The Influence of Tourism Industry Agglomeration on Total Factor Productivity of Tourism Industry

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Abstract

This study selects the data of 30 provinces in China (excluding Hong Kong, Macao, Taiwan and Tibet) from 2008 to 2018 as samples, uses the DEA Malmquist index method to calculate the total factor productivity of tourism, and uses the location entropy method to measure the degree of tourism industry agglomeration. This paper analyzes the impact of tourism industry agglomeration on the development of tourism total factor productivity from two aspects of theoretical interpretation and empirical test. The main conclusions are as follows: Tourism industry agglomeration can significantly promote the improvement of tourism total factor productivity.

Keywords

Tourism industry agglomeration; Total factor productivity of tourism; Two step Dynamic System GMM

Introduction

At the beginning of 2020, the sudden new crown epidemic brought social mobility to a near halt, and the development of the tourism industry encountered a cold winter. According to the latest tourism development statistics bulletin released by the Ministry of Culture and Tourism, the number of domestic tourists in 2020 will drop by 52.1% year-on-year, and tourism revenue will drop by 61.1% year-on-year. It can be seen from this that although the central and local governments at all levels have jointly issued many tourism industry support policies such as financial support, financial credit, tax reduction and exemption, and social security, some areas have also introduced free admission for medical personnel and public security police. Accurate measures such as tourism vouchers, half-price discounts for students and groups, but the variability and repeatability of the new crown epidemic in China have created a huge obstacle to the recovery of the tourism industry. Surprisingly, with the effective control of the domestic epidemic and the orderly vaccination of a variety of new crown vaccines, the domestic tourism industry has begun to slowly recover.

According to the latest news released by People's Daily Online, domestic tourism revenue is expected in the

first half of 2021. Reached 1.95 trillion yuan, returning to 70% of the same period in 2019. It can be inferred that although part of the domestic tourism industry is still affected by the epidemic prevention and control, its strong recovery posture has already appeared, and its huge long-term development potential has not been "disturbed" by the epidemic. However, in the context of the current "coexistence of epidemics and cities" in the tourism industry, what kind of development model should be chosen to promote the high-quality development of the tourism industry? This core issue has attracted the attention of the people. Is it the pursuit of a temporary "explosive" recovery of growth while adhering to the traditional, extensive and inefficient development model, or the use of the natural elimination mechanism of "survival of the fittest" in the post-epidemic market, through adjustment and optimization of the industrial structure, etc. It has transformed into a new, intensive, and efficient development model (Li, 2017).

As a worldwide economic phenomenon, industrial agglomeration has attracted much attention from scholars at home and abroad. The earliest economist who described and analyzed the phenomenon of industrial agglomeration was (Marshall, 1890). He expounded the effects of industrial agglomeration from the perspective of "external economy". He summarized industrial agglomeration as forming an intermediate input market, There are three aspects of labor sharing and knowledge spillover. Porter (1990) proposed the concept of industrial agglomeration, and studied industrial agglomeration from the perspective of the theory of competitive advantage. He said that agglomeration is an important factor in improving industrial competitiveness, and industrial agglomeration makes small and medium-sized enterprises unite , To maximize the integration of its own natural advantages and endowments, and enhance the efficiency of the industry and regional competitive advantages. Michal (1998) analyzed the phenomenon of industry agglomeration in the tourism industry. He believes that tourism is a complex industry related to many industries, involving core industries such as food, housing, transportation, travel, and shopping. Many industries such as transportation and finance are related and are one of the industries most suitable for the development of industrial agglomeration. Later, foreign scholars (Deng, 2004; Zhuang, 2005; Roy, 2013) and others made a more systematic approach to tourism in terms of factors affecting tourism industry agglomeration, the framework of tourism industry clusters, natural endowments, and cultural heritage. Industry clusters have done further research and in-depth research. Compared with foreign countries, domestic research on tourism industry agglomeration started relatively late (Chen, 2006; Zhang, 2010; Xie, 2013; Liu, 2015). The development model, spatial distribution and regional influencing factors of tourism industry agglomeration in various regions are discussed and analyzed, and suitable suggestions for the development of industry agglomeration in different regions are provided. Some researchers conducted research on the agglomeration of China's tourism industry and analyzed the effects of tourism industry agglomeration on performance, the impact of economic growth and new urbanization (Wang, et al., 2013; Liu, 2013; Zhang, 2016; Zhang, 2021).

