coefficient panel data model to study the dynamic effects of financial support tourism industry development. The results show that: (1) Financial development has a significant effect on the growth of tourism industry; (2) Among of non-financial development variables, tourism resources endowment level and the level of urbanization and the degree of opening to the outside world have obvious positive effects on the development of tourism industry; The education level has no obvious effect on the development of tourism industry.

Introduction

The research on the development of finance and tourism industry is based on scholars' research on the relationship between finance and economic development. Schumpeter, Goldsmith and others established financial and development theory which has been formed a more systematic theoretical system through continuous development and improvement. Foreign scholars from the macro micro level of financial support to the development of tourism industry research [1]-[2]. Some domestic scholars have made qualitative and quantitative research on the development of financial support tourism industry [3]-[8]. In general the current research on the development of financial support tourism industry is still in the exploratory stage. From the research object, the research has been mainly from the macro level regional, national and inter-provincial to test the dynamic relationship between financial development and tourism development so that the dynamic relationship between the two levels of view is still to be verified. Therefore, this paper chooses the relevant data of the development of financial and tourism industry in nine cities of Fujian Province from 2002 to 2015 and uses the panel model data analysis method to study the growth effect of financial support tourism industry and tries to identify the financial development variables in the same province Tourism industry growth variables between the relationship to guide the development of tourism industry in Fujian Province around the financial support policy adjustment.

Research Object

Fujian Province has a wealth of natural landscape resources as a coastal province. The forest coverage rate reached 63.1% which ranks first in China and has highly tourism value. In recent years, Fujian Province relies on a variety of unique tourism resources such as ecology, oceans, hot springs, tea, temples, Taiwan, earth buildings, multiculturalism and silk to accelerate the development of tourism industry. As the strategic pillar of the province Industry and modern services industry to promote the industry, the tourism industry has achieved remarkable results. The gap of tourism industry development between in Fujian Province’s cities is a manifestation of the development gap of tourism industry within the province, which reflects the imbalance of tourism industry development between cities in China. Therefore, this paper chooses nine cities of Fujian Province as a research object.
The Data Sources and Measurement Methods

Model Settings

In addition to observational variables such as financial development, educational level, tourism resources, degree of opening to the outside world and other observational variables, regional economic growth in tourism is also related to unobservable variables such as humanistic environment and policy factors in different cities. This study uses a panel data model for analysis based on the objective of controlling individual heterogeneity that is not observable. In addition, Using Panel Data to Study the Relationship between Financial Development and Tourism Economic Growth in Fujian Province due to the financial development of Fujian Province and tourism economic growth in 2002 after entering a relatively rapid development stage. At first we build the following panel data model:

\[ Tour_{it} = \alpha_i + \beta_i Fd_{it} + \gamma X_{it} + \mu_i + \varepsilon_{it} \]  

(1)

Among them, Tour is the development level of tourism; Fd is the level of financial development; X is the other control variables that affect the development of the tourism industry; i and t are respectively expressed as the level of tourism development; Region and time; \( \alpha_i \) is the intercept term; \( \mu_i \) is the undiscovered region effect; \( \varepsilon_{it} \sim iid (0, \sigma^2) \) is the random disturbance term.

Model Settings

Explanation of variables. Based on the availability and rationality of the data, this paper chooses the tourism foreign exchange income (Tour) as the proxy variable of tourism industry development.

Core explanatory variables. This paper chooses the scale of financial development (Fd) as the core explanatory variables. Raymond Goldsmith proposed the use of financial-related ratios to measure the level of financial structure and financial development in a country or region. In other words, the ratio of total financial assets to national wealth at a given time. This paper chooses the balance of deposits and loans of financial institutions and the proportion of GDP to represent the scale of financial development because indirect financing is Fujian’s main way of social financing.

Other control variables. This paper chooses tourism resource endowment (Res), external opening degree (Tra), educational level (Edu) and urbanization level (City) as the control variable. Educational level (Edu) is measured by the number of high school students per 10,000 people in each city. The level of tourism resources (Res) is measured by the number of scenic spots above and divided by the geographical area of the city area of the numerical representation, where A-level weight of 1, 2A-level weight of 2, ..., 5A-level weight of 5; Opening degree (Tra) with the city The total import and export volume is expressed as the proportion of GDP.

