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Investigating the Impact of Tourists' Travel Distance on the Domestic Tourism Demand in Mashhad

Fatemeh Rahmani[1], Samane Zangoei[2],
Maryam Rasoulzaeh*[3], Samira Heydarian[4]

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Abstract

The purpose of the present study was to investigate the effect of the travel distance of tourists on the demand for domestic tourism in Mashhad. Data used in this research was cross-sectional which includes 1388 domestic tourist families who stayed for at least one night in Mashhad City in 2005. The sample was selected using a randomized stratified sampling method and the data was gathered by an oral interview with the heads of the tourists' households and by completing the questionnaire. Using the AIDS model, income and price elasticities were calculated for six items including food, accommodation, transportation, having fun, shopping and souvenirs, and the impact of travel distance on the demand for tourist goods in Mashhad was investigated.

Keywords: Tourism Demand, Domestic Tourism, Price Elasticity of Demand, Distance Dimension, Mashhad.
JEL Classification: C_{31}, D_{12}, Z_{31}.

1. Introduction

The tourism industry is not only a way to recreate and escape from the routine of daily life, but also is useful for economic development by using strategic planning and the principles of sustainable development in tourism (Sharifi Tehrani and Yousefy, 2003). Therefore, today tourism has become one of the largest and most lucrative industries in the world economy (UNWTO, 2013).

1. Iranian Academic Center for Education, Culture and Research (ACECR), Tourism Economic Department, Khorasan Razavi, Iran (f.rahmani@acecr.ac.ir).
2. Department of Economics, Ferdowsi University of Mashhad, Khorasan Razavi, Iran (zangoei.samane@um.ac.ir).
3. Iranian Academic Center for Education, Culture and Research (ACECR), Tourism Economic Department, Khorasan Razavi, Iran (Corresponding Author: m.rasoolzade@jdm.ac.ir).
4. Iranian Academic Center for Education, Culture and Research (ACECR), Tourism Economic Department, Khorasan Razavi, Iran (m.rasoolzade@jdm.ac.ir).

Along with dramatic changes in the earth's landscape, this industry has transformed the political, economic and cultural conditions as well as lifestyle of human beings (Kase, 2002). Having influenced on different dimensions of human life, tourism has formed as a multi-nature industry. Since its formation to the present day, this industry has gradually penetrated into all sectors of human society, so that the relationship of the tourism industry with the society and various dimensions of human culture has led to the emergence and development of a variety of trends in the industry; the domestic tourism is one of them.

Domestic tourism, like other types of tourism, creates jobs and income. There is much fewer studies performed on domestic tourism than international tourism. This is because information on international tourism can be easily collected when tourists travel across the borders, while it is difficult for domestic tourism. Indeed, in countries such as USA, Canada and Britain, the studies on domestic tourism is of particular importance (Cooper, 2002). One of the important points worth mentioning in relation to the domestic tourism industry is that, first, international tourism has considerably replaced with domestic tourism so the currency exit is avoided, and second, the development of domestic tourism has improved the distribution of income. Also, in social point of view, domestic tourism lead the domestic people to enhance their knowledge on the way of life, beliefs, culture and traditions of the inhabitants of different regions of their own country and become familiar with the national and cultural monuments. Obviously, this will be followed by national consolidation (Landeberg, 2010).

It is essential for governments, tourism organizations and tourism operators to understand the processes determining decisions about the destinations of tourists (Neg et al., 2007). Distance plays an important role as a key variable in tourists' decisions. A person whose free times are weekends or just a few days may be a daily tourist and travels to local or regional attractions. A person with many weeks of vacation can travel nationally or internationally. An individual who can travel for months or years may probably do it internationally, since there is a long time to cover the distance (Lin and Hang, 2009).

Although the effect of distance on the demand for tourism has not

yet been carefully studied, despite the fact that its principles are implicitly included in the modeling and predicting the flow of tourism (McKercher and Lew, 2003) and has always been viewed from the market point of view, international market destinations involves many visitors coming from source markets. Distance influences on long distance trips, so it is inferred that this should have a significant impact on the profile and the behaviors of different people who visit different markets. The frictional effect of distance on people's behaviors is a global phenomenon, described as the first law of human geography (Jones and Eldridge, 1991)

Among the cities of Iran, Mashhad has a special place in tourism. This city is considered as the spiritual capital of Iran, and because of the large number of pilgrims and tourists coming from far and near cities and countries, it has a high potential for the development of tourism-related activities, which requires appropriate planning, and to resource mobilization toward tourism activities. However, there is still no proper planning for this industry despite the major tourist attractions in Mashhad, which is the main axis of the development of Khorasan Razavi province, and is included in the documents of logistics, development and employment of the province. Considering this issue and with the aim of planning to meet the needs of different tourists, this paper examines the impact of travel distance of tourists on the demand for domestic tourism in Mashhad.

