

# Research on Rural Tourism Promoting Regional High Quality Development based on ARIMA Model: A Case Study of Guangshan County, Xinyang City

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**Abstract:** The report points out that the issue of agricultural and rural farmers is a fundamental issue related to the national economy and the people's livelihood. We must always give top priority to solving the "three rural issues" in the Party's work. The implementation of the rural revitalization strategy can effectively promote the interaction between urban and rural areas, make cities and villages closely linked and develop harmoniously, and also lay a solid foundation for the construction of beautiful villages. As a form of tourism rising in recent years, rural tourism can inject vitality into the prosperity and development of rural areas, make rural economic conditions develop rapidly, and open up a new way for farmers to increase their own income. At present, under the important background of rural revitalization, how to promote the development of rural tourism in China is an urgent problem to be solved. This paper first uses Python to predict the number of tourists and tourism income of Xinyang City from 2011 to 2021 in a 3-year time series, and then uses SWOT method to analyse the strengths, weaknesses, opportunities and threats of rural tourism development in Xinyang. Taking Dongyue Village of Guangshan County as an example, this paper puts forward some countermeasures to promote the development of rural tourism, such as establishing the brand awareness of rural tourism development, strengthening infrastructure construction, and developing rural tourism featured products.

## 1 INTRODUCTION

For a long time, the leadership of the Central Committee of the Communist Party of China has attached great importance to the problems in the rural economy. Solving the "three rural issues" is the focus of the work of the whole party and society. We continue to strengthen the implementation of policies conducive to farmers, actively promote the construction of a new countryside, comprehensively and deeply reform the countryside, and achieve the historic achievements of agricultural and rural progress, providing important support and institutional guarantee for opening a new situation in the new era. As a new type of rural tourism development mode in the contemporary era, the rural tourism revitalization and development mode is a major strategic measure for China to deeply implement the national characteristic economy rural tourism revitalization and development project, and all regions of the country have launched a series of measures to vigorously develop rural tourism.

(Buhalis, D., & Law, R. 2008) Xinyang City is located in the south of Henan Province, with Huaihe River in the north and Dabie Mountains in the south. With its rich red tourism resources, it has established a series of rural tourism projects under the planning of the government. In the past few years, a large number of tourists have come to visit. However, with the increasing popularity, more and more problems have been exposed. If these problems are not solved at the source, the rural tourism industry in Xinyang will stop. For the sustainable and high-quality development of rural tourism in Xinyang City, this paper will comprehensively analyse the problems and contradictions encountered in its rural tourism development, and put forward corresponding suggestions and solutions.

## 2 RESEARCH BACKGROUND

As a new type of rural tourism development mode in the contemporary era, the rural tourism revitalization

and development mode is a major strategic measure for China to deeply implement the national characteristic economy rural tourism revitalization and development project, and all regions of the country have launched a series of measures to vigorously develop rural tourism. Xinyang City, located in the south of Henan Province, has established a series of rural tourism projects under the planning of the government with its rich red tourism resources. (Foster, D. 1985) A large number of tourists have come to visit in the past few years. The following is the data on rural tourism in Xinyang in the past five years

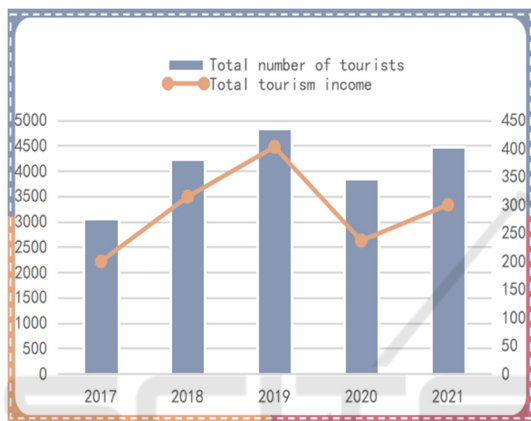


Figure 1: Total income of tourists and tourism in Xinyang in the past 17-21 years.

