Evaluation of the Role of Rural Tourism Industry in Promoting Economic Transformation Based on Intelligent SVM Classification Algorithm

MinJie Lin*
Hainan College of Economics and Business, Haikou City, Hainan, China, 571127

*Corresponding author e-mail: LMJ0505@126.com

Abstract. With the development of economy, China's tourism industry has made great progress in recent years, various types of tourism industry emerge in endlessly, and in this context, the innovation of the tourism industry is very important. However, there is an obvious imbalance between the urban and rural economic development in China. In order to improve the economic development difference caused by the inherent urban-rural dual structure, it is necessary to formulate effective measures to promote economic transformation. In this paper, the study of rural tourism industry analysis, targeted solutions against the bottleneck link, based on an intelligent SVM classification algorithm analysis of urban and rural development and the trend of the economic transformation in China.

Keywords: Urban-Rural Integration, Rural Tourism, Economic Transformation, SVM Algorithm

1. Introduction
China's rural economy has developed to a certain extent, with increasingly frequent interaction between urban and rural residents and continuous improvement of rural economy[1]. However, there are still many problems that cannot be ignored, which restrict the development, transformation and upgrading of regional economy. Rural tourism enterprises established all the items on rural tourism a unified and comprehensive management.

First of all, special training institutions should be set up to improve the technical ability of rural residents, so as to realize in-situ employment of rural residents, reduce the employment pressure of rural labor force, and enhance the overall benefits of rural residents in the development of rural tourism. Secondly, it should be equipped with standard management mode to promote the good operation of rural tourism mechanism. In addition, local publicity and education should be carried out
to improve the quality of rural residents, strengthen the protection of tourism resources, well retain the unique flavor of the countryside, enhance the awareness of environmental protection of rural residents, and realize the sustainable development of rural tourism industry.

2. Bottlenecks and solutions of regional economic development from the perspective of urban-rural integration

According to the national policy on rural economic development needs, the development of rural economy is given priority to with independent management mode, the lack of a comprehensive scientific management; cause a lot of waste of resources[2-3]. To develop rural tourism, we must adopt a variety of effective development methods. While paying attention to improving rural economy, we should also pay attention to improving the quality of rural residents, so as to improve their economic conditions, cultural environment and living conditions[4-5]. From the perspective of urban-rural integration, the way to develop rural tourism economy is shown in figure 1. Measures to develop rural tourism are as follows:

**Figure 1. Bottlenecks of economic development from the perspective of urban-rural integration**

According to the government's policy of urban and rural areas as a whole, the reasonable allocation of resources and standardize the management content, for rural tourism to provide a fair platform, rural tourism development of the malicious competition and prevent damage to the environment.

Through the platform to conduct a comprehensive overall planning of rural tourism economy, and according to the rural resources for the sustainable development strategy, improve the rural infrastructure, establishing convenient traffic, propaganda to protect the human ecological environment, developing rural characteristic folk culture, guide the rural residents actively involved in the rural tourism development. Rural tourism products is an important project to attract tourists, the existing rural tourism products category, insufficient development connotation, the lack of rural local characteristics, quality is low[6-7]. The products we develop should be innovative, high-quality and diversified to ensure that tourism products fully reflect local characteristics. The development of tourism products should take advantage of advantages and avoid disadvantages, form a tourism product system with rural characteristics, and extend the industrial chain of rural tourism products. At the same time, the research and development of rural tourism products should be upgraded and integrated into the local cultural environment, traditional customs and unique rural environment, fully reflect the local rural culture, make rural tourism products have more distinctive characteristics, eliminate the vicious competition of rural tourism, and form the core competitiveness of rural tourism with characteristics.


Figure 2. The rural tourism industry development way based on intelligent SVM algorithm

As can be seen from figure 2, talent training should be strengthened. According to rural tourism related industrial policy, the use of government subsidies and other targeted attracting, training related industries talents, ensure the quality of the rural tourism industry of the service, health and safety, etc, have been further perfected. Through the characteristics of rural tourism to attract more experienced senior talents to join the rural tourism industry, to provide better development space and platform for it, to encourage tourism talents to give play to their expertise, to contribute to the development of rural tourism. Rural tourism training institutions established, hire professional tourism talents for the rural tourism industry's leading personnel in the tourism industry, the villagers of scattered homes, distinctive technology quality and skills training, improve the rural tourism service management and service level, and to continue training of tourism industry of the latest knowledge on a regular basis, establish the perfect training system, reserve talents, make rural tourism talents get timely supply.