An Empirical Study of Tourism Industry Agglomeration on Total Factor Productivity of Tourism Industry

Measurement Model and Estimation Method

The most commonly used estimation methods for panel data models generally include mixed effects (POLS), fixed effects (FE), random effects (RE) and other models. However, if the explained variable itself has endog-

enous problems, the results of the above three models are estimated to be Will produce deviations. Therefore, the system generalized GMM method (System GMM) improved on the basis of difference GMM (Difference GMM) is used for parameter estimation, which can greatly alleviate the endogeneity problem. For the system GMM method, a two-step estimation method is generally used, which can more effectively solve the sequence self Related and heteroscedastic problems, and can greatly improve the robustness of the estimation (Guo & Zhang, 2020; Cai, 2021). Considering that the total factor productivity of the tourism industry may have the characteristics of dynamic continuity, this paper includes the one-lag period as an explanatory variable, and uses the two-step dynamic system GMM model to evaluate the impact of tourism industry agglomeration on the development of tourism industry's total factor productivity. To better control some missing factors and deviations, the specific model is constructed as follows:

$$NU_{it} = \alpha + \beta_1 LNDFI + \beta_2 NU_{it-1} + \beta_3 X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

In model (2), ***AGG*** is the core explanatory variable, representing the degree of tourism industry agglomeration, ***TFP*** is the explained variable, representing the total factor productivity of the tourism industry; ***X*** is the set of control variables, ***LN*** represents the natural logarithm, and ***i*** and ***t*** represent the first i provinces, t period, ***t-1*** represents a lagging period, μ_i represents regional fixed effect, λ_t represents year fixed effect, and ε_{it} represents random disturbance term.

Variable Definition

The explained variable: the total factor productivity (TFP) of the tourism industry is calculated using the DEA-Malmquist index method, which is a combination of non-parametric linear programming method and data envelopment analysis method.

Core explanatory variables: this paper chooses the location entropy index to measure the degree of spatial agglomeration of China's tourism industry in various provinces, and draws on the calculation method of Gao Jun (2017) to calculate the agglomeration level of China's tourism industry. The data used is from 2008 to 2018 at the provincial level in China. The data of tourism industry income and national gross product (GDP) are all sourced from the National Bureau of Statistics.

$$AGG_{it} = \frac{Y_{it} / GDP_{it}}{Y_t / GDP_t} \qquad (4)$$

Control variables: in order to minimize the bias caused by the omitted variables, based on the reference to the existing literature, this study selects the following variables as the control variables of this study. Urbanization (URBAN), expressed by the traditional method of measuring the level of urbanization, characterized by the proportion of urban population in the total population at the end of the year; government fiscal expenditure (FE), measured by the proportion of government fiscal expenditure in the total value of the region; foreign businessmen Direct investment (FDI) is expressed in terms of the proportion of the province's foreign direct investment in the regional GDP. Industrial structure (TG), represented by the ratio of the tertiary industry in each province to the regional GDP; economic development (GDP), measured by the constant price GDP in 2008 as the base period.

Results and Discussion

First of all, this study uses a two-step dynamic system GMM to estimate the parameters of the model. Model one (1) does not control the time effect and regional effect, model one (2) controls the time effect but does not control the regional effect, and model one (3) Controlling the regional effect does not control the time effect. The second model is the dual control of regional effect and time effect, and the estimated results are model one and model two in Table 3.

Table 3. Estimated results of the impact of tourism industry agglomeration on the total factor productivity of the tourism industry

	Model one (1)	Model one (2)	Model one (3)	Model two (4)
TFP_{it-1}	-0.214***	-0.275***	-0.0470	0.286
	(-4.63)	(-4.90)	(-0.44)	(1.33)
AGG	0.386***	0.294***	0.164**	0.266***
	(5.67)	(3.41)	(1.96)	(2.80)
LNURBAN	0.519***	-0.184	0.103	0.594**
	(3.96)	(-0.83)	(0.58)	(2.12)
LNFE	0.000919	0.0390	-0.0673***	-0.161***
	(0.03)	(0.88)	(-2.69)	(-2.61)
LNFDI	1.310***	2.413***	-0.0265	-0.142
	(8.41)	(7.16)	(-0.21)	(-0.62)
LNGDP	0.375***	0.474***	0.125***	0.218*
	(3.65)	(5.39)	(3.38)	(1.89)
LNTG	-1.008***	-1.669***	-0.0845	0.0612
	(-6.28)	(-6.86)	(-0.28)	(0.20)
Control area effect	*N*	*N*	*Y*	*Y*
Control time effect	*N*	*Y*	*N*	*Y*
AR（1）	0.000	0.001	0.000	0.004
AR（2）	0.262	0.477	0.467	0.140
Hansen	0.140	0.419	0.580	0.620
N	300	300	300	300

