

Research on the Impact of Tourism on the High-Quality Development of Sichuan Economy

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Abstract: *As one of the important pillar industries of the national economy, tourism has a certain impact on the high-quality development of the economy. This article is based on the mechanism of the impact of tourism on high-quality economic development, and uses grey relational analysis to explore the correlation between the development of tourism and high-quality economic development in Sichuan Province, and analyses the degree of impact of tourism development on high-quality economic development in Sichuan Province. The results indicate that Sichuan's tourism industry has not been able to better influence high-quality economic development in terms of openness, transportation facilities, innovation capabilities, and industrial integration. On this basis, measures are proposed to enhance the opening up to the outside world, deepen the integration of tourism and agriculture, strengthen tourism transportation construction, and encourage innovation in tourism products to better promote high-quality economic development in Sichuan's tourism industry.*

Keywords: *Sichuan Province; tourism; High quality development; Grey correlation analysis*

1. Introduction

In 2017, it was first proposed that China's economy should develop with high quality, which is the primary task of building a modern socialist country in an all-round way. In the 45 years since the reform and opening up, China's tourism has gradually developed, and has produced extensive economic benefits and social impacts on China and even the world. Especially after the epidemic, China's tourism has accelerated its reshuffle, and the development pattern of tourism has accelerated its transformation, gradually meeting consumers' demand for higher quality. As an important tourist destination in southwestern China, Sichuan Province, with its rich natural resources and unique cultural heritage, has attracted a large number of tourists and enriched people's spiritual life. Therefore, in the context of high-quality economic development, it is of great practical significance to study the economic benefits of Sichuan's tourism industry and how to better promote the sustainable, healthy, and high-quality development of regional economy.

At present, the academic circles have conducted extensive research on the relationship between tourism development and economic development with various methods and models, and the research results are abundant. Some scholars have explored the impact of tourism on economic development from a macro perspective and based on the national level^[1,2]. From a micro perspective, some focus on local tourism and regional economy^[3,4,5], using empirical research methods to analyze the economic effects of regional tourism and explore the factors that affects economic development. In addition, some scholars focus on typical tourism in urban areas, and He Kun focuses on the marine tourism industry in Zhoushan City (He, 2023)^[6], using VAR model and grey relational model to estimate the contribution of Zhoushan marine tourism to its economic growth from 2000 to 2022. Based on the analysis of dynamic coupling relationship and contribution degree, the logical relationship between the two is summarized. And the development positioning and weak links of Zhoushan marine tourism are analyzed.

It can be found that most scholars' research currently focuses on extensive economic growth, and since 2017, there has been little research on the role of regional tourism in promoting high-quality regional economic development. But in the current context of high-quality development, research in this area is of great significance. Therefore, this article focuses on the mechanism of promoting high-quality economic development through tourism development, taking Sichuan Province as an example, using empirical analysis to study the impact of Sichuan's tourism industry on the high-quality development of regional economy, and proposing relevant suggestions for the future full development

of tourism in Sichuan Province, thereby promoting the long-term orderly and healthy development of Sichuan regional economy.

2. The impact mechanism of tourism on high-quality economic development

High-quality economic development is a major strategic decision made based on new needs, new problems, and new requirements. The Chinese economy is no longer blindly pursuing extensive growth. Scholars define the connotation of high-quality economic development from the five development concepts of innovation, coordination, green development, opening up and sharing (Li, 2019)^[7]. As a dynamic business form, tourism exerts its influence on high-quality economic development mainly through the following ways.

2.1. The development of tourism is conducive to increasing employment opportunities

The tourism provides a large number of direct and indirect employment opportunities for the economy and society (Li, 2024)^[8], which involves hotels, catering services, tourism consulting services and other related industries. In the context of high-quality economic development, science and technology continue to innovate, industrial structure is constantly adjusted, and technologies such as artificial intelligence and big data are developing strongly, empowering industries to form new quality productivity, and people are facing enormous employment pressure. However, due to the low barriers to entry in the tourism industry, the threshold for employment is relatively low. There are many kinds of employment in the tourism industry (Sun, 2019)^[9]. The mature path of the tourism industry requires more manpower support to improve services, so developing regional tourism can provide more employment opportunities, enhance residents' purchasing power, and boost the economy.

