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Estimating the Sensitivity of Foreign Health Tourism Demand to aVariety of Expenditures (In 5 advantageous land management areas)

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Abstract
Iran, as one of the preventive (health) tourism regions and hubs of the world, has potential preventive and health capacities. On the other hand, health tourism brings three times more currency than other areas of tourism, so it is necessary to recognize the factors affecting the attraction of health tourists in different regions of Iran. According to 9 tourist regions in this article, which include region 1 (separately 5 land management regions, which are regions 2 (East Azerbaijan, West Azerbaijan, Ardabil and Kurdistan), region 5 (Fars, Bushehr, Kohgiluyeh and Boyer-Ahmad), region 8 (Yazd, Kerman, Sistan and Baluchestan and Hormozgan), region 1 (Gilan, Mazandaran, Golestan and Semnan) and region 3 (Hamedan, Kermanshah, Lorestan and Ilam) which in terms of health in areas with natural resources and suitable climate Comparative advantage and priority (regions 2, 1, 3, 5 and 8), preventive tourism demand (health) was estimated by the almost ideal demand method. Based on the opinion of 226 preventive health tourists in 5 land management areas, the sensitivity of foreign preventive tourism demand (health) to the effective factors and types of health tourism expenditures is measured. The results in all 5 preventive tourism areas indicate the sensitivity of foreign tourists to various macro factors such as inflation and exchange rates, the amount of personal income can be captured. In addition, the variables of relative prices (exchange rate), transportation and travel costs, medical facilities, standard accommodation, health tourism facilities, accommodation costs, health services prices, cooperation between tourism agencies and medical centers are all It affects the demand of tourists. Also, foreign tourists are highly sensitive to costs and preventive expenses in Iran and less sensitive to other expenses such as transportation and accommodation services and other expenses.

Keywords: Nearly Ideal Demand (NID), Landscaping Areas, Preventive Tourism (Foreign Health)

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1. Introduction

Due to the low cost of providing preventive services in Iran, it is one of the best aspects of economic development and a good opportunity to provide preventive (health) services to tourists and also to create satisfaction in foreign patients coming to the country for treatment to enhance credit. And the economy of the country (Tavkoli & Mohmmadiyan saravi, 2016). Preventive tourism (health) includes any trip for treatment and health operations and as one of the dimensions of tourism, contributes to the sustainable development and dynamism of the country's economy (Izadi et al., 2012), among different areas of tourism, health tourism has received a lot of attention due to its capabilities and competitive advantages, and it is estimated that each health tourist earns three times as much as a regular tourist (Badiei et al., 2017). In addition to these statistics, those who use health services such as yoga, massage, etc., may be added to this statistic. Also, the existence of hot springs and salt domes, salt water lakes and sludge treatment facilities in most of its regions have become part of 41 countries active in the field of world health tourism. So far, more than 350 openings of mineral springs have been identified (Ghafori, 2003) that the quality of most of these springs is good and in this regard, there is a very good potential for the development of water-based health tourism in the country, which requires analysis and planning.(Ebrahimzadeh, 2007). Despite the obstacles and weaknesses such as the presence of competitors in the region, Iran with its specialized doctors, low treatment costs, natural resources and suitable climate, proximity to Arab countries and similar culture and dialect with some neighboring countries have advantages In terms of attracting sick tourists from these countries (Rokni et al., 2010). Iran's share of the health tourism market is small despite its high medical and healthcare capacities. Registration of travel and treatment of 150,000 foreign patients in the system of the Ministry of Health in 2016 with about $ 500 million has been obtained from this place for the country. Global revenue from medical tourism was $ 150 billion, of which Iran's share in 2016 was less than half a percent (Sadat Tayari et al., 2018). In other words, Iran's share of the health tourism market is small despite its high preventive capacity. In order to solve the problem, in this research, the sensitivity of foreign preventive (health) tourist demand to various factors and in general to all types of tourism expenditures are examined

separately in 5 land management areas that have the advantage of preventive and health services. In this study, the effective factors of preventive (tourist) foreign tourist attraction are estimated using the results of the study of perfection and comfort (2019), in the system of simultaneous equations, and to better understand the effect of land management, health tourism demand is estimated based on the 5 seperate planning areas having the health advantage. Of course, it should be noted that there are various studies on the factors affecting medical tourism, but this research has two advantages to them; First, the sensitivity of preventive tourism (health) demand to various expenditures is measured for the first time, and second, the estimation of preventive tourism demand (health) is estimated based on the segregation and land use advantage. Therefore, the main purpose of this study is to estimate the sensitivity of foreign health tourism demand to different types of tourism expenditures by 5 land management areas with a relative preventive advantage.

