Ranking the Development of Tourism and its Backgrounds in Rural Areas, Using Gray Topsis
(Case Study: Rural Areas of Varzaghan Township)

Faraji Sabokbar H.A.
Assistant Prof. in Faculty of Geography, University of Tehran

Motiey Langroodi S.H.
Professor in Faculty of Geography, University of Tehran

Yadollahi Farsi J.
Assistant Prof. in Faculty of Entrepreneurship, University of Tehran

Karimzadeh H.
Assistant Prof. in Tabriz University

Extended Abstract

Introduction

The touristic Resources and the attractions based on tourism, constitute the main topics in this field. Studies of these two topics, form the foundations of tourism. Resources and tourist attractions of the constituent elements of tourism are considered. Varzaquan County has a great potential for tourism development. There are pristine natural areas, climatic conditions, naturally beautiful landscapes such as forests Arasbaran, Chychaklu, all hands in have to make this city a special place for attracting the tourists. In this research, rankings of the city are based on ability and suitability for tourism development. In analysis and application of spatial data there are usually same uncertainties. Different reasons form these uncertainties in the data model and the presented model in this paper and is based on the spatial data, reduces the mentioned problem. The present approach is based on gray theory has recently been presented in scientific circles. A major focus of this paper is to enhance the

* Responsible Author: hfaraji@ut.ac.ir
effectiveness of the Original TOPSIS Method to evaluate the system of indicator-based model. Therefore, the authors have introduced the weight of each index to the Original TOPSIS Method for improvement. Initially, the Gray Correlation Analysis Method is utilized to calculate the weight of each index. In the recent years, the Gray Correlation Analysis Method has been widely used in the fields of geology, ecology, economic and so on. It is an effective method to examine the relationship between statistical data by judging the interrelationship between the two indices based on the extent of their links. Secondly, the calculated weights are added to the Original TOPSIS Method. Evidently, the indicator-based model (based on selected indices) is applied in all kinds of field in terms of decision-making. Thus the evaluation system of indicator-based model plays an essential role. In recent years, the Original TOPSIS Method has been widely applied in evaluating the performance of indicator-based model, which has no restriction of sample size and data distribution pattern. Unfortunately, it’s undeniable that the selected indices have always some certain relationships with the effectiveness of the structured models. Additionally, the changes of each index may lead to the internal change of the interactions between indices. All defects mentioned above may contribute to the deviation, which causes negative affects on decision-making.

Methodology
The gray theory has been described in paper. It also surveys the evaluations of tourist attractions, rural areas prone to invest in Varzaquan County with its touristic attractions. Unfortunately, no or little attention has paid to these attractions. Combining the mentioned method with evaluated Topsis tourist attractions, rural areas tend to invest in the tourism sector in Varzaquan County.

Results
The Original TOPSIS Method is failed to take the weights of indices into account. Consequently, the evaluation results calculated by the Original TOPSIS Method are
essentially accord with the physical circumstances. In an attempt to reflect the actual impact of each index, some researchers have utilized the Subjective Evaluation Method. However, this method is proved to be largely influenced by various subjective situations. In this Paper, the authors have proposed a new method named Modified TOPSIS Method utilizing Gray theory to improve the evaluation system of indicator-based model.

**Conclusion**

Compared with the Original TOPSIS Method, the Modified TOPSIS Method is more objective. It is able to avoid the mistakes caused by the indices which are essentially measured by the same factors, without which they would wrongly magnify the impacts growing in the same direction on the evaluation system. Natural resources and ecotourism attractions of Iran treasures of this country. For optimal use, every one should try attract domestic and foreign tourists to the of rural regions under an effective manageme. Optimum utilization of existing opportunities in the field of tourism, like any other activity, requires fundamental studies as well as designing programs based on scientific researches. Different areas of investment locations, have particular characteristics. There fore, each location could have high potentials for investment. One of the most important scientific activities in the field of tourism is resources assessment. Rural areas have a lot of touristic attractions with the ability for investment. The best result obtained among other attractions for investment attraction, has been Arasbaran fores.

**Keywords**: Tourism, Rural development, Gray theory, Gray Topsis, Rural areas Varzaquan County.