2. Theoretical Foundations

The distance between a place of residence and a destination is considered as a determining factor in choosing a tourism destination. Baxter (1979) suggested journey as a component of the tourism product could be satisfactory, so that, in special cases, longer distances would be preferable. In a similar manner, Wolfe (1970, 1972) shows that distance does not always act as a deterrent, because the resulting friction disappears after passing a certain threshold and it becomes a desirable attribute for enjoying a destination. Beaman (1974) shows this behavior using a marginal analysis of distance by observing the reaction of individuals to each unit of distance and concluding for each additional unit.

Distance decay plays an important role in understanding spatial

interactions, including tourism (Eldridge et al., 1991). The demand for tourism changes inversely with the distance traveled (Zillinger et al., 2005). Therefore, as distance increases, tourism demand will be significantly reduced. They argue that people should overpass a certain distance to feel that they go far enough away from their home to experience a trip.

McCleur (1998) pointed out that if the distance from the origin increases, the likelihood of people traveling to several destinations increases. Paul and Rimmawi (1992) also found an inverse relationship between distance, time, and the percentage of the total trip spent at the main destination. They argue that the more time tourists have the more they travel and most likely to multiple destinations. On the other hand, people with a time limit tend to choose nearby destinations and spend most of their time in a single place.

Studies, therefore, confirm the relationship between distance and tourism demand; however, it is important to understand that distance is by no means a determining factor, since the one's trip may be the final result of a set of all other definite variables, including time of availability, arbitrary income, total cost of the trip, and the desire to enter a cultural environment (McCleur et al., 2003).

Distance definitions, regardless of errors or mistakes, were accepted only because they provided a statistical and economical quantity for the tourism phenomenon. Since these definitions could not properly describe tourism, they focused only on the demand side and ignored the supply as well as the effects of tourism; hence, tourism needed some other definitions. In this regard, other definitions were suggested each of which describes tourism in different aspect. In geographic dimension, tourism is defined as the time spent for leisure or recreational activities requiring night absent in normal residential location (Skinner, 1999: 280).

The term "tourism" refers to a set of trips between origin and destinations with the incentive for rest, recreation, sport, visit, commercial, cultural or leisure activities, with the tourists not intending to take up permanent residence or employment. In the earlier definitions, distance was more emphasized and tourists were classified according to the distance from their residential place, so that the U.S. National Tourism Resources Review Commission (1973) considers

travel distance of at least 50 miles in the definition of domestic tourism which includes all trips except to commute to work (Gardner, 1996).

In his definition, Coltman considers distance and economic aspects. He defines tourism as a short-term trip that starts from a point and finally returns to the same point and during the journey, based on a particular plan, some places are visited and tourists spend a huge amount of currency.

Today, tourism industry is one of the most important industries contributing to the development of societies as this industry, in addition to providing the currency needed by each country, can create more domestic and foreign investments opportunities and promote the cultural and welfare levels of the region. Iran is among the top ten countries with ancient, historical, religious and natural heritages. However, according to the statistics provided by the World Tourism Organization, Iran is ranked as the 60th country attracting tourists (World Travel & Tourism Organization, 2012).

Tourism industry is the only industry that contributes significantly to the mobility and dynamism of the economy, employs the economically inactive forces of the society, and reduces unemployment (Boul, 2000). When tourism is growing and it enhances facilities, government intervention should focus on tourism development (Korsz, 2012). Tourism development plan is a product that requires planning with a development process (Yasarata et al., 2010) as tourism, in the process of supply and demand, shows the effects of development. Tourism demand includes goods and services to which consumers need at a particular moment (Vela, 2005), and is measured by the number of arrivals and the level of tourist expenditure associated with their changes (Li, Witt & Fei, 2010). Tourism demand for a destination influences another destination's demand due to cultural and environmental similarities and geographical proximity as well as similarity between economic systems. When tourists decide where to travel, this is the interaction between them and their different choices that shapes the tourist behavior (Song, Dwyer, and Li, 2012).

3. Review of Literature

Maleki et al. (2016) studied the estimation of the demand function of

domestic tourism in the city of Isfahan, emphasizing the drought of Zayandeh Rood River. Tourism demand function was estimated using 1996-2011 statistics and emphasizing on the impact of this phenomenon (Zayandeh Rood drought) and other influential factors on tourism demand. The results indicated that during the period studied, the Zayandeh Rood drought and the number of holidays had significant negative and positive effects on the number of annual visits to the city of Isfahan, respectively. In addition, the two variables of average income and average annual temperature had relatively weak positive and negative effects on the number of annual visits, respectively.

Farzin et al. (2015) studied the estimation of tourism demand function using the panel data approach (case study: Iran and selected countries). The results of the model showed that the estimated coefficients of GDP, the number of beds of accommodation facilities, number of airports and the number of aircrafts had a positive and significant effect on the incoming tourists. On the other hand, the estimated coefficient of the variable of relative price of tourism had negative effect on the incoming tourists. In addition, the results showed that the dummy variable of international sanctions had a negative impact on incoming tourists during the boycott years.