*Note: The t statistic is in parentheses; *, **, *** indicate significant at the levels of 10%, 5%, and 1%, respectively*

As shown in column (1) of Table 3, the AR(1) and AR(2) tests show that although the equation residual sequence cannot reject the first-order serial correlation, it can significantly reject the second-order correlation. The autocorrelation test can explain the model design. It must be feasible. The corresponding p-value of Hansen test is greater than 0.1, which cannot reject the null hypothesis that the instrumental variables are valid, indicating that the instrumental variables selected in the model are valid, which can indicate that the estimated results of model two are consistent and reliable.

In Model 2, the coefficient value of the core explanatory variable Tourism Industry Agglomeration (AGG) is 0.266, which is significant at the 1% level. This shows that under the control of other variables, the tourism industry agglomeration (AGG) has a significant role in promoting the growth of tourism TFP. Each additional unit of tourism industry agglomeration (AGG) will increase tourism TFP by 0.266 units. The possible reasons are mainly the following two aspects: First, the geographical location of the tourism industry will intensify the competition and cooperation between the entire tourism industry. Competition will drive the reintegration of the entire tourism resources and encourage enterprises to innovate. Improve the core competitiveness of tourism; and mutual exchanges and sharing of resources and facilities will allow enterprises to share their knowledge, information, technical services, advanced management experience, etc. with each other. And the "survival of the fittest" mechanism spontaneously formed by the industrial agglomeration will eventually leave a group of high-quality tourism enterprises to form a self-developed tourism ecosystem with high quality. Second, the local government will provide training on tourism industry-related jobs or set up tourism-related vocational colleges according to the demand for labor in the tourism market, so that tourism companies in the agglomeration area can share the relatively "cheap" labor in the market. . Moreover, tourism industry gatherings make it possible for related industries to gather, and local governments will adopt a variety of stronger preferential policies to encourage more affiliated companies to settle in and their wait-and-see venture capital investment to expand. In the "brand effect" of local tourism, enterprises use the saved factor costs and other venture capital funds to invest in talents, technology, and management, so that labor efficiency and management efficiency are improved.

In terms of other control variables, the coefficient of the urbanization rate (LNURBAN) is 0.594, and it is significant at the level of 5%, indicating that the development of urbanization has a significant promotion effect on the total factor productivity of the tourism industry, which may be due to the high urbanization rate The endowment of resource factors such as infrastructure facilities, medical level, and residents' consumption in the cities will be relatively strong, which in turn will attract investment in the tourism industry. The coefficient of government fiscal expenditure (LNFE) is -0.161, and it is significant at the level of 1%, indicating that government fiscal expenditure has a certain inhibitory effect on the development of total factor productivity in the tourism industry. The reason may be that the development of short-term government expenditure reduces labor Productivity. The coefficient of the local economic development level (LNGDP) is 0.218, which is significant at the level of 10%. The possible reason is that the local economic development and the total factor productivity of the tourism industry have a positive effect, that is, a good economic environment and high-quality living conditions improve The foundation and motivation of total factor productivity in tourism. The impact of foreign direct investment (LNFDI) and industrial structure (LNTG) on the TFP of the tourism industry is not significant.

Conclusions and Policy Recommendations

This study uses data from 30 provinces in China (excluding Hong Kong, Macau, Taiwan, and Tibet) from 2008 to 2018 as samples. The DEA-Malmquist index method is used to measure the total factor productivity of the tourism industry, and the location entropy method is used to measure the degree of tourism industry agglomeration. Theoretical explanation and empirical test of the impact of tourism industry agglomeration on the development of total factor productivity in the tourism industry, and further discuss the moderating role

of human capital in the above impact. The research results show that: First, the overall factor development level of China's tourism industry in various regions presents typical facts of regional differences in fluctuations, and is manifested in the fact that the east is higher than the west, and the west is higher than the central. Secondly, the agglomeration of the tourism industry has significantly promoted the improvement of the total factor productivity of the tourism industry.