2.2. The development of tourism industry helps to increase foreign exchange earnings

One of the concepts of high-quality development is opening-up, which requires the development of foreign economy, strengthening economic cooperation and exchange with foreign countries, unblocking foreign exchange platforms to increase foreign exchange reserves. In our country, international tourism revenue is one of the important sources of foreign exchange income for the country. The foreign tourists in the domestic travel all kinds of consumption expenditure will be incorporated into the domestic in the form of foreign exchange income, can balance international payments. However, the magnitude of the foreign exchange earnings effect of the tourism industry varies in different regions. When studying the contribution rate of foreign exchange earnings in Ankang City (Qu and Zhao, 2019)^[10], it was found that from 2006 to 2018, the contribution rate of foreign exchange earning in Ankang City showed a downward trend. By studying the contribution rate of foreign exchange earning in Guizhou Province (Yang, 2021)^[11], it is found that it presents a "U-shaped" change trend from 2007 to 2019. However, studies have consistently shown that the development of the tourism helps to increase foreign exchange earnings, thereby promoting high-quality economic growth.

2.3. The development of tourism is beneficial to the development of related industries

With the development of the tourism industry, travelers' demands in various aspects have increased, pursuing higher consumption quality. This will to some extent drive the corresponding development of industries such as accommodation, catering, and transportation, promote the upgrading of the national consumption level, and optimize the industrial structure. There are many related industries in the tourism industry, and the development of tourism is the main direction (Huang, 2022)^[12], which plays a driving role in the development of other industries. The uniqueness of the tourism industry compared to other industries lies in its comprehensiveness (Chang, Chen, 2022)^[13]. The development of the tourism industry can be driven by the construction of shopping centers, travel agencies, restaurants, hotels, and other related industries, providing richer space for the tertiary industry such as transportation and finance.

2.4. Innovative development of tourism industry contributes to high-quality economic growth

China calls for the implementation of an innovation-driven strategy. At the critical moment of the current recovery of the tourism, the realization of innovation-driven tourism is also an inevitable choice.

The driving force of China's tourism development must be shifted towards innovation, to improve efficiency, quality (Song, 2022)^[14], in order to achieve innovative development of the tourism industry and implement the concept of economic innovation and development. The characteristics of innovation driven and leading tourism development are becoming increasingly prominent (Shi, 2024)^[15]. People's status as the first resource for high-quality development of the cultural and tourism industry is becoming more prominent, and the comprehensive empowerment of culture and tourism by technological innovation is becoming more prominent. The technological revolution has brought about a revolution in cultural and tourism marketing and communication. Both the innovation of tourism products and the transformation of tourism promotion methods can promote high-quality development of the tourism industry, thereby promoting high-quality economic development.

3. Empirical study on the impact of tourism on the high-quality development of Sichuan's economy

3.1. Indicator selection and data sources

With the development of the country and changes in the economic situation, more and more emphasis is placed on high-quality development. Therefore, in the grey correlation analysis, the selection of high-quality economic development indicators is based on the connotation of high quality and the influence mechanism, and the per capita GDP index is selected to measure the wealth creation ability, the added value of related industries that reflects the related industries, the R&D investment intensity indicator that evaluates the innovation ability, the demand pull indicator that measures consumption driving force, and the foreign trade dependence indicator that measures the degree of economic openness are selected.

For the selection of tourism development indicators, select economic income indicators that symbol tourism : total tourism revenue, international tourism (foreign exchange) revenue, and domestic tourism revenue, as well as three indicators that reflect the service capacity of Sichuan Province's tourism industry: the number of star rated restaurants, the total number of travel agencies, and passenger volume. Specific indicators are shown in Table 1.

Table 1 Indicator Selection System.

High quality economic development indicators	Variable Symbol	Tourism development indicators	Variable Symbol
Per capita GDP (yuan)	Y_1	Total tourism revenue (in billions of yuan)	X_1
Value added of primary industry (in billions of yuan)	Y_2	International tourism (foreign exchange) revenue (in billions of yuan)	X_2
Value added of secondary industry (RMB 100 million)	Y_3	Domestic tourism revenue (in billions of yuan)	X_3
Value added of tertiary industry (in billions of yuan)	Y_4	Number of star rated hotels	X_4
Proportion of zero social consumption to GDP	Y_5	Total number of travel agencies (households)	X_5
R&D investment intensity	Y_6	Passenger volume (10000 people)	X_6
Dependence on foreign trade	Y_7		

3.2. Model construction and results

3.2.1. Hypothesis sequence

Let the reference sequence be Y (indicator of high-quality economic development) consisting of data from 2011 to 2021, $Y_i(k)$ ($i=1, 2, \dots, n$; $k=1, 2, \dots, n$), Similarly, the comparison sequence is X (tourism development indicator), which is $X_i(k)$ ($i=1, 2, \dots, n$; $k=1, 2, \dots, n$), where i represents the i -th variable and k represents the year.