Sadeghi et al. (2012) evaluated the demand for domestic tourism in Mashhad city. To estimate the tourism demand function, the AIDS model (Almost Ideal Demand System) in the form of regression model was used. The results of the research showed that the variable of tourist expectations of the economic future had a significant effect on the tourists' expenditures on the five mentioned commodities. In addition, the variable of daily working hours of the head of the household had a significant impact on the tourists' expenditures on food, transportation, souvenirs and visits to places of interest. This variable did not have a significant effect on the tourists' expenditures on accommodation. The variable of the amount of debt tourists owed had a significant impact on the tourists' expenditures on foodstuffs and visits to places of interest. This variable did not have a significant impact on the tourists' expenditures on foodstuffs, transportation and souvenirs.

Foroughzadeh et al. (2012) used a regression analysis to investigate the factors affecting the length of stay of Iranian pilgrims in Mashhad. The results showed that the longer distance between the pilgrim's

residence and Mashhad, the more familiarity of the pilgrims with the city of Mashhad, and the more frequent visits of the pilgrims in the previous travels to Mashhad resulted in a longer stay in Mashhad. The villagers also stayed longer in Mashhad compared to the pilgrims came from urban centers and those who used to prefer spending less money for their daily stay.

Khodaei et al. (2011) examined the effects of household size and the distance between the tourist residence and the destination on domestic tourism demand in Ardebil province. Using the AIDS model, they calculated the income and price elasticities for five items of food, housing, transportation, the ticket price for sightseeing and souvenirs, and examined the effect of the distance between the tourist residence and the destination and the number of household members on the trip of demand for tourism goods in the province of Ardebil. The results indicated that those who came from longer distances (more than 600 kilometers) to Ardabil tended to have a lower price elasticity for food, housing, and entertainment, but higher price elasticity for transportation and souvenirs. They also had higher cost elasticity for food, transportation and souvenirs, so the distance between the origin and destination does effect on the tourism demand.

Gholamipour et al. (2011) studied the estimation of the tourism demand function in the selected provinces. By constructing linear logarithm function and estimating it using data panel method, it was determined that travel expenditures in the destination such as total index of consumer goods and services (SHB) and the ratio of the province's hotel price to the other provinces' household income (NHN) were the most effective variables in the demand for domestic tourism. Also, the coefficient of the variable of the number of tourist attractions (Tj), travel agencies (TA) was positive suggesting a direct relationship between the number of domestic travelers and the mentioned variable in that province.

Nikpour et al. (2009) studied the identification and analysis of effective factors on tourism demand in the origin of tourism (Case Study: Tehran regions). The findings of the research indicated that the two groups of factors affecting the formation of travel demand were the desire to travel and the ability to travel. The desire to travel was measured among households by the amount of knowledge of different

regions of the country, the type of mentality and the amount of demand for travel. The ability to travel was measured based on income, job type, educational level, personal car access, the number of household members and family life cycle. According to these factors, households who had a higher willingness and ability to travel indicated a greater demand for travel.

Karimian (2008) studied the estimation of the demand for domestic and foreign tourism for nature tourism in Gilan. The results showed that in the domestic sector, among the studied factors affecting the demand for domestic ecotourism (the population of the origin provinces, weather conditions, transportation prices from the origin province to the Guilan province, housing prices, transportation prices, and advertising and marketing costs), the effect of the variable of advertising and marketing costs and transportation cost was not statistically significant, but the effects of the other variables were significant.

Zirak Bash (2005) analyzed the domestic tourism market of Isfahan. The results showed that there was a statistically significant relationship between the development index and the population of the provinces with the number of tourists entering the city of Isfahan, and developed and populated provinces send more tourists. However, this relationship is not true for distance as only about 10% of tourists come from areas with less than 400 km away from Isfahan. Domestic tourists are not so satisfied with the tourism situation in Isfahan and evaluated it very low.

Sergo et al. (2014) studied the factors affecting the tourists' length of stay coming from 21 countries to Croatia using Data Panel method in the period of 1991-1996. The results showed that the variables of price, population density, natural attractions, and distance from the origin country are the most important factors affecting the tourists' length of stay in Croatia.

Yang et al. (2011) studied the factors affecting the demand for tourists in Yixing County, Jiangsu Province, China using the sequential logit method. The results show that distance, age, group travel, transportation, travel motivation, past visits and accommodation are factors that affect tourists' length of stay. The distance and the quality of accommodation had a positive impact on tourism demand. Tourists with personal vehicle, different travel incentive and previous visits had a different length of stay. In addition, the factors affecting the length of stay were different for

people who travelled alone or with a group, and were in different age groups.

Mckercher (2015) examined the impact of distance on the demand for tourism: short-term and long-term comparisons of recreational trips to Hong Kong. He studied twenty-three markets in Hank Kong, including 8 short haul and 15 long haul markets. This study showed that the difference between a destination that can attract 10-30% of tourists from short haul markets and less than 2% of tourists from long haul markets was a function of the ability or desire of specific segments to cross the remote obstacles / near is. In addition, this study showed that the potential market volume of tourists could be at the level of 1 or 2% share of departure from the main place, regardless of the extent or effectiveness of promotional activities inherent in the various segments of the market.

