

## Ranking different factors influencing on development of tourism industry

Mojtaba Khalesi Ardakani\*

*Department of Management, Tehran Central Branch, Islamic Azad University, Tehran, Iran*

### CHRONICLE

#### Article history:

Received July 28, 2013  
Accepted 14 January 2014  
Available online  
February 27 2014

#### Keywords:

*Tourism industry*  
*TOPSIS*  
*SAW*  
*Taxonomy*

### ABSTRACT

Tourism industry plays an essential role on development of economy and it is considered as one of green industries. Many countries try to promote investment on tourism to create various job opportunities. This paper presents an empirical investigation to rank different factors influencing on tourism industry in city of Yazd, Iran. The proposed study uses three multiple criteria decision making techniques namely, Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), Simple Additive Weighting (SAW) and Taxonomy to rank 40 factors. The results indicate that factors such as Being located in the center axis of communication, Strengths in transportation, The ease of access to tourism destinations and Sufficient knowledge of some historical attractions are among important factors influencing tourism industry.

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## 1. Introduction

Tourism industry plays an essential role on development of economy and it is considered as one of green industries. Many countries try to promote investment on tourism to create various job opportunities and there are many studies to detect important barriers. Some studies in tourism and transport have investigated the connection service between metro systems with urban airports to help in improve performance for long-term development (Michalena et al., 2009; Sánchez-Lozano et al., 2013). Liu et al. (2012, 2013), for instance, studied this issue using different multiple criteria decision-making (MCDM) techniques including DEMATEL decision-making trial and evaluation laboratory (DEMATEL), the DEMATEL-based analytic network process (DANP) and Višekriterijumsko KOmpromisno Rangiranje (VIKOR), to rank the influential relationships among dimensions and criteria of the empirical case. Chiu et al. (2013) tried to develop some strategies to reduce the gaps in customer satisfaction caused by interdependence and feedback problems among dimensions and criteria to reach the aspiration level. They used a hybrid of DEMATEL, DEMATEL-based Analytic Network Process (DANP), and VIKOR techniques to rank different factors. They also

\*Corresponding author. Tel: +98-9132514718  
E-mail addresses: [mojtaba.khalesi@yahoo.com](mailto:mojtaba.khalesi@yahoo.com) (M. Khalesi Ardakani)

compared three real cases to illustrate how the proposed new hybrid MCDM model could improve e-store business for development of tourism industry.

Hwang and Yoon (1981) first proposed technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The method determines solutions from a finite set of alternatives and it is based on the concept that the chosen alternative should have the shortest distance from the positive ideal solution (PIS) and the farthest distance from the negative ideal solution (NIS).

Peng, K. H. (2012) proposed a new TOPSIS method called “Fuzzy Rasch” for generating fuzzy numbers to evaluate the competitiveness of the tourism industries in Asian countries. Alptekin and Büyüközkan (2011) presented an integrated case-based reasoning and MCDM system for Web based tourism destination planning. The method integrated case-based reasoning (CBR) system with Analytic Hierarchy Process (AHP) to enhance the accuracy and speed in case matching in tourism destination planning. Zhang et al. (2011) evaluated the tourism destination competitiveness (TDC) of the Yangtze River Delta in China with a two-step procedure. The first procedure included three hierarchies, 4 characteristics and 35 evaluation indices weighted by the information entropy weight (IEW). They applied TOPSIS method for the ranking analysis, which gave the most important index for each aspect by IEW.

Simple Additive Weighting (SAW) known as weighted linear combination or scoring techniques is a simple and most often used MCDM. According to Afshari et al. (2010) “The method is based on the weighted average and an evaluation score is measured for each alternative by multiplying the scaled value given to the alternative of that attribute with the weights of relative importance directly assigned by decision maker followed by summing of the products for all criteria”. This method has been applied in various applications such as tourism industry (Giupponi, 2007).

Taxonomy is another popular MCDM techniques used for ranking existing alternatives based on development level by using matrix of alternatives and attributes relationship. Rostampour (2012) determined comparative ranking of agricultural development in different provinces of Iran using taxonomy technique. Taxonomy has been extensively used for ranking alternatives including tourism industry (Go, 1992).

## 2. The proposed method

In this section, we present the implementation of three MCDM techniques mentioned earlier in this section; namely, TOPSIS, SAW and Taxonomy for ranking 40 different factors influencing development of tourism industry in city of Yazd, Iran. Yazd is considered as the driest major city in Iran, with an average annual rainfall of only 60 millimeters, and it is the hottest north of the Persian Gulf coast, with summer temperatures very frequently above 40 °C in blazing sunshine with virtually no humidity. Even at night, the temperatures in summer are uncomfortable. During the winter, the days remain mild and sunny, but in the morning, the thin air and low cloudiness cause very cold temperatures, which falls well below 0 °C. The city maintains a 3,000 years history, dating back to the time of the Median Empire known as Ysatis.