Time series analysis is one of the core methods of quantitative prediction. Generally speaking, it mainly includes general statistical analysis, establishment and inference of statistical models, and optimal prediction, control and filtering of time series. The most classical statistical analysis mostly assumes that data series are independent, but time series analysis is different from it, focusing on the interdependence between data series. In fact, time series analysis is the statistics and analysis of discrete exponential random processes, so it can also be regarded as a component of random process statistics. In this paper, ARIMA is one of the most widely used time series modeling methods. Let time series  $y_t$  be a single integer sequence of order  $d$ . Mark as  $y_t \sim I(d)$ ,

$$\omega_t = \Delta^d y_t = (1 - L)^d y_t$$

Where  $\omega_t$  is a stationary sequence, that is,  $\omega_t \sim I(0)$ , so ARMA (p, q) model can be established for  $\omega_t$ .

$$\omega_t = c + \phi_1 \omega_{t-1} + \dots + \phi_p \omega_{t-p} + \varepsilon_t + \theta_1 \varepsilon_{t-1} + \dots + \theta_q \varepsilon_{1-q}$$

Represented by lag operator,

$$\Phi(L)\omega_t = c + \Theta(L)\varepsilon_t$$

In the formula,

$$\Phi(L) = 1 - \phi_1 L - \phi_2 L^2 - \dots - \phi_p L^p$$

$$\Theta(L) = 1 + \theta_1 L + \theta_2 L^2 + \dots + \theta_q L^q$$

ARMA (p, q) model after d-order difference transformation is called ARIMA (p, d, q) model, which is equivalent to the following equation.

$$\phi(L)(1 - L)^d y_t = c + \theta(L)\varepsilon_t$$

The Auto Ts library in Python 3.8.12 is used to realize the 3-year time series prediction of the number of tourists and tourism revenue in Xinyang City from 2011 to 2021. The better model for the prediction of the number of tourists is ETS, and the better model for the prediction of tourism revenue is AverageValueNaive. The results are shown in the figure below.

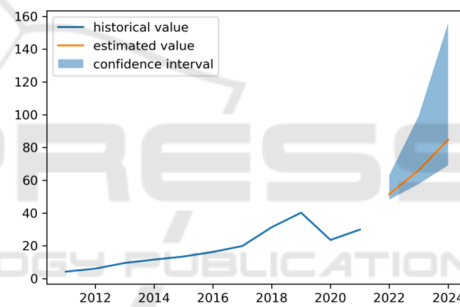


Figure 2: Forecast of the number of tourists in Xinyang in the next three years.

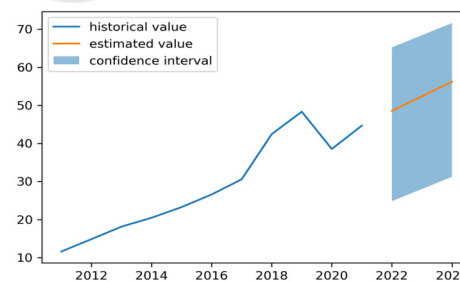


Figure 3: Forecast of Xinyang's tourism revenue in the next three years.

It can be seen from the figure that the number of tourists and tourism income in Xinyang will increase in the next three years.

### 3 SWOT ANALYSIS OF RURAL TOURISM DEVELOPMENT IN XINYANG CITY

Through the analysis and application of SWOT analysis model, this paper makes a comprehensive and systematic analysis of the strengths, weaknesses, opportunities and threats in the development of rural tourism in Xinyang City, which is of great significance to the development of rural tourism in Xinyang City.

Table 1: SWOT Analysis of Rural Tourism Development in Xinyang City.

Internal environment	Internal strengths	Internal weaknesses
	(1) Superior location (2) Rich red resources	(1) Lack of scientific planning (2) Serious shortage of professionals
External environment	External opportunity	External threats
	(1) Government policy support (2) Good market prospect	(1) Serious homogenization of products (2) Weakening of regional characteristics

#### 3.1 Analysis of Internal Strengths

Xinyang has convenient transportation. It is not far from many transport hub cities, which makes it easy for tourists to travel here. The traffic in the city is also very convenient. Pave asphalt roads between villages and towns. The initial formation of the rural road traffic network not only facilitates the travel of tourists in the city, but also facilitates the communication between villages and towns, enriches the travel mode of Xinyang people, and provides favorable conditions for the development of rural tourism in Xinyang.

At the same time, Xinyang, as a land with a long history of Chinese revolution, has inherited the red gene of its predecessors. Many important events have taken place here that have affected the Chinese revolution. Xinyang's red cultural heritage can serve as the basis for the development of rural tourism and create a "red brand" belonging to Xinyang.

#### 3.2 Analysis of Internal Weaknesses

Due to the weak concept of development, many scenic spots in Xinyang have not carried out unified scientific planning, so there are many problems. In addition, in the process of rural tourism development planning, development is emphasized over planning, and local culture and rural customs of the village itself are ignored. Moreover, most scenic spots only see short-term benefits. They blindly build projects that can make money quickly, which greatly reduces the tourists' sense of experience.

