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A study of Foreign Tourism Demand for Iran Destinations: Short-and –long run Elasticity Estimates

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Abstract. This study aims to examine the determinants of travel demand to Iran. To this end an autoregressive distributed lag model is used to estimate the short- and long-run relations in the period 1965-2005. The short-and –long run elasticity estimates indicate that per capita income of European countries and transportation costs, Iran's development index, social and political conditions are the most important determinants of foreign tourism demand. The results also show that the error correction coefficient has the appropriate sign and is statistically significant. This coefficient indicates that the deviation of the tourism demand from its long-run equilibrium level is slowly corrected each year.

Keywords: Iran, foreign tourism demand, ARDL, ECM

JEL Classification: L83

1. Introduction

Tourism is extremely important for economic development through its effects on employment, exports, generation of tax income and by promoting world peace (Eilat and Einav, 2003). This industry has traditionally been an important contributor to Iran's economy. However, this industry has experience a poor performance over the last years. This study is to provide a new insight into this issue by investigating the main determinants for foreign tourism demand. For this purpose a long time series dataset over the period 1965-2005 is used to analysis the Short-and –long run impacts of economic factors of tourism arrivals to Iran.

2. Methodology and Model

To analyze the economic determinants of tourist arrival in a country, empirical studies have utilized heavily the consumer theory in microeconomics which suggests that the level of consumption depends on the consumer's income, the price of the good or service under consideration, the prices of related goods and other demand shifters (Munoz, 2003). Consequently, income and prices are the most frequently used variables as determinants of tourism demand.

Moreover, the sensitivity of demand of international travel also depends on the nationality of the tourists and the specific destination involved. Thus, demand-elasticity for international tourism differs by country-of-origin and country-of-destination.

The demand of tourism can be estimated by using various methods (Hanly and. Wade, (2007)). As Lee (1996) pointed out, these methods can be divided into three broad groups: (1) those that focus on time-series modeling, (2) those that focus on structural econometric models and (3) the combined technique.

Identifying the dependent and independent variables is one of the important issues to estimate a tourism demand function. Lim (1997) summarizes some of the variables used in the analysis of tourism demand since the 1960s. As dependent variable, tourist arrivals and/or departures is the most popular one (used in 51% of studies), followed by tourist expenditure and/or receipts (49% of studies). The number of overnight stays and the average length of stay have also been used as dependent variable, but much less frequently. Based on the above theoretical framework, various explanatory variables can be utilized to explain the behavior of the dependent variable. Income, which affects the ability to pay, consumer price index as a proxy for relative prices of goods and services purchased by tourists in the destination and exchange rate are the most popular independent variables.

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In this study we use the combined method to gain the benefit of each approach. To this end we use the model below:

$$Ltn = C + Lye + Lyi + Lrer + Lapi + Dw + Dr + u_t$$

Where Ltn is the number of international tourist arrivals, Lye is the real per capita income on the origin (European) countries, Lyi is the development index of Iran proxied by real Iran's per capita income, $Lrer$ is the exchange rate, $Lapi$ is the aviation transportation index as a proxy for the price of goods and services purchased by tourists in Iran, Dr and Dw are respectively, two dummy variables included in the model to pick up the effects of the revolution and the war on the demand of tourist which are expected to have negative signs. In this mode the first three explanatory variables are expected to have positive signs while $Lapi$ is expected to have a negative effect on the demand.

To estimate this model, the Autoregressive Distributed Lag (ARDL) approach is used for a dataset over the period 1965-2005. To test the stationary of the time series, the augmented Dickey Fuller tests were performed.

3. Results

ARDL analysis is based on the interpretation of three equations: Dynamic equation, Long-run equation and Error-correction equation. Table (1) shows the results from Dynamic equation. Having estimated the dynamic equation, to ensure the presence of long-run relation Benerji- Dolado and Master test has been used. The calculated *t* is -5.5, which is greater than the critical absolute value of Benerji- Dolado and Master (-4.05). So, the null hypothesis is rejected and the existence of long-run relation among the variables is realized.