Yang (2012) examined the domestic tourism demand of urban and rural residents in China. Multilevel models were utilized for the development of domestic tourism demand as a function of income, price of tourism and substitute prices. In the multilevel model, the effect of relative income was examined by the interaction term between individual income and average income over city. The results substantiated the need to incorporate relative income to tourism demand study. In addition, there are regional differences between residents of different sub-regions and different patterns of determinants between urban and rural residents.

Surugiu et al. (2011) investigated a data panel model of tourism demand in Romania. They found that GDP per capita, trade and population had a significant impact on tourism demand, while the results showed distance had a negative impact on tourism demand.

Etzo et al. (2010) examined the domestic tourism demand in Italy: fixed effect vector decomposition estimation. According to the results, in general, the main drivers of the Italian tourism flow appeared with an interrupted dependent variable. GDP Per capita plays an important role, but its coefficient indicates that in Italy, domestic tourism is not considered as luxury goods, and international tourism is often found luxury. Another interesting result is that for Italian tourists, domestic destinations and international destinations act as alternative products. The findings showed that tourists in the southern regions tended to be

more concerned about the changes in GDP per capita and price difference than in the northern regions.

Fang Bao and McKercher (2008) examined the impact of distance on tourists in Hong Kong: a comparison of the short haul and long haul visitors. This study revealed a clear dichotomy of long haul/ short haul in the profile and behaviors of visitors in Hong Kong. The results demonstrated that long haul tourists were older, more affluent and viewed Hong Kong as a stop-over destination, whereas short haul tourists were younger, less affluent and viewed Hong Kong as their main and only destination. The authors argued that these differences were a function of the discriminating effect of distance on the ability of some people to travel to long haul destinations.

Chan et al. (2008) examined the effect of distance on international tourism behaviors. The results revealed that 80% of the total international travel is limited to the countries that are within 1000 km of the major market, with a few exceptions for distant countries. With regard to the problems encountered in long journeys, roughly more than 1 or 2% is the share of foreign travels.

Nicholas et al. (2006) studied the impact of distance and price on the choice of tourists' destinations: emphasizing the effective role of motivation. The estimation method used was a random coefficient logit model that considers the control of possible correlations between different destinations and tourist heterogeneity. The results indicated that the distance and price inhibitory effects on the destination choice was mediated by incentives, implying that incentives had a direct (increased convincing effect) or inverse (reduced inhibitory effects) effects on the distance and price.

Gallego et al. (2015) investigate the impact of temperature on destination choice decisions in the context of domestic tourism in Spain. Using a dataset that comprises Spanish domestic trips from 2005 to 2007 and applying a gravity model for regional data, results confirm climate as an important factor in determining domestic tourism flows. Findings show that while colder provinces in the north of Spain would benefit from rising temperatures, warmer provinces in the south would experience a decrease in the frequency of trips there.

Gallego et al. (2016) investigate the relevance of international tourism for international trade in a suitable framework. They extend

HMR approach to incorporate international tourism flows. They used a cross-section of 195 countries is estimated for 2012. Findings show that tourism affects both trades extensive and intensive margin via a reduction of variable and fixed trade costs.

4. Data and Analysis Method

4.1 Data

The collected data in this research are the type of cross-sectional and data field. The interviews are conducted by filling out a questionnaire from 1388 tourist families who have visited from Mashhad city in 2015 and at least have accommodated there for 24 hours.

4.2 Theoretical Foundations of the Near-Ideal Demand System and Calculation of Stretches

In much of the recent literature on systems of demand equations, the starting point has been the specification of a function, which is general enough to act as a second-order approximation to any arbitrary direct or indirect utility function, or, more rarely, a cost function. For examples, see Christensen, Jorgenson, and Lau; Erwin Diewert (1971); or Ernst Berndt, Masako Darrough, and Diewert. Alternatively, it is possible to use a first-order approximation to the demand functions themselves as in the Rotterdam model, see Theil (1965, 1976); Barten. We shall follow these approaches in terms of generality but we start, not from some arbitrary preference ordering, but from a specific class of preferences, which by the theorems of Muellbauer (1975, 1976) permit exact aggregation over nconsumers: the representation of market demands as if they were the outcome of decisions by a rational representative consumer. These preferences, known as the PIGLOG class, are represented via the cost or expenditure function, which defines the minimum expenditure necessary to attain a specific utility level at given prices. We denote this function c(u,p) for utility u and price vector p, and define the PIGLOG class by:

$$\ln(u, p) = (1 - u)\ln\{a(p)\} + u\ln\{b(p)\} \quad (1)$$

With some exceptions, u lies between 0 (subsistence) and 1 (bliss) so that the positive linearly homogeneous functions a(p) and b(p) can be regarded as the costs of subsistence and bliss, respectively. The Appendix further discusses this general model as well as the

implications of the underlying aggregation theory. Next we take specific functional forms for log a(p) and log b(p). For the resulting cost function to be a flexible functional form, it must possess enough parameters so that at any single point its derivatives δc/api, δc/au, δ^2c/δpiδpj, δ^2c/δuδpi, and δ^2c/δu^2 can be set equal to those of an arbitrary cost function. We take