2. Litrature review

Preventive tourism (health): Welfare or prevention: Travel to health villages and areas with mineral springs and hot springs (spas) to get rid of the stresses of daily life and rejuvenation without medical intervention and supervision (in some cases, sick tourist has no specific sickness) is called health tourism. Health or well-being here is about helping healthy people prevent physical and mental health problems, and may include diagnostic tests. Tourists or guests (not patients) can find out how to reduce their stress, change their eating habits, etc., on the factors affecting the attraction of tourists, especially health tourism, various case studies in different placesof the world is done. However, no comparative work has been found for different regions of a country so that regional planning can be done for this purpose. To determine the variables of health tourism demand functions from the results of Kamali and Asayesh (2019) research based on the study of various theories about tourism demand such as trade theories such as Heckcher-Ohlin theory and the law of gravity at the macro level and theories of tourism demand based on utility at the Microeconomics level such as Lancaster's abstraction patterns (1966 and 1971), Rogge's microeconomic patterns (1973), Sakai (1986), Skeperload (1990) and Becal (1998), Kilmann's demand model (1990),

Witt and Martin's model (1992), Diamond's tourism demand model (2000), economic theory of valuation based on utility model (Miller-1974 Hahnemann-1982), Song and White's model (2000), Ginos et al. Model (2003) and organization model United Nations (2008) was used. For example, in a study conducted by the United Nations, factors such as advanced facilities, high quality and low cost of treatment have been cited as the most important factors in attracting patients in the field of medical tourism (Marwat et al., 2018). The following table summarizes some of the research on the factors affecting the demand for preventive and health tourism that confirm the selected factors:

Table 1. Summary of demand research and factors affecting preventive tourism (health) and other types of health tourism

The main effective indicators	Scope	Year	researcher
Costs and quality of medical services	Iran	2018	Sadat Tayari et al
Economic factors (income and wealth of individuals), price of services and cost of living in the destination, price of accommodation facilities, air pollution, price of alternative products (foreign travel), number of medical centers, hospitals and laboratories.	Iran	2018	Farzin et al
Country-specific characteristics such as economic conditions, political climate and regulatory policies, as well as factors such as official hospital permits, costs, quality of treatment and training of physicians	The United States	2018	Mogaka et al
Cost and price of services, transportation costs and the existence of international standards of hospitals and modernity of medical equipment in the region	East Azarbaijan	2017	Ghasemi Yalquz Aghaj et al
Area medical equipment and information	Aedebil province	2017	Hosseini Nejad and Daryabari
Costs	Mahallat spa	2016	Khadem Al-Husseini and Adham
Costs and possibility of accommodation	Tehran	2016	Gholami
Quality of treatment, cost and advertising programs	Iran	2016	Dehdashti et al
Revenue, expenses and advertising	China	2016	D.G. Leen