3.2.2. Dimensionless processing

Due to the inconsistency of various indicator units, dimensionless processing is used to avoid the incomparability caused by unit inconsistency. This article adopts the averaging method.

$$Y_i'(k) = \frac{Y_i(k)}{\bar{Y}}, \bar{Y} = \frac{1}{n} \sum_{k=1}^n Y_i(k), i=1, 2, \dots, s; k=1, 2, \dots, n \tag{1}$$

$$X_i'(k) = \frac{X_i(k)}{\bar{X}}, \bar{X} = \frac{1}{n} \sum_{k=1}^n X_i(k), i=1, 2, \dots, s; k=1, 2, \dots, n \tag{2}$$

3.2.3. Calculate correlation coefficient

$$\xi_i(k) = \frac{\min_i \min_k \Delta_i(k) + \rho \max_i \max_k \Delta_i(k)}{\Delta_i(k) + \rho \max_i \max_k \Delta_i(k)} (k=1, 2, \dots, n) \tag{3}$$

The absolute value of the difference between the reference sequence and the comparison sequence is $\Delta_i(k) = |X_i'(k) - Y_i'(k)|$, where ρ is the resolution coefficient, with a range of $0 < \rho \leq 1$, usually taken as 0.5. $\xi_i(k)$ indicates the correlation coefficient between two sequences at time k .

3.2.4. Calculate Grey Correlation Degree

$$r_i = \frac{1}{n} \sum_{k=1}^n \xi_i(k), k=1, 2, \dots, n \tag{4}$$

The higher the gray correlation degree, the higher the correlation degree. The results are shown in Table 2.

Table 2 Grey Correlation Matrix.

	Total tourism revenue	International tourism (foreign exchange) revenue	Domestic tourism revenue	Number of star rated hotels	Number of travel agencies	Passenger traffic volume
Per Capita GDP	0.762	0.692	0.762	0.694	0.809	0.588
Value added of primary production	0.745	0.677	0.746	0.747	0.786	0.622
Value added of secondary industry	0.701	0.618	0.702	0.734	0.731	0.602
Value added of tertiary industry	0.818	0.661	0.819	0.636	0.84	0.554
Proportion of zero social consumption to GDP	0.675	0.59	0.674	0.815	0.613	0.579
R&D investment intensity	0.73	0.648	0.731	0.733	0.685	0.579
Dependence on foreign trade	0.606	0.508	0.607	0.844	0.66	0.608

It can be found that the correlation between indicators related to the development of Sichuan's tourism and indicators related to high-quality economic development is greater than 0.5, mostly above 0.6, indicating good correlation between each sequence. Specific analysis can lead to the following points:

Firstly, the correlation between per capita GDP and the number of travel agencies, total tourism revenue, especially domestic tourism revenue, is relatively high, both above 0.7. It can be seen that indicators such as total tourism revenue and the number of travel agencies can reflect the regional tourism economy, which have a good promoting effect on the regional economy.

Secondly, the correlation between tourism foreign exchange earnings, and various economic development indicators is relatively low, not exceeding 0.7, indicating that the openness and internationalization of Sichuan's tourism industry are still insufficient.

Thirdly, the correlation between passenger volume and various indicators of economic development is the weakest, especially the correlation with the added value of the tertiary industry is the lowest, only 0.554, indicating that Sichuan's transportation infrastructure is still incomplete in tourism and has not yet contributed more to the development of the service industry.

Fourthly, the correlation between various indicators of tourism development and R&D investment intensity is not very high, indicating that the innovation level of the tourism industry is not high enough in the context of high-quality development. The correlation with the degree of dependence on foreign trade also indicates that Sichuan's tourism revenue has not yet played a significant role in foreign exchange earnings.