$$\ln(p) = \alpha_0 + \sum_K \alpha k^{Ln} pK + \frac{1}{2}\sum_K \sum_j \gamma Kj^{Ln}\ pK^{Ln} pj \qquad (2)$$

$$Lnb(p) = Lna(p) + \beta_{0\ \prod_K pk^{pk}} \qquad (3)$$

so that the AIDS cost function is written

$$Lnc(u,p) = \alpha_0 + \sum_K \alpha k^{Ln} pK + \frac{1}{2}\sum_K \sum_j \gamma Kj^{Ln}\ pK^{Ln} pj + u\beta_{0\ \prod_K pk^{pk}} \qquad (4)$$

where α_i, β_i, and γ^*_{ij}. are parameters. It can easily be checked that c(u,p) is linearly homogeneous in p (as it must be to be a valid representation of preferences) provided that$\sum\alpha_i$=1,$\sum\ \gamma^*_{ij} = \sum\beta_j$=0. It is also straightforward to check that (4) has enough parameters for it to be a flexible functional form provided it is borne in mind that, since utility is ordinal, we can always choose a normalization such that, at a point, δ^2logc/ δu^2=0. The choice of the functions a(p) and b(p) in (2) and (3) is governed partly by the need for a flexible functional form. However, the main justification is that this particular choice leads to a system of demand functions with the desirable properties, which we demonstrate below. The demand functions can be derived directly from equation (4). It is a fundamental property of the cost function (see Ronald Shephard, 1953, 1970, or Diewert's 1974 survey paper) that its price derivatives are the quantities demanded:

δ (u,p)/ δ pj= qi. Multiplying both sides by p_i/c(u,p) we find:

$$\frac{\partial \log c(u,p)}{\partial \log p_i} = \frac{p_i q_i}{c(u,p)} = w_i \qquad (5)$$

where wi is the budget share of good i. Hence, logarithmic differentiation of (4) gives the budget shares as a function of prices and utility:

$$w_i = \alpha_i + \sum_j \gamma_{ij} \log p_j + \beta_i u \beta_0 \prod_{p_k} \beta_k \quad (6)$$

where:

$$\gamma_{ij} = \frac{1}{2}(\gamma^*_{ij} + \gamma^*_{ji}) \quad (7)$$

For a utility-maximizing consumer, total expenditure x is equal to c(u,p) and this equality can be inverted to give u as a function of p and x, the indirect utility function. If we do this for (4) and substitute the result into (6) we have the budget shares as a function of p and x; these are the AIDS demand functions in budget share form:

$$w_i = \alpha_i + \sum_j \gamma_{ij} \log p_j + \beta_i \log\left\{\frac{x}{p}\right\} \quad (8)$$

where P is a price index defined by:

$$\log p = \alpha_0 + \sum_k \alpha_k \log p_k + \frac{1}{2} \sum_j \sum_k \gamma_{kj} \log p_k \log p_j \quad (9)$$

The restrictions on the parameters of (4) plus equation (7) imply restrictions on the parameters of the AIDS equation (8). We take these in three sets:

$$\sum_{i=1}^{n} \alpha_i = 1 \qquad \sum_{i=1}^{n} \gamma_{ij} = 0 \qquad \sum_{i=1}^{n} \beta_i = 0 \quad (10)$$

$$\sum_j \gamma_{ij} = 0 \quad (11)$$

$$\gamma_{ij} = \gamma_{ji} \quad (12)$$

Provided (10), (1 1), and (12) hold, equation (8) represents a system of demand functions which add up to total expenditure ($\sum wi = 1$), are homogeneous of degree zero in prices and total expenditure taken together, and which satisfy Slutsky symmetry. Given these, the AIDS is simply interpreted: in the absence of changes in relative prices and "real" expenditure (x/P) the budget shares are constant and this is the natural starting point for predictions using the model. Changes in

relative prices work through the terms γij; each γij represents 102 times the effect on the its budget share of a 1 percent increase in the j the price with (x/P) held constant. Changes in real expenditure operate through the βi coefficients; these add to zero and are positive for luxuries and negative for necessities. Further interpretation is best done in terms of the claims made in the introduction.

By using the equation 8, uncompensated (Marshalian) and compensated (Hicksian) own and cross price elasticity and expenditure elasticity can be derived. The Marshallian own and cross price elasticity for good i with respect to good j can be calculated via equation7:

$$e_{ij} = \frac{\gamma_{ij} - \beta_i}{w_i} - \delta_{ij} \quad (13)$$

Hicksian own and cross-price elasticity for good i with respect to good j can be estimated by equation8:

$$e_{ij} = \frac{\gamma_{ij}}{w_i} + w_j - \delta_{ij} \quad (14)$$

where δ_{ij} is the Kronecker delta and equals "1" for own price and "0" for cross-price elasticity. Finally, the expenditure elasticity can be calculated as follows:

$$E_i = 1 + \frac{\beta_i}{w_i} \quad (15)$$

5. The Variables Studied and Their Measurement

5.1 Dependent Variables

Since travel expenses to Mashhad are divided into six general categories, dependent variables in this study include the share of each of these expenses from the total cost of travel to the city of Mashhad. These expenses include food, accommodation, transportation, recreation, shopping and souvenirs.