The main effective indicators	Scope	Year	researcher
programs			
Quality of treatment, cost and advertising programs	Turkey	2016	Email Star
Individual income and real prices and exchange rates	The United States	2016	Khoshnevis Yazdi and Khan Alizadeh
Cost, advanced technology, high quality service and official license	The United States	2016	Radmanesh[1]
Detailed information about medical tourism	Taiwan	2016	Surge et al
Macro-environmental factors mean economic, social, cultural and technological factors	Litwana	2015	Vitotas et al
Accommodation, government monetary policy and Wuan education system, infrastructure and tourism resources	Lithuania	2015	Sibiskine and Sniskine
Costs, infrastructure and political factors	Azerbaijan	2015	Julius and March
Laws and regulations, infrastructure, cultural and natural resources, degree of international openness and price competitiveness	The United States	2015	Peter et al
Proper infrastructure	Tehran	2016	Gholami
Quality, security, cost, productivity	Yazd	2015	Delberi et al
Income and facilities	The United States	2014	Atkinson
Destination competitiveness, service quality, cost and tourist attitude.	The United States	2014	Sultan et al
Major national and government agents, health and welfare service centers, medical tourism agencies, and marketing and advertising	Europe	2011	Gio Ku
Cost and reputation, facilities of medical centers, accreditation of hospitals, reputation of doctors, opportunities after surgery, culture of the country	Costa Rica	2011	Bristo et al
Political, economic, technological, socio-cultural, demographic and geographical environment	Europe	2011	Manville et al
In addition to cost and reputation, facilities of medical centers, accreditation of hospitals, reputation of doctors, opportunities after surgery, culture of the	Costa Rica	2011	Bristo et al

[1] Radmanesh

The main effective indicators	Scope	Year	researcher
country, dependence of facilities on hospitals in developed countries, lack of some medical services in the country			
Familiarity, availability, cost, quality and rules of bioethics (abortion tourism, fertility and euthanasia) plus the high cost of treatment in the country of origin or its illegality, as well as the desire for common tourist attractions of hotels, favorable weather, food and visits Cultural and historical along with therapeutic processes	The United States	2010	Glinus et al
Destination, medical facilities, quality of medical services, international standard of health care, medical expenses, good communication structure, marketing and advertising, as well as medical staff fluent in different languages	Germany	2010	Hyung et al
Medical innovations, organizational productivity, service quality and cultural connection	Thailand	2010	Virasontoren and Bays
Appropriate structure, cost, quality of medical services and news agencies	Iran	2007	Kazemi

It should be noted that more than 30 factors were extracted (Kamali & Asaysh, 2019). Problems of identifying the appropriate calculation method, statistically insignificant results in previous studies and loss of freedom in estimating the bit of factors affecting the tourist by preventive tourism demand (health) in areas with natural resources and climate Appropriate health, the first 10 factors affecting the demand for preventive tourism (health) in areas with a natural resource system and a climate suitable for health were estimated as follows:

Relative prices (exchange rates)	Accommodation costs
Transportation and travel costs	The cost of health services
Possession of medical capacities	Available personal income
Standard Accommodation Place	Entry and exit regulations and facilities

Establishment of health tourism facilities, cooperation between tourism agencies and medical centers. Finally, the almost ideal demand model was estimated based on this

2.1. The basics of an almost ideal demand system and the calculation of elasticities

An almost ideal demand system was introduced by Raditon and Mulbaier (1980) and then used to analyze consumer behavior. It became the basis of all studies from the 1980s onwards and was used in a variety of fields, including demand theory, international trade, and income distribution. In 1994, Beauzi noted that the ideal ideal demand system model had been used 237 times in 12 years (1980-91), and a review of 207 articles found that it had been used in demand analysis in 89 experimental works. Mir Mohammad Sadeghi & Rezazadeh, 2012). The Dayton and Mulbaier model proposed is known as the static NID model, and then, modifications have been made to it, called the Poole IND model, combined (collective) and inverse. For further study of the dynamic NID patterns to Blansforty and Green (1980), Zpanadiz and Habib (1995) and based on the Convergence Method and the Error Correction Pattern (ECM) to Chambers and Nomen (1997) and Balcombe et al. (1999), Davis and Karagiannis See et al. (2000). (Salem and Niazi, 1396). The static NID model is derived from a specific expenditure function, and based on Lem Shaffard's theorem and performing a series of algebraic operations, the Hicks's budget equation equation and, through it, the Marshall budget equation equation can be derived.