Data Sources and Processing

The samples selected in this study are the data of nine cities in Fujian Province from 2002 to 2015. As for the acquisition and processing of data, the explanations are as follows: (1) Foreign exchange receipts from international tourism, total imports and exports are translated at the current exchange rate; (2) In order to eliminate the influence of the price factors in the statistical data, the absolute index value (such as the foreign exchange income of the tourism) shall be calculated; (3) The relevant statistical data used in this paper are derived from the Statistical Yearbook of Fujian Province, the Statistical Yearbook of nine cities in Fujian Province, the National Economic and Social Statistics Bulletin of nine cities and the Statistical Yearbook of Fujian Province. Fujian Provincial Tourism Bureau released the annual travel data, data sampling period from 2002 to 2015; (4) the absolute index value of the natural logarithmic processing, in order to avoid the dimension and heterodyne impact. The descriptive statistics of variables are shown in Table 1.
Table 1. Variable Descriptive and Statistics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tour</td>
<td>Ln (international tourism foreign exchange earnings)</td>
<td>10.72402</td>
<td>2.267223</td>
<td>5.5475</td>
<td>14.2092</td>
</tr>
<tr>
<td>Fd</td>
<td>Financial institution deposit and loan balance and / GDP</td>
<td>1.845523</td>
<td>0.8169784</td>
<td>0.3796</td>
<td>4.3511</td>
</tr>
<tr>
<td>Res</td>
<td>The number of scenic spots above Grade A and the number of land areas in each province</td>
<td>0.4165214</td>
<td>0.7939467</td>
<td>0</td>
<td>4.4501</td>
</tr>
<tr>
<td>City</td>
<td>Urban population / total population</td>
<td>0.3580151</td>
<td>0.1488228</td>
<td>0.1902</td>
<td>0.814</td>
</tr>
<tr>
<td>Tra</td>
<td>Total import / export / GDP</td>
<td>0.3876333</td>
<td>0.574321</td>
<td>0.0161</td>
<td>2.3247</td>
</tr>
<tr>
<td>Edu</td>
<td>The number of high school students per million in school</td>
<td>196.9032</td>
<td>34.93834</td>
<td>109.74</td>
<td>283.56</td>
</tr>
</tbody>
</table>

The Estimated Results of the Model

Model Inspection and Selection

Panel data model setting test. Taking into account the development of tourism industry in Fujian Province and the level of financial development there are differences, the specific use of what panel data model, the need to test the model set. The panel data model can be divided into three types: hybrid effect model, variable intercept model and variable coefficient model, which can be divided into fixed effect model and random effect model according to the difference of intercept term and coefficient term. In order to avoid the set deviation of the model and enhance the validity of the parameter estimation, the model of the panel model set up in this paper is tested by covariance analysis. The F statistic is constructed as follows:

\[
F = \frac{(\text{SSE}_r - \text{SSE}_u)}{(N - 1)} \sim F(N - 1, NT - N - K)
\]

Among them, SSEr and SSEu are the mixed effect model, the variance model and the residual sum of the residuals, N is the number of individuals, K is the number of explanations variables, and T is the number of periods. At a given level of significance, the variable-intercept model is selected if the F-test rejects the original hypothesis, otherwise the mixed data model is used. Using the Hausman test, the fixed effect model is selected if the original hypothesis is rejected, otherwise the random effect model is selected. In this study, the stata12.1 statistical software was used to carry out F-test and Hausman test on the panel data model respectively. The test results are shown in Table 2.

Table 2. F-test and Hausman test results.

<table>
<thead>
<tr>
<th></th>
<th>F test</th>
<th>Haussman test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Prob&gt;F</td>
</tr>
<tr>
<td></td>
<td>55.83</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

It can be seen from Table 2 that the F-test results corresponding to the set panel data model reject the null hypothesis at 1% significance level. That is the hybrid model is rejected, which means that it is more suitable to select the data model of the variable-intercept panel. In the Hausman test, the panel
data model corresponds to a chi-square value of 0.5780, which accepts the original hypothesis of the "random effect model", indicating that the random effect model is more suitable.

**Self-correlation test within the group.** Once the autocorrelation problem exists in the panel model sequence, the validity of the model regression estimate will not be established and the model coefficients will not be significant. In this study, Wooldridge method was used to test the intra-group autocorrelation of panel model sequences. The results show that F (1,8) = 137.152 and Prob> F = 0.000 <0.01, which is the model rejects the null hypothesis at the 1% significance level indicating that there is an intra-group autocorrelation problem in the panel model.

**Inter-section cross-sectional correlation test.** In some cases, there may be inter-group correlation between the disturbances of different individuals so that the correlation between groups should be tested. This study was conducted using the methods proposed by Friedman (1937), Free (1995, 2004) and Pesaran (2004) respectively. The results of the three tests showed that the values of P were less than 0.01 and the original hypothesis of cross section was strongly rejected.