3. Model construction of transformation of rural tourism industry based on SVM algorithm

3.1. Model construction

The development of rural tourism under urban-rural integration can fully reflect the characteristics of rural tourism, such as added value, comprehensive performance and local transfer of labor force, so as to better solve the problem that rural economy lags behind urban economy, narrow the gap between urban and rural areas, coordinate the process of urban and rural economic development, and promote the rapid development of rural economy. Based on the SVM classification algorithm, this paper selects the most influential factors to make more rational use of limited resources. The SVM algorithm can effectively balance the data and reduce the difficulty of sample analysis. It is especially suitable for the classification and research of small sample data. The principle of intelligent SVM algorithm is described as follows:

$$\min \frac{1}{2} ||w||^2 \mid k \sum_{i=1}^{n} t_i$$

(1)

In formula (1), xi is the corresponding sample data source, that is, the collection of many promoting effects of rural tourism industry on economic transformation from the perspective of urban-rural integration. Kappa to punish factors predominate, tau I as slack variables, y_i as sample data of the sample labels, (xi) as the sample data of space mapping function, b for the system constants. Firstly, the original data sample set is preprocessed, and the unbalanced proportion can be expressed as:

$$IR = \frac{y_{\text{min}}}{y_{\text{maj}}}$$

(2)

In formula (2), y_{\text{min}} is small sample data and y_{\text{maj}} is large sample data. The sample set is
considered valid when IR is below a specified threshold M. When calculating small sample data, the number of sample points N should be synthesized:

\[
N = \left\{ \frac{y_{\text{max}} - y_{\text{min}}}{X} \right\} \cdot X
\]  

(3)

3.2. Promoting effect analysis

The rapid development of rural tourism industry broadens the chain of rural economic development. Four most important promoting factors are screened out based on SVM algorithm, as shown in Table 1 below:

**Table 1.** 2011-2016 rural tourism industry impact on economic indicators for the sample

| Years | Annual income (100 million Yuan) | Social security (percentage) | Labor force (percentage) | Proportion of urban and rural economy (percentage) |
|-------|---------------------------------|-----------------------------|-------------------------|--------------------------------------------------|
| 2011  | 0.8                             | 26                          | 31                      | 10                                               |
| 2012  | 0.9                             | 31                          | 35                      | 14                                               |
| 2013  | 1.1                             | 37                          | 39                      | 18                                               |
| 2014  | 1.2                             | 46                          | 44                      | 33                                               |
| 2015  | 1.7                             | 60                          | 56                      | 35                                               |
| 2016  | 2.1                             | 77                          | 62                      | 38                                               |

First, widen the agricultural economic development path. Rural tourism, including agriculture and tourism, is a perfect combination of the primary and tertiary industries. While expanding the scope of agricultural production and operation, it also promotes the extension and in-depth development of agricultural production chain. With the development of rural tourism economy, agricultural products are diversified, rich in connotation and unique, the added value of agricultural products and the life of villagers are greatly improved, and the transition of agriculture from traditional economy to a new economy is guaranteed, and the process of agricultural industrialization is accelerated.

Second, narrow the gap between urban and rural economy. On the one hand, solve the employment problem of villagers, complete the transfer of labor force on the spot, and relieve the employment pressure. On the other hand, it can make the villagers obtain certain economic benefits, improve the living conditions of the villagers, and make the villagers obtain social security in pension, medical care, unemployment, education and other aspects. Rural economy, driven by rural tourism, can achieve a rapid increase in GDP. At the same time, the consumption generated by tourists in rural tourism can complete the secondary distribution of urban and rural mutual assistance and income.

4. Conclusion

From the perspective of urban-rural integration, vigorously promoting the development of rural tourism industry is one of the important ways to achieve regional economic transformation. And the development of rural tourism depends on the advanced management mode and the introduction of high-tech talent, diversity of rural tourism to attract more tourists. Accelerates the transformation of urban and rural economy, but also accelerates the process of urban-rural economic integration. The third industry is one of the important direction of future economic development in our country, to the rural tourism industry as the representative of the emerging industry has many characteristics, such as green, environmental protection, no pollution, the rural tourism industry has huge potential, in the process of economic transformation will play a more important role.
References

[1] Juan Pablo Fernández, Benjamin Barrowes, Kevin O'Neill. Evaluation of SVM classification of metallic objects based on a magnetic-dipole representation[J]. Proceedings of SPIE-The International Society for Optical Engineering, 2006, 6217:621703-621703-8.

[2] SHI Guofang, CHEN Zhaoxia, ZHOU Chuner. Influence of cultural industry on the development of Shanghai urban economic transformation[J]. Journal of Zhejiang University, 2016.

[3] Liu, Li Ping. An Empirical Analysis of the Function of STP to the Economic Growth in Construction Industry Based on TFP Theory - A Case Study of Anhui Province[J]. Advanced Materials Research, 243-249:6418-6424.

[4] Liu, Hui. Mechanism, Path and Practice of the Convergence Development of Tourism Industry in the Context of Economic Transformation[J]. Anthropologist, 29(2-3):119-128.

[5] FAN Youmeng, XIE Yanjun, WANG Zhiwen. The Role of Power in Decision Making by Tourist Destinations:A Critical Discourse Analysis of News on Shangjiushan Village, China[J]. Tourism Tribune, 2016.

[6] Daohong QIU, Shucai LI, Lewen ZHANG. Application of GA-SVM in classification of surrounding rock based on model reliability examination[J]. Mining Science & Technology (03):116-121.

[7] Lili Zheng, Xiaoqiang Li, Fufeng Li. [Automatic classification of lip color based on SVM in traditional Chinese medicine inspection][J]. Journal of Biomedical Engineering, 2011, 28(1): 7-11.