Marshall's *i* commodity budget share is as follows and is known as the static AIDS pattern (SAIDS). (Mir Mohammad Sadeghi et al., 2012)

$$W_i = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} \ln P_j + \beta_i \ln(\frac{X}{P}) \qquad (1)$$

$$j = 1,....,n$$

Where the W_i is budget share of item *i*, P_j is the price of item *j*, X is the total expenditure of health tourism, which is considered as the allocated income of the health tourist. α_i is the width of the origin of the model and γ_{ij} is the coefficient of variation of the price of

commodity *j* and β_i is the equation of the share of commodity i, the coefficient of variable of total expenditure adjusted by the acetone index and *P* is the total price index of translog and is defined as follows:

$$\ln P = \alpha_0 + \sum_{k=1}^{n} \alpha_k \ln P_k + \sum_{j-1}^{n} \sum_{k=1}^{n} \gamma_{kj} \ln P_k \ln P_j \quad (2)$$

$$\ln P^* = \sum_{k=1}^{n} W_i \ln P_i \quad (3)$$

In the above relation P * is the price index of Aston, wi is the budget share of the commodity i and Pi is the price of the commodity i. Using this index, an almost ideal linear demand system is obtained (Mir Mohammad Sadeghi & Rezazadeh, 2012).

Also obtained from the estimated coefficients, the equations of price elasticity of demand and cost elasticity (demand) of demand:

$$\varepsilon_{ij} = -1 + \left(\frac{\gamma_{ij}}{W_i} \right) - \beta_i \qquad i = 1,\ldots,5$$

$$\eta_i = 1 + \left(\frac{\beta_i}{W_i} \right) \qquad i = 1,\ldots,5 \quad (4)$$

Estimating equations in an equation system is almost ideal, using time series data. However, following the research work of Huang and Lin (2000), the use of cross-sectional data is also possible. Some of the uses of the AIDS model are as follows: Dayton and Mulbaier (1980) derived an almost ideal demand system. After introducing their model, they estimated it. The model uses annual UK data for the period 1995-74 for seven groups of goods, including food, clothing, household services, fuel, beverages and tobacco, transportation and

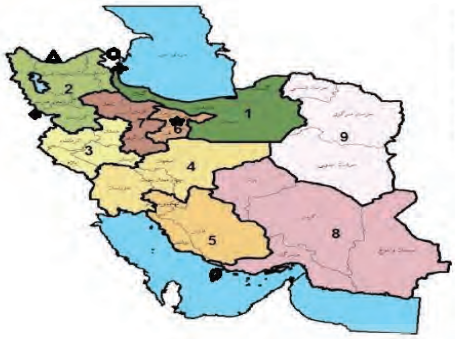
communications, and finally, other goods and services. In the first step, the pattern is estimated using the Stone index for each commodity and separately using the ordinary least squares method. The results of this estimate show that food and clothing are essential goods and other goods are luxury goods. In this estimate, out of 64 estimated coefficients, only 22 coefficients were meaningful. In the second step, the equation-to-equation system was re-estimated assuming homogeneity. The results of the homogeneity test were estimated again. The results of the homogeneity test showed that this hypothesis was not accepted for the four product groups. On the other hand, they observed a consistent correlation in the equations by applying their homogeneity constraint (Salem & Niyazi, 2017). These researchers attribute the rejection of the homogeneity hypothesis to the non-consideration of variables other than prices and total costs that affect the demand function. In the third stage, Dayton and Mulbaier estimate the ideal demand system by applying homogeneity and symmetry constraints. The results of the symmetry test indicate the rejection of the symmetry hypothesis in the model of the almost ideal demand system. The researchers also looked at how close the Stone index is to the actual price index. They emphasize that the closeness of the two depends on the nature of the data and changes in relative prices. They conclude that this model is a powerful tool for testing hypotheses as well as developing a conventional analysis of consumer behavior and have stated that variables other than total costs and current prices affect the function (Mir Mohammad Sadeghi & Rezazadeh, 2012). Manjion et al. (2004) studied the demand of British tourists to visit the islands of Malta, Cyprus and Spain using the AIDS model and data from 1973-2000. The results show that part of the price sensitivities of tourism demand is related to the type of tourist destination. The price elasticity of demand to visit the island of Malta has been considerable. Most revenue elasticities were significant for Cyprus and Spain and negligible for Malta (Salem & Niyazi, 2017). Using an almost ideal demand system, Siriopoulos and Singler (1993) estimate the tourism demand function of the Americas and Western Europe for the Mediterranean countries during the years 1975-92. The main findings of this study indicate that the estimated cost elasticities show a significant difference in tourism demand preferences between