Based on the previous theoretical analysis and empirical investigation, in order to better realize the promotion of tourism industry agglomeration to the high-quality development of the tourism industry, this article has the following policy recommendations:

First, while vigorously introducing and innovating technologies, tourism companies must also pay attention to the improvement of long-term technical efficiency of the tourism industry. Under the special background of "coexistence of epidemic and city", first, according to the local tourism resource endowment, combined with the current market background, adjust and optimize the industrial structure suitable for its benign recovery, while also taking into account the improvement of corporate management level, and increase Investment in labor quality and skill training improves labor efficiency. The second is to respond to the high recurrence of the epidemic through the application of Internet, big data, e-commerce and other network technologies, and to improve the intelligent development of management, service, after-sales and other links, so as to improve the work efficiency of enterprises and improve the service experience of tourists.

Second, the government and enterprises should jointly formulate plans for "regional tourism". While increasing the centripetal force of regional enterprises, they should realize the benign "combination" of technology, management, and tourism resources among enterprises, improve the innovation capabilities of the industry, and formulate changes. More and better tourism product items can improve the satisfaction of tourists.

The government, society, and enterprises should set up corresponding capital investment platforms to provide long-term and effective financial support to high-quality tourism enterprises. At the same time, they should also take into account the capital investment in local education and cultivate tourism professions that are compatible with the regional economy. Technical talents.

References

Li, S. S., Xing, F. M., & Zhang, L. L. (2017). Research on the Impact of Tourism Industry Agglomeration on the Efficiency of Regional Tourism Industry: An Empirical Analysis Based on China's Provincial Panel Data. *World Geographical Research*, 26(03), 134-146 .

Marshall, A. (1890). *Principles of Economics*. London: Macmillan, 24.

Porter, M. E. (1998). Clusters and new economics of competition. *Harvard Business Review*, 11, 77-91.

Hitchcock, M. (1998). Tourism, Taman Mini, and national identity. *Indonesia and the Malay World*, 26(75), 124-135.

Deng, B., Yu, X., & Wu, B. H. (2004). Tourism Industry Cluster and its Influential Factors. *Journal of Guilin Institute of Tourism*.

Zhuang, J. (2005). Study on the Systematic Framework of Tourism Industry Cluster. *Journal of Guilin Institute of Tourism*.

Roy, S., & Misra, S. (2013). New Model on Cluster Competitiveness in Tourism Industry[C]//Third InternationalConference on Services in Emerging Markets. *IEEE*, 168-174.

Chen, S. Y. (2006). Research on the agglomeration and development of Chongqing tourism industry. *Economic Geography*, (05), 861-866, 870.

Zhang, H. Q., Wang, L. L., & Tian, X. H. (2010). A comparative study on the agglomeration performance and competitive situation of regional tourism industry—Based on an empirical analysis of 21 cities in Guangdong Province. *Economic Geography*, 30(12), 2116-2121.

Xie, Y. N., Zhu, L. Q., Yang, X. Z., & Jia, J. (2013). Research on the innovation of the development model of tourism industry clusters in Henan Province. *Economic Geography*, 33(11), 175-181.

Liu, S. H., & Liang, M. Z. (2015). The development path model of tourism industry agglomeration in the recreational belt of urban agglomerations in the Greater Pearl River Delta: Taking the construction of Guangdong Shanhai Tourism Industrial Park as an example. *Economic Geography*, 35(06), 190 -197.

Wang, K., & Yi, J. (2013). Research on the relationship between regional tourism industry agglomeration and performance—Based on the empirical study of 31 provinces in China. *Advances in Geographical Sciences*, 32(03), 465-474.

Liu, J., Zhao, J. J., & Zhang, G. H. (2013). A spatial econometric analysis of the relationship between China's tourism industry agglomeration and tourism economic growth. *Economic Geography*, 33(04), 186-192.

Zhang, G. H., & Wang, L. X. (2016). Research on the relationship between China's tourism industry agglomeration and total factor productivity. *Business Research*, (11), 186-192.

Zhang, P. Y., & Xu, N. (2021). An Empirical Study on the Agglomeration of Tourism Industry and the Development of New Urbanization. *Statistics and Decision*, 37(11), 103-107.

Guo, H., Zhang, Y., Peng, Y. L., & He, Z. W. (2020). Research on the Regional Differences of the Development of Digital Finance Affecting Rural Residents' Consumption. *Agricultural Technology and Economy*, (12), 66-80.

Cai, W. B., & Mo, Y. N. (2021). Boosting the high-quality development of the economy: secondary vocational education quality or increment—Based on the empirical test of the system GMM model and threshold model. *Modern Education Management*, (01), 92- 99.

Gao, J., & Zhang, L. L. (2017). Research on the relationship between China's tourism industry agglomeration, total factor productivity and tourism economy. *Resource Development and Market*, 33(08), 1005-1010.