The current city name has been derived from Yazdegerd I, a Sassanid ruler and it was a Zoroastrian center during Sassanid times. After the Arab Islamic conquest of Persia, many Zoroastrians escaped to Yazd from neighboring provinces. Yazd is of the most importance center of Persian architecture. Because of its climate, it has one of the largest networks of aqueduct in the world, and Yazdi aqueduct makers are considered the most skilled in Iran. To handle the extremely hot summers, most old buildings in Yazd have magnificent wind catchers, and large underground areas (See Fig. 1). Table 1 shows details of the implementation of factors and ranking of these methods based on three MCDM techniques.



Fig. 1. The city of Yazd

Table 1

The summary of ranking factors based on TOPSIS, SAW and Taxonomy

Item	Title	SAW	TOPSIS	Taxonomy	Mean	Rank
1	Being located in the center axis of communication	1	1	4	2	1
2	Strong transport fleet	3	8	1	4	2
3	The ease of access to tourism destinations	2	3.5	10.5	5.33	3
4	Sufficient knowledge of some historical attractions	2	3.5	10.5	5.33	3
5	Increase safety in the border provinces in the country	2	3.5	10.5	5.33	3
6	Good infrastructure for desert trekking fielder	2	3.5	10.5	5.33	3
7	Global Communication	4	6	7	5.66	4
8	Suitability of accommodation and welfare facilities	5	7	6	6	5
9	Positive advertising media	6	13	5	8	6
10	Airport facility services	6	13	5	8	6
11	Religious and historical sites and architectural fabric of the	6	13	5	8	6
12	The suitability of infrastructure, tourism development	6	13	5	8	6
13	Social laws and regulations of the tourism industry	6	13	5	8	6
14	Domestic customs	7	10	8	8.33	7
15	Availability of signs, tips to guide tourists to tourist areas	25	9	3	12.33	8
16	No specific credit allocation for the development of tourism	8	18	11	12.33	8
17	Parking and tourist places	10	19	10	13	9
18	Willingness of the private sector to invest in tourism sector	7	23	12	14	10
19	Transmitters good tourist destination by Native	11	21	15	15.66	11
20	Ease of access to shopping centers	11	21	15	15.66	11
21	Political calm	11	21	15	15.66	11
22	Training and use of expertise and experience in the tourism	9	16.5	26.5	17.33	12
23	Attractive and the diversification of tourism	9	16.5	26.5	17.33	12
24	Ease of regulation in getting Visa	12	24.5	17.5	18	13
25	Less bureaucracy in administration	12	24.5	17.5	18	13
26	Existence of rare species of plants and animals in protected	13	27	15	18.33	14
27	Non-military threats	14	28	19	20.33	15
28	Previous experience in driving tourists	16	29	17	20.66	16
29	Lack of planning and public investment in tourism sector	15	30	20	21.66	17
30	Availability of automated banking services	17	31	21	23	18
31	Lack of inconsistent government policies	26	26	18	23.33	19
32	Past tourists' experiences	18	32	22	24	20
33	Knowledge of hosting tourists among citizens	19	34	24	25.66	21
34	Communication systems such as power, phone or fax	20	33	25	26	22
35	The lack of specific forces beside the tourist attraction of	21	37	26	28	23
36	Adequate sanitary facilities	27	35	23	28.33	24
37	Companies and amateur tourist guides	22	38	28	29.33	25
38	No conflict between tourists' culture and city residence	23	39	29	30.33	26
39	Peaceful coexistence of different religious faiths	28	36	27	30.33	27
40	Secure post services	24	40	30	31.33	28

As we can observe from the results of Table 1, "Being located in the center axis of communication" is number one priority followed by "Strong transport fleet". The second group factors consists of four items, includes "The ease of access to tourism destinations", "Sufficient knowledge of some historical attractions", "Increase safety in the border provinces in the country" and "Good infrastructure for desert trekking fielder".

#### 4. Discussion and conclusion

In this paper, we have presented an empirical investigation to determine important factors influencing development of tourism industry in city of Yazd, Iran. The proposed study has determined 40 different factors and, using three methods of TOPSIS, SAW and Taxonomy, the factors have been ranked, accordingly. Tourism industry has been one of the most popular industries for development of economy and it can help various societies become familiar with other nations' culture and history. The survey can be extended using other MCDM techniques such as fuzzy TOPSIS, fuzzy DEMATEL, etc. and we leave it for interested researchers for further investigations.

#### Acknowledgement

The authors would like to thank the anonymous referees for constructive comments on earlier version of this work.

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