5.2 Independent Variables

Independent variables include the variable of price of goods and the variable of total travel expenses adjusted by the following measures:

(a) The price for food and accommodation was measured as per capita expenditure per day for each of them and for souvenirs, transportation and landmarks it was measured as per capita expenditure of these goods.

(b) The variable of adjusted total travel expense is the travel expenses allocated by the tourist for traveling to Mashhad, and was obtained by dividing the total cost of travel by the Stone price index.

6. Discussion and Conclusion

In the present research, an inferential analysis was performed by which the impact of various factors on the tourism demand was estimated using the almost ideal demand system (AIDS). To estimate the results the packages of Stata, Excel and Spss were used.

Table (1) shows the demand function of Mashhad tourists with a distance of up to 500 km. According to the results of this table, and by examining the equation of residence in this table, it can be concluded that if the price of items, except accommodation, in the household expense (food, transportation, recreation, shopping and souvenirs) as well as the ratio of total household travel expenses to the price index increase, the share of accommodation in the household expenditure is reduced. In the respective equation, if the price of accommodation, transportation, shopping, and the ratio of total household travel expenses to the price index increases, the share of food in the household expenditure will be reduced.

In the third equation of this table, it can be said that if the price of accommodation, shopping and the ratio of total household travel expenses to the price index increase, the share of transportation will be reduced in the household expenditure. Considering the equation related to recreation, if the price of accommodation and the ratio of total household travel expenses to the price index increase, the share of recreation in the household expenditure is reduced, which can be attributed to the fact that transportation is required for recreation. In the next equation, the share of shopping is considered as a dependent variable. This equation also shows that if the price of food, recreation, souvenirs and the ratio of total household travel expenses to the price index increases, the share of shopping in the household expenditure decreases. In addition, if the ratio of total household travel expenses to

the price index increases, the share of souvenirs in the household expenditure is reduced. The change in the price of other variables does not have a significant effect on the share of souvenirs in the household travel expenditure.

In general, in relation to meaningful variables in the equations, if the price of other components of the traveler's expense and the ratio of total household expenses to the price index increase, the share of the respective cost is reduced.

Table (1) also shows that three major factors in traveling costs in distances up to 500 km are transportation, accommodation and souvenirs, so changes in the price of transportation and accommodation can change the travelers' preferences, In particular, accommodation can change not only the household preferences in relation to shopping, entertainment and souvenirs, but also affect the travelers length of stay in the destination; length of stay is considered one of the most important factors in attracting tourists into a destination.

Table1: The Coefficients of the Tourism Demand Equation by the Distance Dimension up to 500km

Equation	Variable	Coefficient	Prob	Equation	Variable	Coefficient	prob
Equation 1 (accommodation)	Lnp1	1.56	0	Equation 2 (food)	Lnp1	-0.656	0.02
	Lnp2	-0.037	0.50		Lnp2	0.964	0
	Lnp3	-0.122	1.0		Lnp3	-0.536	0.06
	Lnp4	-0.342	0.01		Lnp4	0.04	0.93
	Lnp5	-0.121	0.04		Lnp5	-1.098	0
	Lnp6	0.112	0.51		Lnp6	-0.770	0.20
	$\mathrm{Ln}(\frac{m}{p})$	0	0.00		$\mathrm{Ln}(\frac{m}{p})$	-0.001	0
Equation 3 (transportation)	Lnp1	-0.479	0.01	Equation 4 (recreation)	Lnp1	-0.09	0.08
	Lnp2	-0.039	0.75		Lnp2	0.009	0.78
	Lnp3	1.51	0		Lnp3	-0.039	0.43
	Lnp4	-0.24	0.42		Lnp4	0.973	0
	Lnp5	-0.354	0.01		Lnp5	-0.025	0.50
	Lnp6	-0.486	0.21		Lnp6	0.039	0.71

Equation	Variable	Coefficient	Prob	Equation	Variable	Coefficient	prob
	$\mathrm{Ln}(\frac{m}{p})$	0	0		$\mathrm{Ln}(\frac{m}{p})$	0	0.1
Equation 5 (shopping)	Lnp1	-0.156	0.31	Equation 6 (souvenir)	Lnp1	0.053	0.63
	Lnp2	-0.173	0.08		Lnp2	-0.045	0.53
	Lnp3	0.017	0.90		Lnp3	-0.083	0.43
	Lnp4	-0.347			Lnp4	0.008	0.96
	Lnp5	1.428	0		Lnp5	-0.031	0.70
	Lnp6	-0.453	-0.1		Lnp6	2.347	0
	$\mathrm{Ln}(\frac{m}{p})$	0	0		$\mathrm{Ln}(\frac{m}{p})$	0	0.00