**Differences between groups.** If there is an intergroup heteroscedasticity, The panel model may also result in a significant change in the model coefficients or a model prediction error. The results of this study show that LM = 434.63 and Prob> chi2 (2) = 0.0000, which is the model rejects the original hypothesis at the 1% significance level indicating that the panel model There is an intergroup difference.

**Empirical analysis results Figures**

Based on the panel data of nine cities in Fujian Province from 2002 to 2015 and considering there are some heteroscedasticity and autocorrelation, we correct the heteroscedasticity and autocorrelation of the stata command xtgls on the financial development and Tourism economic growth relationship between the panel data model to estimate the heteroscedasticity and sequence autocorrelation. The regression estimates are shown in Table 3, where the estimation of the random variables in the model is omitted. The regression results show that the total squareness of the model is 251.76, Prob> chi2 (2) = 0.0000, and the original hypothesis is obvious. From the model regression results in Table 3, we can see that the statistical value of the explanatory variables in the model and the degree of tourism resource endowment and the regression coefficient of urbanization level and the probability of P pass through the 1% significance level test. Financial development level of the coefficient is through the 5% of the significance of the level of testing; From the degree of education coefficient, it is not through the significance of the level of testing.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Deviation</th>
<th>Z Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fd</td>
<td>0.1977725*</td>
<td>0.1118449</td>
<td>1.77</td>
<td>0.077</td>
</tr>
<tr>
<td>Res</td>
<td>0.3380016***</td>
<td>0.087043</td>
<td>3.88</td>
<td>0.000</td>
</tr>
<tr>
<td>City</td>
<td>1.66021***</td>
<td>0.4994044</td>
<td>3.32</td>
<td>0.001</td>
</tr>
<tr>
<td>Tra</td>
<td>0.9243862***</td>
<td>0.1448616</td>
<td>6.38</td>
<td>0.000</td>
</tr>
<tr>
<td>Edu</td>
<td>-0.0007689</td>
<td>0.0017818</td>
<td>-0.43</td>
<td>0.666</td>
</tr>
<tr>
<td>C</td>
<td>9.743702***</td>
<td>0.4276321</td>
<td>22.79</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: **,***,**,** respectively denote the original hypothesis at 10%,5%,1% significance level.

**The Influence of Financial Development Variables on the Development of Tourism Industry.** Financial development has a significant effect on the growth of tourism industry and the coefficient is 0.1977725, which shows that raising the level of financial development and expanding the scale of financial development can promote the rapid growth of tourism industry. With other factors remaining unchanged, the tourism industry will grow by 0.1977725% for every 1% increase in the scale of financial development. This may be due to the fact that the financial industry itself is highly motivated and highly relevant. While regional financial development is underway, all localities and cities have vigorously promoted the strategy of tourism development and both have stepped up their
financial support for tourism development and actively led a large amount of credit funds into the construction of tourism industry so that all these greatly promoted the development of tourism industry in all parts of Fujian Province under the influence of investment. This is consistent with previous scholars' conclusions on the financial development that can contribute to the growth of tourism economy.

The Impact of Non-financial Development Variables on the Growth of Tourism Industry. The level of tourism resource endowment has a significant effect on the growth of tourism industry, and the coefficient of action is 0.3380016, which may be due to the development of tourism resources have a significant impact. In other words, the richer the tourism resources, the potential of the tourism market will be greater. At present, Fujian Province has rich tourism resources throughout the country. The development of high-quality tourism resources and the improvement of tourism resource endowments can strongly attract customers and stimulate tourists' consumption desires, which in turn leads to the growth of the tourism industry. The level of urbanization and the degree of opening to the outside world have a positive effect on the development of tourism industry. The coefficient values are 1.66021 and 0.9243862 respectively. This may be due to the fact that urbanization and opening up will accelerate the pace of opening up to the outside world so as to raise awareness of tourist destinations and promote the development of the tourism industry in the region. The effect of education on the growth of tourism industry is not significant. This may be due to the fact that the development of the tourism industry requires highly specialized and applied personnel. However, the personnel trained by the current education system are hard to adapt to the needs of the development of the tourism industry and it is hard to directly promote the development of the tourism industry with the improvement of education.

Analysis Conclusions

In this study, the stochastic effect variable intercept panel data model is used to analyze the relationship between financial development and tourism industry growth in nine Cities of Fujian Province. The results show that: (1) financial development has positive effect on tourism industry growth; (2) Among the non-financial development variables, the level of tourism resources, the level of urbanization and the degree of opening to the outside world have obvious positive effects on the development of tourism industry. The educational level has no significant effect on the development of tourism industry.

References