In addition, professionals play a key role in the implementation of the rural revitalization strategy. However, due to the insufficient attention of Xinyang local government, a large number of professionals have been lost. Nowadays, most people engaged in rural tourism are villagers. Because of their low level of education and lack of formal training, they often force them to buy and sell fake goods. The progress of rural tourism in Xinyang is directly affected by the lack of attention paid by the local government to talent introduction and the large number of local people.

#### 3.3 Analysis of External Opportunity

On April 29, 2021, the 13th National People's Congress passed the Law of the People's Republic of China on the Promotion of Rural Revitalization. This policy reflects the strong support of the state for rural development, actively leads social capital to invest in rural development, combines with local agriculture, and drives rural tourism of urban residents, laying a good political foundation for the development of rural tourism. On May 13, 2020, the General Office of Henan Provincial People's Government issued the Opinions on Accelerating the Development of Rural Tourism. This opinion is based on the actual situation of rural areas in Henan Province. In order to promote rural development, the Henan Provincial Government combines tourism according to local conditions, aiming to form a new pattern in which agriculture and tourism develop side by side and urban and rural areas progress together. On September 30, 2016, Xinyang City approved the Regulations on the Protection of Traditional Villages in Xinyang City, providing legal protection for traditional villages.

#### 3.4 Analysis of External Threats

Xinyang Municipal Government has introduced mature rural tourism routes from other cities and transferred them to the development of rural tourism

in Xinyang. This method neglects the integration of local unique cultural resources in the process of development, which will have a bad impact on it.

In addition, due to the rapid development of rural tourism in Xinyang City, the original ecological landscape of the countryside has been greatly damaged, and the most unforgettable local flavor of the countryside has been lost in the process of construction, and the rural flavor has gradually weakened.

## **4 CASE ANALYSIS OF RURAL TOURISM DEVELOPMENT IN GUANGSHAN COUNTRY**

### **4.1 Dongyue Village Develops Ecological Industry to Promote Rural Revitalization**

Dongyue Village is located 24km to the southwest of Guangshan County, which belongs to shallow mountain and hilly terrain. There are 145 registered poor households with 598 people in the village. By developing ecological industries such as camellia, rice and tea, Dongyue Village will lift itself out of poverty in 2018. In recent two years, tourism in Dongyue Village has become increasingly prosperous, becoming a new growth point of employment and income. The per capita income reached 12700 yuan. Dongyue Village has won the honorary titles of "Henan Civilization Demonstration Village", "National Beautiful Leisure Demonstration Village", etc. The main practices of Dongyue Village are:

#### **4.1.1 In Response to the National Poverty Alleviation Policy, a Large Number of Camellia Trees Were Planted**

The country began to implement the policy of returning farmland to forests in 2009, and Dongyue Village has also begun to actively respond to the national policy, and through the introduction of experts to conduct field visits, follow the experts' suggestions, and develop the camellia industry consistent with the actual situation of Dongyue Village. After more than ten years of efforts, the Camellia oleifera industry in Dongyue Village has now established a large-scale production base in Guangshan County and formed a one-stop modern agricultural industry chain. When Dongyue Village is vigorously developing modern agricultural industry,

the ecological environment of its villagers has also been improved and a sustainable development path has been taken. The harmonious development of the industrial environment has been realized, and Jinshan Yinshan is a place where green water and green mountains are truly realized. Green water and green mountains have also brought wealth to the villagers of Dongyue Village.

#### **4.1.2 Integrate Resources by Using the Sharing Economy Model**

Dongyue Village is dominated by hills and shallow mountains, and its lakes and ponds provide unique conditions for food planting and duck raising. A large number of ducks not only promoted the growth of meat and duck egg production, but also gave birth to the down clothing industry. In terms of grain planting, local villagers actively develop rice shrimp farming by using water resources to achieve double harvests of one field and two waters. (Van der Zee, E.&Vannest, D.2015) In addition, hardworking villagers have created unique "Guangshan Ten Treasures" agricultural products through their own wisdom. By vigorously developing the "E-commerce+Guangshan Ten Treasures" industrial poverty alleviation model, we led all villagers to achieve poverty alleviation.

#### **4.1.3 Maximize the Use of Rich Historical Culture**

Dongyue Village has a profound history, and every tree and grass here is the witness of red culture. Dongyue Village is the birthplace of the proletarian revolutionaries of the older generation. It publicizes the red culture of Dongyue Village through the glorious deeds of red characters. As the "signboard" of Dongyue Village, Huagu Opera has a long history and plays an important role in the life, culture and entertainment of ordinary people. It has brought laughter and laughter to Dongyue Village, and it is also an intangible cultural heritage, which plays a good role in promoting the inheritance of the excellent character of Dongyue villagers.