countries of origin and destination. Also, price elasticities of demand indicate the importance of effective prices of countries in determining the allocation of tourism costs of countries of origin to destination countries. (Mir Mohammad Sadeghi & Rezazadeh, 2012) Since it is not possible to have direct interpretations of the parameters of the almost ideal demand system model, so the elasticities must be calculated and then interpreted. Various formulas have been proposed by Calfant (1987), Greene and Alston (1990), Greene (1991), Modafri and Brorson (1993) to calculate price elasticities (compensated and unsettled) and cost elasticities (income) (Salem & Niyazi, 2017).

3. Research method

According to the land use planning measures (2018), there are 9 tourist areas, which are 2 (East Azerbaijan, West Azerbaijan, Ardabil and Kurdistan), 5 (Fars, Bushehr, Kohgiluyeh and Boyer-Ahmad), 8 (Yazd, Kerman, respectively). Sistan and Baluchestan and Hormozgan), Region 1 (Gilan, Mazandaran, Golestan and Semnan) and Region 3 (Hamedan, Kermanshah, Lorestan and Ilam) in terms of health have the advantage and the highest foreign demand for health tourism. To estimate the demand, at this stage in 5 regions, the question of foreign tourists referring to the water treatment and sludge treatment centers of these land management areas that have priority in the field of prevention (health) (due to hot springs and salt domes, Salt lakes and sludge treatment facilities in most of its areas) were surveyed. The highest acceptance of health tourists belongs to Ardabil and West Azerbaijan provinces (region 2), Fars (region 5), Hormozgan (region 8), Gilan (region 1) and Lorestan (region 3) by referring to the relevant customs. Selected, the demographic composition of the sample is as follows. An attempt was made to obtain a sample from the borders related to these provinces, the specifications of the sample are as follows:

Table 2 . maps of the areas receiving the sample of foreign health tourists. Research



نام مرز	تعداد نمونه
مرزهوایی بین المللی امام خمینی (تهران)	۸۸
مرز زمینی آستارا (گیلان)	۲۴
مرز زمینی جلفا (آذربایجان شرقی)	۱۸
فرودگاه کیش (هرمزگان)	۴۶
مرز خسروی (آذربایجان غربی)	۲۴
مرز زمینی بیله سوار (اردبیل)	۲۶
جمع نمونه گردشگر پیشگیرانه در مناطق مناسب گردشگری تندرستی	۲۲۶

منطقه آمایش سرزمین	تعداد نمونه
منطقه ۲	۶۸
منطقه ۵	۴۶
منطقه ۸	۴۶
منطقه ۱	۲۴
منطقه ۳	۳۲
جمع نمونه گردشگر پیشگیرانه در مناطق مناسب گردشگری	۲۲۶

* Collection of questionnaires from the sample took 8 months. Source: Researcher Findings (2018).

3.1. Introducing the preventive tourism demand model

To investigate the relationship between the factors affecting preventive tourism demand from the perspective of tourism experts on preventive tourism demand, we use the following demand model:

$$T_i = a_j + \sum_{j=1}^{4} \gamma_{ij} Lnp_j + \beta_i Ln(\frac{M}{P}) + \gamma_1(ex) + \gamma_2 Ln(income) + \gamma_3(law)$$
$$+ \gamma_4(quality) + \gamma_5(cap) + \gamma_6(coor) + \gamma_7(equip) + \gamma_8(inf)$$
$$i, j = 1,2,3,4$$

where in:

T_1: The share of travel budget allocated to preventive services, T_2: The share of travel budget allocated to accommodation, T_3: The share of travel budget allocated to transportation costs, T_4: The share of travel budget allocated to other travel expenses

P_1:Expenses for preventive services for the duration of receiving services, P_2: Per capita daily expenses of accommodation P_3: Per

capita daily transportation expenses, P_4 other daily per capita expenses, and P : Stone price index

M Total travel expenses

- ✓ ex :exchange rate
- ✓ $income$:
- ✓ law :Entry and exit regulations and facilities
- ✓ $quality$:Quality of accommodation
- ✓ cap :Extent of therapeutic water (sludge) capacities
- ✓ $coor$:The degree of cooperation between travel agencies and centers
- ✓ equip :The amount of health tourism facilities

Also, from the estimated coefficients of the above equations, the price elasticity of demand is calculated using the following equation:

$$\varepsilon_i = -1 + \left(\frac{\gamma_{ii}}{\overline{w_i}} \right) - \beta_i$$

$i = 1,2,3$

Where is the average share of commodity costs *i* in the sample.

