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Iranian Tourism Demand for Malaysia: A Bound Test Approach

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Abstract

This paper investigate Iranian tourism demand to Malaysia using the recently developed autoregressive distributed lag (ARDL) 'Bound test' approach to cointegration for 2000:Q1 to 2013:Q4. The demand for tourism has been explained by macroeconomic variables, including income in Iran, tourism prices in Malaysia, tourism price substitute, travel cost and trade value between Iran and Malaysia. In addition, three dummy variables, namely September 11 terrorist attack in 2001, the outbreak of SARS in 2003 and increase exchange rate in 2011 are also included. The results show that a long-run relationship exists between variables. Iranian tourist arrivals to Malaysia are positively influenced by Lag dependent variable (word of mouth), tourism price adjusted by exchange rate, tourism price substitute and trade value. Iranian tourists seem to be highly sensitive to the price variable. Also, ever since the September 11 attack, Malaysia has become an oasis for tourists from the Middle East (Iran) as it is able to provide a safe haven for Muslim tourists as an alternative destination.

Keywords: ARDL, Cointegration Analysis, IRAN, Tourism Demand.

1. Introduction

Tourism has emerged as one of the major industries in the world economy. The importance of this sector can be manifested from the fact that it increases earnings, creates employment opportunities, encourages the private sector and develops infrastructure (Abdul Jalil et al., 2013). Tourism stimulates other economic industries by direct, indirect and induced effects. In addition tourism is an important factor in the diffusion of technical knowledge, stimulation of research and development and the accumulation of human capital (Chou, 2013).Over the past six decades, tourism has experienced continued expansion and diversification, to become one of the largest and fastest-growing economic sectors in the world. Between 2010 and 2030, arrivals in emerging destinations (4.4 percent a year) are expected to increase at twice the rate of those in advanced economies (2.2 percent a year).

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According to World Tourism Organization (2015), the number of international tourist arrivals has increased from 25 million globally in 1950, to 278 million in 1980, 527 million in 1995, and 1133 million in 2014. Also, international tourism receipts earned by destinations worldwide have surged from US$ 2 billion in 1950 to US$ 104 billion in 1980, US$ 415 billion in 1995 and US$ 1245 billion in 2014 (WTO, 215).The number of international tourists in the world will increase to 1.8 billion by 2030, while tourism receipts will reach some US$200 billion. The world travel and tourism council (WTTC) expects that travel and tourism continues to be one of the world's largest industries. In 2013, it contributed to 9.5% of global GDP and accounted for 265 million jobs. Over the next ten years, this industry will bring it to 10.3% of global GDP and it is anticipated that it will account for 346 million jobs (WTTC, 2014).International tourist arrivals increased by 4.3 percent and record 1133 million worldwide in 2014. International tourism receipts reached US$ 1245 billion worldwide in 2014, up from US$ 1197 billion in 2013. According to WTO by UNWTO region, prospects for 2015 are strongest for Asia and the Pacific and the Americas (4 to 5) percent, followed by Europe (3 to 4) percent, Africa (3to 5) percent and the Middle East (2 to 5) percent (WTO, 2015).

Before its dependence in 1957, the Malaysian economy was heavily dependent on primary commodities mainly tin, rubber, palm oil and petroleum products. Tourism industry effects positively on the economy besides an increase in foreign exchange earnings, and employment opportunities. The Malaysian government has serious attention to develop tourism industry after decrease in oil and the world economic recession in the middle of the 1980s. The Ministry of Culture, Arts and Tourism had established in 1987 and later upgraded it to the Ministry of Tourism in 2004 (Habibi et al., 2009). The government was also allocated amount of fund to tourism industry besides providing sufficient basic infrastructure. In 2006,tourism Malaysia received 30 percent more funding for advertising and other promotions in preparation for Visit Malaysia Year in 2007 (Ganesan, 2005).Therefore, Tourism has become a common development focus for many countries. Malaysia is one of the top tourist destinations in the Asia pacific region with a fast growing tourism industry.

Tourism is one of the largest earning sectors of Malaysia. Tourism industry effects positively on the Malaysian economy for increasing foreign exchange earnings, and employment opportunities. Malaysia is one of the top tourist destinations in the Asia pacific region with a fast growing tourism industry. The country has endless stretches of white sandy beaches, including some 700 kilometers of almost deserted coastline on the east coast of peninsular Malaysia and literally hundreds of tropical islands away from the popular, traditional circuits. It is an ecotourist's paradiseboasting 19

national parks, jungles, hill resorts and Southeast Asia's highest mountain, Mount Kinabalu in the East Malaysia state of Sabah. In addition it is a harmonious blend of centuries-old cultures, arts and traditions, and of multi-racial and multi-ethnic communities (Ministry of Tourism Malaysia, 2014).