### **4.2 Summary of Dongyue Village's Experience in Developing Rural Tourism**

Dongyue Village was once a contiguous national poor village. In order to change the backwardness of the village and enable the villagers of Dongyue Village to live a well-to-do life, village cadres led the

villagers to actively respond to national policies and vigorously develop rural tourism against the backdrop of rural revitalization. Dongyue Village relies on the new industrial model of rural tourism and combines the characteristics of the village to create a local rural tourism brand. In recent years, due to the continuous efforts of Dongyue people, the local rural areas have gradually lifted out of poverty and become rich, and the culture of Dongyue Village has been promoted and developed in Henan and even the whole country. Rural tourism has driven the income of local people. The following is a summary of Dongyue Village's experience in developing rural tourism.

#### **4.2.1 Nature Protection**

Dongyue Village always adheres to the concept of protecting nature when developing rural tourism, does not destroy every tree and grass in the village, protects the original natural scenery, and lives in harmony with nature. The village has set up a number of garbage dropping points to meet the needs of customers to throw garbage when they play. At the same time, the village has a dedicated person responsible for daily cleaning every day, so that tourists have a good sense of sightseeing experience.

#### **4.2.2 Protection of Rural Aboriginality**

Rural localization is an important factor in the development of rural tourism. In the process of developing rural tourism, Dongyue Village always combines the scientific planning concept with the evolution law of rural development, and promotes rural construction in an orderly manner while maintaining the rural and local characteristics of rural tourism.

#### **4.2.3 Building Local Brands**

When developing rural tourism, Dongyue people, in combination with the characteristics of the village, established a local rural tourism brand belonging to Dongyue Village, and created unique "Guangshan Ten Treasures" agricultural products: brick bridge moon cakes (Wei, L., & Ullah, S. 2022), sweet potato noodles, sweet rice wine, camellia oil, Jigongtan Ciba, salty duck eggs, fried noodles, and so on.

#### **4.2.4 Media Publicity**

Dongyue Village established an e-commerce service platform in 18 years, and Zhongyuan Publishing and

Media Group helped Dongyue Village carry out "618" online live streaming of goods on several e-commerce platforms. On August 5, 20, China Central Radio and Television (CCTV)'s "World Finance and Economics" program, "Going to the Village to Live Watch Poverty Alleviation", went to Dongyue Village for live broadcast.

## **5 CONCLUSION**

### **5.1 Establish a Good Brand Awareness of Rural Tourism Development**

It is very important to establish a good brand awareness of rural tourism, which can promote the development of rural tourism. We should strengthen publicity, broaden publicity channels, and combine offline and online models. For online promotion, it is necessary to establish a complete network marketing system, and do a good job of tourism promotion and rural landscape display through various social networks and short video platforms. For offline publicity, we should enrich the types of tourism activities and attract various social activities to be held in Xinyang, which can rapidly enhance the influence and development of rural tourism in Xinyang.

### **5.2 Strengthen the Cultivation of Professional Talents**

In the implementation process of rural revitalization, talents are a very important link and also the key. In order to improve and develop the quality of local rural tourism, the local government needs to build a high-quality tourism talent team. (Yang, J., Luo, J. M., & Yao, R. 2022)To this end, government departments can take some measures to mobilize the enthusiasm of local farmers, let them actively participate in the work, and contribute their own strength. (Woodside, A. G., & Martin, D. (Eds. 2008)At the same time, government departments should implement regular training for practitioners in tourist attractions, and constantly improve the overall quality of practitioners. In addition, we can also attract professionals to invest in the construction of rural tourism in Guangshan County through high salary, which is very conducive to promoting the development of rural tourism industry.

### 5.3 Strengthening Rural Tourism Development Planning

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Strengthen rural tourism development planning, constantly improve the rural tourism development planning system, and optimize rural leisure tourism. In the process of rural tourism development planning, first of all, we should attract excellent rural tourism planning talents at home and abroad. (Woodside, A. G., & Martin, D. (Eds.). 2008) Second, local governments should pay attention to strengthening the strictness of project approval. It is essential to grasp this degree, which can thoroughly solve the important problem of too many scenic spots of the same type. Finally, we will hold lectures on rural tourism to instill the correct concept of development for relevant investment enterprises.

### 5.4 Maintain Rural Localization

In the process of rural tourism planning, we should avoid the weakening of rural localization. For the development of rural tourism in Xinyang, the local government should always combine the scientific planning concept with the evolution law of rural development, and promote the rural construction orderly while maintaining the rural and local characteristics of rural tourism.

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