4. Results

4.1. Estimating the demand model and Checking the reliability of model variables

In this section, the reliability of the model variables is examined. However, it should be noted that all the data required for this research were collected from the questionnaire, so the data of the observations are cross-sectional data, so the reliability of this type of data is evaluated. But in order to complete and ensure the results of the reliability study are summarized in the table below for Region 2. In all areas, the reliability of the variables was at the level. Therefore, the level values of the variables can be used to estimate the model in different regions.

Table 3. Assessing the level of reliability of the variables of the preventive tourism demand model in land management region 2

Level of reliability	probability level	Test statistics	Variable
I(0)	-0.000	-10.508	T_1 : The share of travel budget allocated to preventive services
I(0)	-0.000	-10.575	T_2 : Share of travel budget allocated to accommodation
I(0)	-0.000	-10.964	T_3 : Share of travel budget allocated to transportation costs
I(0)	-0.000	-10.366	T_4 : Share of travel budget allocated to other travel expenses
I(0)	-0.000	-10.773	LP_1 : Logarithm of the cost of preventive services for the duration of the received services
I(0)	-0.000	-12.173	LP_2 : Logarithm of daily per capita accommodation expenses
I(0)	-0.000	-5.322	LP_3 : Logarithm of daily transportation costs
I(0)	-0.000	-10.995	LP_4 :Logarithm of other daily per capita expenditures
I(0)	-0.000	-11.078	M/P : Logarithm of the ratio of total travel expenses to the Stone Price Index
I(0)	-0.000	-11.646	ex :exchange rate
I(0)	-0.000	-12.930	$Lincome$: Logarithm of income
I(0)	-0.000	-10.854	law : Entry and exit regulations and facilities
I(0)	-0.000	-10.131	$quality$: Quality of accommodation
I(0)	-0.000	-10.185	cap : Extent of water (sludge) healing capacities
I(0)	-0.000	-10.694	$coor$: The degree of cooperation between travel agencies and centers
I(0)	-0.000	-9.957	equip : The amount of health tourism facilities
I(0)	-0.000	-11.159	inf : Inflation

Source: Researchers findings

4-2. Estimating the AIDS model of preventive demand (health)

In this section, the results of estimating the model of region (2) using the data collected from the questionnaire as a sample of 5 regions are presented in the table below.

Table 4. Estimation of the AIDS model of preventive demand (health)

Relationship share of other expenses		**Relationship share of shipping costs**		**The relationship between the share of accommodation costs**		**The relationship between the share of preventive spending**		**Variable**
T test	Coefficient	T test	Coefficient	T test	Coefficient	T test	Coefficient	
-0.389	-0.0071	0.168	0.0002	0.759	0.0139	*-2.322	-0.0071	LP_1
*-5.692	-0.0860	*17.019	0.0200	*3.857	0.0603	*2.182	0.0057	LP_2
0.723	0.0172	*9.154	0.0016	-0.945	-0.0221	0.842	0.0033	LP_3
*5.667	0.0831	*-16.658	-0.0213	*-3.169	-0.0538	*-2.848	-0.0080	LP_4
*-3.380	-0.0303	*-13.67۰	-0.0019	*11.509	0.0212	*3.597	0.0110	M / P
-0.755	-0.0071	-1.127	-0.0008	-0.976	-0.0091	*10.938	0.0170	*ex*
-0.171	-0.0070	-0.339	-0.0010	-0.649	-0.0260	*5.117	0.0340	*Lincome*
1.238	0.0120	-0.200	-0.0002	-1.156	-0.0123	0.227	0.0004	*law*
*2.081	0.0178	0.144	0.0001	*-2.311	-0.0229	*3.027	0.0050	*quality*
-0.926	-0.0051	-0.117	0.0000	-0.012	-0.0001	*5.576	0.0052	*cap*
-0.09	-0.0006	-0.220	-0.0001	0.106	0.0007	0.006	0.0000۱	*coor*