Fifth, the tourism industry has a wider adiation range. From the perspective of the three industries, the overall correlation shows a trend of the third industry>the first industry>the second industry. The

tourism industry is a part of the service industry, and the tertiary industry is mainly based on the service industry. The tourism industry maintains a close dependence relationship with multiple key areas within the tertiary industry, such as transportation, communication and telecommunications, accommodation and catering. Therefore, the sustained growth of the tourism economy has a significant positive impact on the vigorous development of the tertiary industry. The primary industry is agriculture, forestry, animal husbandry, and fishery, with agriculture as the main focus, and food as one of the six elements of tourism. The development of tourism is closely related to food, so the correlation between tourism and the primary industry is also high. The tertiary industry mainly consists of industry and construction, and star rated hotels, travel agencies, and other buildings cannot do without the secondary industry.

4. Conclusion and suggestions for countermeasures

4.1. Research conclusion

On the basis of clarifying the impact mechanism of tourism on high-quality economic development, this article takes Sichuan Province as an example to examine the correlation between tourism factors and high-quality economic development factors in Sichuan. The main conclusions drawn are: (1) The correlation between Sichuan's tourism industry and high-quality economic development follows the trend of tertiary industry>primary industry>secondary industry. (2) The correlation between passenger volume and the tertiary industry is very low. (3) The correlation between foreign exchange earnings from tourism in Sichuan Province and various indicators measuring high-quality economy is relatively low, below 0.7. (4) The correlation between various indicators of tourism development and R&D investment intensity is less than 0.7.

4.2. Suggestions for countermeasures

4.2.1. Intensify opening up to the outside world and attract more international tourists.

For local tourism, in order to thrive in the long run, it should also expand internationally, leveraging domestic and international dual circulation platforms to explore more international tourists. One specific approach is to strengthen cooperation with international travel agencies. With the continuous promotion of the Belt and Road strategy, Sichuan Provincial government can seize the opportunity to cooperate with some international travel agencies to attract more tourists. The second is to vigorously distribute "promotional business cards". Properly use the Internet to promote scenic spots. For example, the local cultural and tourism bureau can conduct tourism live broadcasts on Twitter, Instagram, and other platforms, and release promotional videos. In addition to introducing general scenic spots and showcasing scenery, the specific promotional content can also introduce Sichuan's rich and profound Bashu culture, attracting more Chinese culture enthusiasts.

4.2.2. Deepen the integration and development of tourism and agriculture

The tourism industry should be deeply integrated with agriculture, combining the advantages of both to create more national income. One is the integration of rural tourism and modern agriculture, forming new industrial forms and business models. It can not only leverage the advantages of rural areas and drive their development, but also implement the strategy of rural revitalization and promote high-quality development of the rural economy. The second is to develop characteristic cuisine in tourist attractions and create a tourism food industry chain. Promote the transformation and upgrading of the tourism industry, and further enhance the market competitiveness of tourism products.

4.2.3. Strengthen tourism transportation construction and enhance transportation capacity

Build an integrated transportation system for tourist attractions, connecting the "last mile" for tourists to enter the scenic area, and fully utilizing various modes of transportation at tourist destinations, such as buses, trains, and subways. At present, the airport with the highest flight volume and passenger flow in Sichuan is Chengdu Tianfu International Airport, which is located in a remote area. Therefore, efforts should be made to strengthen the transportation services between the airport and scenic spots, improve the transportation system, ensure smooth travel for travelers, and carry more tourists.

4.2.4. Encourage innovation in tourism products and increase project funding support

It is necessary for the government to increase financial support, strengthen tourism infrastructure

construction, actively create unique tourist attractions, cultivate innovative talents, promote innovation in scenic spots and products, create a "brand", enhance the competitiveness of Sichuan's tourism industry among regions, better drive economic development, and keep up with the pace of high-quality economic development.

5. Conclusions

The research on tourism promoting high-quality economic development in Sichuan Province complements the theory of tourism promoting economic development, helps to promote the research progress of tourism promoting high-quality development of regional economic development, and paves the way for follow-up research. It can dig deep into the specific impact of tourism on regional economic development, which is conducive to the formulation of relevant policies, accelerates the process of common prosperity, and is conducive to promoting the better integration of tourism and economic development.

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