Table (2) also shows the coefficients of Mashhad's tourists demand function with a distance of 500 to 1000 km. Similar to Table (1), it can be concluded that in the equation related to cost, if the price of other components of the traveler's travel expense and the ratio of total household expenses to the price index increase, the share of the respective cost decreases. Thus, according to the first equation, if the price of shopping, recreation, souvenir, and the ratio of total household travel expenses to the price index increase, the share of accommodation in the household expenditure decreases. If the price of accommodation, shopping, souvenir and the ratio of total household travel expenses to the price index increase, the share of food in the household expenditure decreases. Regarding the transport equation, it can be said that if the price of accommodation, recreation and shopping increases, the share of transportation in the household expenditure decreases. According to the fourth equation, if the price of food, transport and recreation increases, the share of recreation in the household expenditure decreases. According to the equation of shopping, if the price of accommodation, food, souvenirs and the ratio of total household travel expenses to the price index increase, the share of shopping in the household expenditure is reduced. If the price of accommodation, food, shopping and the ratio of total household travel expenses to the price index increases, the share of souvenirs in the household expenditure decreases.

In general, it can be said that Table (2) shows that the three factors of accommodation, shopping and souvenirs have the greatest impact on

the cost of tourists traveling between 500 and 1,000 kilometers to Mashhad. This group of travelers came from a longer distance compared to the previous group, so they stay longer and pay more cost for accommodation.

Table2: The Coefficients of the Tourism Demand Equation by the Distance Dimension 500 to 1000km

Equation	Variable	Coefficient	Prob	Equation	Variable	Coefficient	prob
Equation 1 (accommodation)	Lnp1	1.432	0	Equation 2 (food)	Lnp1	-0.511	0
	Lnp2	-0.412	0		Lnp2	1.592	0
	Lnp3	-0.199	0.48		Lnp3	0.079	0.78
	Lnp4	-0.971	0.08		Lnp4	-0.016	0.95
	Lnp5	-0.954	0		Lnp5	-0.776	0
	Lnp6	-0.826	0.01		Lnp6	-0.961	0
	$\mathrm{Ln}(\frac{m}{p})$	-0.001	0		$\mathrm{Ln}(\frac{m}{p})$	-0.001	0
Equation 3 (transportation)	Lnp1	-0.124	0.06	Equation 4 (recreation)	Lnp1	-0.04	0.23
	Lnp2	0.068	0.42		Lnp2	-0.06	0.1
	Lnp3	3.112	0		Lnp3	-0.131	0.1
	Lnp4	-0.384	0.01		Lnp4	0.098	0
	Lnp5	-0.236	0.09		Lnp5	-0.068	0.33
	Lnp6	-0.058	0.75		Lnp6	-0.015	0.87
	$\mathrm{Ln}(\frac{m}{p})$	0	0.36		$\mathrm{Ln}(\frac{m}{p})$	0	0.86
Equation 5 (shopping)	Lnp1	-0.321	0	Equation 6 (souvenir)	Lnp1	-0.167	0.08
	Lnp2	-0.498	0		Lnp2	-0.498	0
	Lnp3	0.164	0.42		Lnp3	0.271	0.24
	Lnp4	-0.148	0.45		Lnp4	-0.165	0.46
	Lnp5	2.767	0		Lnp5	-0.339	0.09
	Lnp6	-0.528	0.02		Lnp6	2.949	0
	$\mathrm{Ln}(\frac{m}{p})$	-0.001	0		$\mathrm{Ln}(\frac{m}{p})$	-0.001	0

Table (3) also shows the coefficients of Mashhad's tourists demand function with a distance over 1000 km. Similar to the equations of the

preceding tables, it can be concluded that in the equation for each cost, if the price of the other components of the traveler's expense and the ratio of total household travel expenses to the price index increase, the share of the respective cost decreases. According to the first equation, if the price of food, shopping, recreation, and the ratio of total household travel expenses to the price index increase, the share of accommodation in the household expenditure decreases. If the price of accommodation, shopping, souvenir and the ratio of total household travel expenses to the price index increase, the share of food in the household expenditure decreases. If the price of accommodation, food, shopping and souvenir increases, the share of transportation in the household expenditure decreases and, if the price of accommodation, food, souvenir and the ratio of total household travel expenses to the price index increase, the share of recreation in the household expenditure decreases. According to the fifth equation, if the price of accommodation, food, souvenirs and the ratio of total household travel expenses to the price index increase, the share of shopping in the household expenditure is reduced and according to the souvenir equation if the price of transportation and the ratio of total household travel expenses to the price index increases, the share of souvenirs in the household expenditure decreases.

Table (3) shows that the three factors of transportation, accommodation, and shopping have the greatest impact on the cost of tourists traveling over 1,000 kilometers to Mashhad. This group of travelers use public transportation leading to increased cost of transportation. In addition, due to longer distance they stay longer and pay more cost for accommodation.