Relationship share of other expenses		**Relationship share of shipping costs**		**The relationship between the share of accommodation costs**		**The relationship between the share of preventive spending**		**Variable**
T test	Coefficient	T test	Coefficient	T test	Coefficient	T test	Coefficient	
-0.365	-0.0020	1.516	0.0007	-0.761	-0.0044	*6.006	0.0058	equip
-1.195	-0.0057	-0.072	0.0000	*2.256	0.0118	*-7.026	-0.0061	i*nf*
0.486	0.3670	0.923	0.0469	0.710	0.4791	0.954	0.1070	Width of origin
66%		91%		50.9%		81%		R^2
15.099		85.93		7.9		33.49		Ftest
1.92		1.82		1.94		1.74		^{2}DW
0.598		0.9280		0.619				Ftest
						1.269		White test

It is statistically significant at the 90% confidence level.Source: It is statistically significant at the 90% confidence level.

As can be seen in the table above, out of the estimated 52 parameters, 23 parameters were significant at the 95% confidence level. They are reliable, so the statistically significant coefficients indicate the sensitivity of tourists' demand to the corresponding variables of significant coefficients such as price, expenses, exchange rate, inflation, etc. In other words, the significance of price coefficients for goods and services indicates that the government can use these variables as a tool to achieve its economic goals in order to strengthen preventive health tourism. In this regard, the value of R2 due to the cross-sectional nature of the data indicates that the model shows the dependent variable changes well. Regarding the F-statistic, which is a criterion for the significance of the whole regression, it should be

noted that the values obtained for this statistic indicate the significance of the total regression.

Table 5. Estimating the price elasticities of the AIDS model of preventive demand (health)

Other goods and services	Transportation	residence	health Service	Service or goods
-0.59417	-0.904634	-0.70876	-1. 02698	Price elasticity in region 2
-0.60432	-0.92389	-0.59976	-1. 15698	Price elasticity in region 5
-0.73413	-0.89327	-0.71176	-1. 09253	Price elasticity in region 8
-0.63987	-0.81236	-0.70083	-1. 00995	Price elasticity in region 1
-0.60915	-0.887710	-0.69548	-1. 07520	Price elasticity in region 3

Source: Researcher calculations

5. Discussion and conclusion

The results show that the exchange rate has a significant and positive effect on the demand for preventive health tourism, which indicates that the devaluation of the national currency strengthens foreign health tourism. The findings of the present study are consistent with the results of calligraphic studies by Yazdi and Khan Alizadeh (2016), Habibi (2015), Taghavi and Qalipour Soleimani (2009) and Montinho et al. (2008) regarding the impact of exchange rates on tourism. The results indicate that the inflation rate has a significant and negative effect on the demand for preventive health tourism, which indicates that reducing the purchasing power of money and increasing prices will weaken foreign health tourism. Findings of the present study with the results of research by Mosaei (2004), Farzin and Gol Laleh (2009), Aghajani and Farahanifard (2015), Ghasemi Yalghuz Aghaj et al. (2017), Mohammadi et al. (2010) and Young et al. (2012) Consistent with the impact of inflation on tourism. Findings of the present study with the results of research by Mogaka et al. (2007), Kazemi (2007), Ghasemi Yalghuz Aghaj et al. (2017), Yi et al. (2008), Hyung et al. (2010) and Bristo et al. (2011) regarding The Impact of the growth of the health sector and its facilities on tourism is consistent.