Also in Asia and the Pacific region Malaysia was ranked as the second place with 10.5 percent of market share after china (WTO, 2013).Since 2000, Malaysia has improved its tourist position from the 17thmost visited destination in the world to the 10th in 2012 (WTO, 2013). Malaysia received more than 25 million international tourist arrivals and 2500 million US$ tourism receipts in 2012. According to the World Travel and Tourism Council (WTTC, 2014), Malaysian travel and tourism industry is expected to contribute about 16.1 percent (US$ 32.3 billion) to the Gross Domestic Product (GDP) forecasted to be 17.3 percent in 2024. The contribution of this industry to total employment was about 1,857,500 jobs (14.1 percent of total employment) in 2013 forecasted to be 2,648,000 jobs (15%) in 2024.

Figure 1 illustrates the Iranian tourist arrivals to Malaysia during 2000-2013. In 2000, the total Iranian tourist arrivals to Malaysia were 4.5 thousand and increased to 72thousand in 2014 at an average annual rate of 35 percent. The highest annual growth rate in Iranian tourist arrivals to Malaysia was recorded in 2001 (232.6%) and 2008 (132%), due to the elimination of 11 September Attach and the end of Visit Malaysia Year (VMY) in 2007.

Ever since the September 11 attack, Malaysia has become an oasis for tourists from the Middle East as it is able to provide a safe haven for Muslim tourists as an alternative destination (Midetranain and Western Europe) during their hot and humid summer months (Hamzah, 2004). For January–September 2008 period, the mass of tourist arrivals to Malaysia was record from the Southeast Asia region by 74 percent. Between 2007 to September 2008, the biggest increase was recorded by the arrivals of the Iranian tourists, which grew by 62.3 percent, but they dropped by -38.5 percent due to the subsidy reform in 2010 and increase in exchange rate in 2011. Malaysia is a moderate Muslim country of south-east Asia. There are a lot of Islamic infrastructures, mosques, Islamic heritage sites in Malaysia. This country also has attractive Muslim cultures and customs. So, the country may be an Islamic tourism destination in the world. Tourism Malaysia has introduced the country as a safe destination with a familiar culture which is able to cater to Islamic travelers in the country (Namin, 2012).

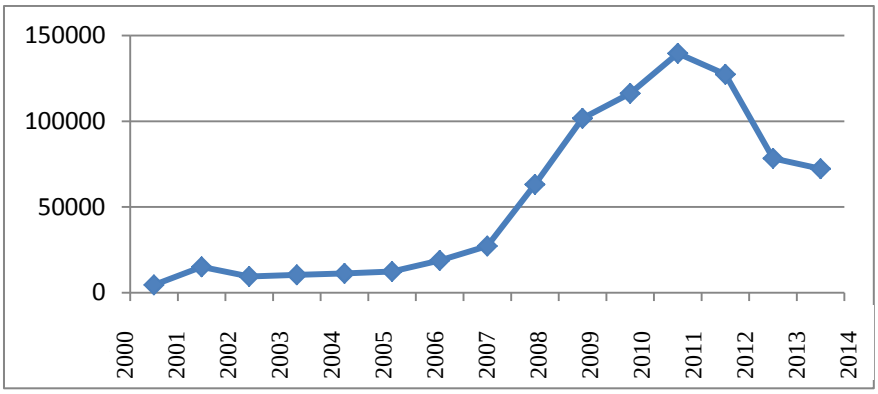

Figure 1. Iranian Tourist Arrivals to Malaysia, 2000-2014

Malaysia as one of the major exporters in education tourism industry, is parallel with its vision to become an international center of excellence for education beyond year 2020. Currently, there are 20 public universities, 33 private universities and university colleges, 4 foreign university branch campuses, 27 polytechnics, 59 community colleges and about 500 private colleges. The increasing numbers may also contribute to the assimilation of cultures and civilization among the foreign and local students. Indirectly, there will be closer relationships between Malaysia and other countries especially Muslims countries (IRAN). Today, Malaysia already has a varied international student population of more than 70,000 from countries such as China, Indonesia, Iran, Maldives, Nigeria, Sudan, Yemen, Thailand, Saudi Arabia and many more. The number of Iranian student in Malaysia was record 14000 in 2012. Its market share for international students was ranked 11th in the world as a destination among international students (Hisham and Norzaidi, 2009).

Tourism industry is very important to the Malaysian economy and is identified as one of the major sources of economic growth. Therefore serious attention should be given in studying the factors that affect international tourist arrivals to Malaysia. This study is unique in the sense that it Investigate of Iranian tourism demand for Malaysia for the first time. Therefore, to bridge this gap this study used Autoregressive Distributed Lag (ARDL)' Bound test approach using Quarterly data for the period of 2000-2013. The objective of this paper is to identify and estimate the income, tourism price, tourism substitute price, travel cost, and trade value elasticities of the Iranian tourism demand to Malaysia both in the short-run and long-run. The remainder of this paper is organized as follows: literature review on tourism demand is presented in Section 2. Section 3 explains methodology, model specification and the data used for Iranian tourism demand analysis for Malaysia. Section 4 presents the empirical results and finally policy implication and conclusion are presented in section 5.