Table3: The Coefficients of the Tourism Demand Equation by the Distance Dimension over 1000km

Equation	Variable	Coefficient	Prob	Equation	Variable	Coefficient	prob
Equation 1 (accommodation)	Lnp1	1.488	0	Equation 2 (food)	Lnp1	-0.494	0
	Lnp2	-0.634	0		Lnp2	1.27	0
	Lnp3	-0.048	0.82		Lnp3	-0.025	0.90
	Lnp4	-0.644	0.05		Lnp4	-0.179	0.60
	Lnp5	-1.015	0		Lnp5	-0.828	0
	Lnp6	-0.219	0.28		Lnp6	-0.505	0.01

	Ln($\frac{m}{p}$)	-0.001	0		Ln($\frac{m}{p}$)	-0.001	0
Equation 3 (transportation)	Lnp1	-0.085	0.04	Equation 4 (recreation)	Lnp1	-0.043	0.03
	Lnp2	-0.103	0.09		Lnp2	-0.088	0
	Lnp3	3.337	0		Lnp3	-0.007	0.89
	Lnp4	-0.150	0.40		Lnp4	2.222	0
	Lnp5	-0.416	0		Lnp5	0.04	0.41
	Lnp6	-0.347	0		Lnp6	-0.090	0.08
	Ln($\frac{m}{p}$)	0	0.07		Ln($\frac{m}{p}$)	0	0.06
Equation 5 (shopping)	Lnp1	-0.199	0	Equation 6 (souvenir)	Lnp1	-0.073	0.28
	Lnp2	-0.202	0.01		Lnp2	-0.087	0.38
	Lnp3	-0.143	0.32		Lnp3	-0.294	0.1
	Lnp4	-0.288	0.21		Lnp4	-0.309	0.29
	Lnp5	2.695	0		Lnp5	0.049	0.77
	Lnp6	-0.338	0.01		Lnp6	2.11	0
	Ln($\frac{m}{p}$)	0	0		Ln($\frac{m}{p}$)	0	0

Table (4) shows the price elasticity values based on the tourists' distance dimension. In terms of total elasticity, all items are non-elastic and transportation and recreation are less elastic than other items. This means that when the price changes one percent, demand for the goods changes less than 1 percent; this change in demand is negligible for transportation and recreation. In the case of elasticity for tourists, with a distance of up to 500 km, all goods are non-elastic, i.e. when the price changes one percent, demand for them changes less than 1%, that is, these goods are essential. For tourists with a distance of between 500 and 1000km, the items of accommodations, food, transportation, recreation and shopping have low elasticity and souvenir has high elasticity, which means that with a one-percent increase in the price of goods, the demand for it will drop by more than 1%. In the case of distance greater than 1000 km, accommodation, food, shopping, and souvenir are non-elastic, meaning that with one percent increase in the price the demand for goods is reduced by less than 1 percent. However, the demand for two items of transportation and recreation increases as price increases. As regard to transportation, it can be said that tourists

with a greater distance are less able to use a private vehicle and will have to use public transport, leading to increased transportation costs for these households. In terms of recreation, tourists from more distant areas are more likely to use expensive recreations that are not existed in their own city.

Table4: Price Elasticity Values Based on the Distance Travelled by the Tourists

Different classes	Number	accommodation	food	transportation	recreation	shopping	souvenirs
Total	1353	-0.92	-0.93	-0.17	-0.03	-0.84	-0.83
Distance less than 500 km	248	-0.87	-0.76	-0.94	-0.73	-0.88	-0.97
The distance is between 500 and 1000 kilometers	506	-0.82	-0.85	-0.31	-0.03	-0.93	-1.04
Distance more than 1000 km	599	-0.89	-0.85	0.11	0.26	-0.95	-0.95

Table (5) shows the values of income elasticity based on the household size of the tourists. As can be seen, income elasticity of households in all cases is equal to 1, i.e. for every 1% increase in the household income, the demand for the respective goods will increase by one percent.

Table5: Income Elasticity Values Based on the Distance Travelled by the Tourists

Different classes	Number	accommodation	food	transportation	recreation	shopping	souvenirs
Total	1353	1	1	1	1	1	1
Distance less than 500 km	248	1	1	1	1	1	1
The distance is between 500 and 1000 kilometers	506	1	1	1	1	1	1
Distance more than 1000 km	599	1	1	1	1	1	1

Suggestions

- According to the estimation of the price elasticity for all Mashhad tourists in Table 4, it is shown that for all tourists, the items of transportation and recreation are less elastic than other ones, so that the price of these items can be increased more than other ones.
- According to Table 4, recreation for tourists traveling from more distant areas (over 1000 km) to Mashhad is elastic, so these people demand more expensive recreation, which are not existed in their own city.
- According to Table 5 and estimating income elasticity for households, there should be plans for attracting high-income households as with the increase in the household income the demand for goods increases too.
- Since the tourism demand is affected by distance, and the tourists coming from different distances to Mashhad have different needs, planning should be performed for different groups of tourists coming from various distances to Mashhad.
- The tourists coming from longer distances to Mashhad stay longer. Therefore, it is necessary to plan for the establishment of different residential units for attracting these tourists. As a result, the construction of different resident units with an appropriate price can help the longer stay of these people.
- Tourists, who come from a longer distance to Mashhad, often visit the countryside around the city, so their stay can be increased in Mashhad by establishing welfare facilities in these areas.
- In the case of tourists traveling short distances to Mashhad, recreation and entertainment can increase their length of stay and boost tourism.

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