Based on the results of estimating the almost ideal demand model of preventive health tourism, it was found that according to the variable coefficient of tourists' opinions, an increase in the exchange rate will increase the demand for preventive health services. Of course, this result is not unexpected based on trade theories such as the Heckcher-Ohlin theory and the law of attraction, because the increase in the exchange rate in Iran somehow reduces the price of health services for foreign tourists because with a fixed budget to money The national of the tourist country of origin can find more services by increasing the exchange rate and conversion in Iran. In fact, this has led to cheaper domestic goods in Iran for foreigners, which is one of the tourist attractions according to the law of attraction. Based on the results of estimating the almost ideal demand model of preventive health tourism, it was found that according to the variable coefficient of tourists' opinions, increasing inflation reduces the demand for preventive health services. And the law of attraction is not unexpected because the increase in inflation in Iran will somehow increase the price of health and medical services for foreign tourists, and in fact this will lead to more expensive Iranian domestic goods for foreigners and also increase the relative price. Preventive services (health) in Iran compared to similar services in tourist countries of origin. As a result, the increase in inflation in Iran reduces the traction and thrust factors for choosing Iran for foreign tourists according to the law of attraction and also reduces Iran's comparative advantage according to the Heckcher-Ohlin theory. Based on the results of estimating the almost ideal demand model of preventive health tourism, it was found that due to the variable coefficient of tourists' opinions, increasing the amount of water (sludge) treatment capacity increases the demand for preventive health services. According to the studies and the results of this study, it is recommended to future researchers:

Design similar models for other areas of tourism to examine and analyze the positive and negative effective factors simultaneously in the form of a system. They can also develop the proposed model with other techniques, including structured methods and other methods, because the development of tourism and the factors affecting it is an issue influenced by unknown factors, and structural models based on covariance are a good solution for such problems.

According to the studies and the results of this study, it is suggested:

- Considering the existing capabilities and potentials, in order to develop health tourism in Iran, we must pay more serious and fundamental attention to health tourism and through more and more effective investment and pursuing long-term and comprehensive programs in the field of health. Therapeutic water (sludge) capacities and standard accommodation and the creation of health tourism facilities have paved the way for the development of health tourism and we can achieve a significant share in this field.
- Health tourism in Iran, despite the low price compared to other countries, due to the lack of proper advertising in the field of capacity and proper information of hospitals in the field of medicine has not yet found its place in the market and is taking the first steps. Therefore, appropriate advertising in this field can play an effective role in attracting health tourism.
- Considering the effect of relative prices (exchange rate), transportation and travel costs, accommodation costs and the cost of health services on tourism demand, prevention and the effect of relative prices (exchange rates), accommodation costs, treatment costs and service prices, development and increase domestic services at a lower cost than foreign competitors by the government.
- For tourism to become more dynamic, it is necessary to focus on four vital aspects of tourism, namely quantitative tourism (with the possibility of paying in the country's currency, services and visa duration, security for tourists, communication channels with Iran and advertising programs), quality tourism (Such as improving the quality of life services provided to tourists through the attitude and welcome of the Iranian people and branding and advertising to attract health tourists, services and visa period, regulations and facilities for entry and exit and waiting time to receive services), formal tourism (Such as ease of travel, political and communication conditions with Iran, the existence of accommodation facilities) and tourism content affairs (such as the possibility of follow-up and consultation after returning to the country) to pay attention at the same time.
- Considering the effect of the quality of standard accommodation in health tourism, conducting a study and identifying the needs and demands of tourists regarding the quality they are considering and

providing appropriate travel facilities for them should be given priority.

- Given that the price elasticity of preventive tourism demand is greater than one while the price elasticity of other goods and accommodation services is less than one, the government can impose a tariff or tax on other tourism services to subsidize resources to reduce prices. Provide medical and preventive services for foreign tourists in order to increase the demand for foreign health tourism and, in turn, provide economic development and growth in the regions and provinces of the country.
- Improve diplomatic relations with other countries, especially neighboring countries and European countries, to facilitate the entry and exit of health tourists and also increase their visa duration to increase the number of foreign tourists.
- The Ministry of Culture and Islamic Guidance should prepare documents on the capacities of health and preventive health services in the provinces and publish them on English-language overseas networks.
- To facilitate and develop tourism by concluding international trade agreements with countries targeted to attract tourists, it is possible to pay and receive services with the national currency of those countries.

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