Table1: Results from estimating dynamic model of ARDL

Regressors	Coefficient	Standard error	t (p-value)
Ltn(-1)	0.769	0.042	18.003 (00)
Lye	0.924	0.474	1.95 (0.05)
Lyi	0.323	0.238	1.35 (0.18)
Lrer	0.194	0.146	1.33 (0.192)
Lapi	-0.168	0.036	-4.62 (00)
Dw	-0.52	0.126	-4.11 (00)
Dr	-1.30	0.236	3.05 (0.004)
C	8.22	7.47	1.10 (0.28)
R^2= 0.958 Serial Correlation = 6.92 (0.09) Functional Form = 4.20 (0.04) Heteroscedasticity = 3.76 (0.052)			

The results summarized in table (2) indicate that the per capita income of European countries has significant effect on the tourism arrival in Iran. The estimated coefficient provides the income elasticity which shows the expected signs. i.e. 1% increase in per capita income of European countries would lead to increase the tourist arrival to Iran by 4.01% which mean travel to Iran is a luxury good in European views. The development index shows the expected sing but is just significant at 10% level of significance. The real exchange rate is insignificant in the standard level of significance. The coefficient of the price index is found to be strongly significant with elasticity of 0.73 suggesting 1% increase in the price of goods and services purchased by tourists in Iran would cause the tourism demand to decrease 0.73 percent. The dummy variables for the revolution and the war events have negative and significant impacts on foreign tourists indicating that any social and political disorder has a negative effect on the foreign tourism demand.

Table 2: Result from estimating the long-run relation

Regressors	Coefficient	Standard error	t (p-value)
Lye	4.01	1.87	2.14 (0.04)
Lyi	1.40	0.80	1.74 (0.09)
Lrer	0.84	0.58	1.43 (0.16)
Lapi	-0.73	0.16	-4.36 (000)
Dw	-2.25	0.58	-3.83 (0.001)
Dr	-5.68	2.31	-2.45 (0.02)
C	35.71	29.2	1.22 (0.23)

An error correction model (ECM), are estimated to explain the short-run tourism demand elasticities from abroad to Iran. The findings, which are summarized in table (3), show that the estimated coefficients of model in short run are less than the estimated coefficients in long run. The results illustrate that the short-run changes in all explanatory variables apart from one are significant. It can be seen that the per capita income of European countries has the short-and –long run effects on the tourism demand in standard level of significance. Moreover, the dummy variables show negative and significant impacts on foreign tourists.

Table 3: Result from estimating ECM

Regressors	Coefficient	Standard error	t (p-value)
dLye	0.924	0.47	1.95(0.05)
dLyi	0.323	0.23	1.35(0.18)
dLrer	0.194	0.14	1.33(0.19)
dLapi	-0.168	0.03	-0.46(0.64)
dw	-0.52	0.12	-4.11(000)
dr	-1.30	0.23	- 5.54(000)
dc	8.22	7.47	1.1 (0.28)
ECM(-1)	-0.23	0.08	-2.78 (0.009)

The results also show that the error correction coefficient denotes the appropriate sign and is statistically significant. It indicates that 0.23 of deviation of the tourism demand from its long-run equilibrium level is corrected each year, which is a relatively slow adjustment rate.

4. Conclusion

The purpose of this paper was to determine the factors contributing to foreign tourism demand for Iran destinations. The analysis covered a long time horizon to test the short– and long –run relationship between the foreign tourism demand and its determinants using an ARDL model. The long-run elasticity estimates indicated that the foreign tourism demand is highly income elastic. The findings also showed that the Iran's development indicator and transportation costs also have significant expected impacts on the tourism demand while the real exchange rate does not have any statistically significant impact on foreign tourism demand.

We also estimated short-run coefficients and ECM coefficient that provides the feedback or the speed of adjustment whereby short-run dynamics converge to the long-run equilibrium path in the model. The results indicate that the per capita income of European countries and the transportation costs do have significant impacts on foreign tourism demand in short run, but less than in long run and the speed of adjustment is slow.

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