2. Literature Review

According to standard economic theory, the most important factors influencing the demand for consumer goods are consumers' income, price of the goods and price of substitute goods. Tourism demand represents the set of goods and services that tourists acquire during a specific period of time of their permanence in the destination country. In general, the literature on modeling tourism demand focuses on analysis of the effects of the various determinants of tourism demand. A large number of empirical studies on international tourism demand are found in the literature and are divided into two main categories. The first category consists of studies that estimate the determinants of international tourism demand using classical multivariate regressions. See for example, Lim (1997, 1999), Crouch (1994, 1995), and Witt and Witt (1995). The second category includes of studies that use modern time series and cointegration techniques. See, for example, Ouerfelli (2008), Kulendran and Drivisekera (2007), Li et al. (2006), Dritsakis (2004), Narayan (2004), Song et al. (2003), Kulendran and Witt (2001), and Wong (1997). Most of the existing empirical studies have used tourist arrivals/departures (Ouerfelli, 2008; Mervar, 2007; Dritsakis, 2004) and tourism receipts/expenditures as dependent variables (Hanly and Wade, 2007; Algieri, 2006; Mervare, 2002). The number of overnight stays and the average length of stay have also been studied, but much less frequently (George and Hyndman; 2007; Tresa Mounoz, 2007).

There exist a wide variety of studies on the modeling of tourism demand. These studies can be classified roughly into those that use single equation estimation techniques and panel data studies. A large number of empirical studies on international tourism demand use single equation estimation. Among single equation techniques, the most popular is log–linear analyses (e.g. Algieri, 2006; Dritsakis, 2004; Hanly and wade, 2007). According to this literature, the main dependent variable is tourist arrivals. Some studies have used tourism expenditure (Chen and Chang, 2012; Divisekera, 2010; Rudez, 2008). In particular, Divisekera (2010) and Meyer (2013) found that relative prices and real income are the main determinants of tourism expenditure. They discovered that tourism expenditures are highly sensitive to income, but less sensitive to price levels; tourists cut back most of their tourism expenditures when prices increase.

As mention earlier, there are a few studies that have considered the number of tourist nights spent in the destination country (Athanasopoulos and Hyndman, 2008; Crouch, 2000; Tresamounz, 2007). In particular, Athanasopoulos and Hyndman (2008) used the number of nights spent in the destination based on the main purpose of visitor's travel: holiday, visiting friends and relatives, business and so on. The results indicated that the growth of GDP and 2000 Sydney Olympics had a positive and statistically significant effect on business travel in December Quarter of 2000. The dummy variable for the Bali 2002 bombings captures a negative and

statistically significant result for visiting friends and relatives more than before. Lim (1997a) notes that a major weakness of these single equation models is that they take into account the factors that affect tourism demand in a particular country only. Cross-elasticities can thus be obtained only when a system of equations is employed.

Additionally, in terms of methodology, more recent studies evaluating a variety of tourism markets often use panel data techniques (e.g., Massidda and Etzo, 2012; Rodríguez, Martínez and Pawlowska, 2012; Saayman and Saayman, 2004; Sequeira and Nunes, 2008; Tresamounz, 2007; Yang et al., 2010) because of the availability of the data.

Rodríguez et al. (2012) investigate the term academic tourism to describe such a form of tourism using a generalized method of moments (GMM). The results imply that academic tourism depends mainly on determinants that are not strictly economic; namely, the importance of the habits and preferences of foreign students (which are generated every year by various means, such as agreements between universities, the reputation of the institutions receiving these students, or word-of-mouth), the ease of mobilization of Erasmus programme and the differential attractiveness of the University of Santiago de Compostela. Massidda and Etzo (2012) investigate the main determinants of Italian domestic tourism demand using GMM panel data. The results indicated that southern tourists appear more responsive to income variations, and less sensitive to price differentials than their northern counterparts. In addition, southern tourists seem to be more influenced by environmental attributes while northern tourists are more sensitive to cultural activities.

Saayman and Saayman (2004) also suggest all the advantages of a larger number of observations; that is, more informative data, less multicollinearity, more degrees of freedom and more efficient estimates. Naude and Saayman (2005) investigated the impact of income, relative prices, air travel cost, infrastructure, marketing, political stability, personal safety, geography and health of tourists on tourism demand in 43 African countries using GMM. The results indicate that there is a positive relationship between tourist arrivals and level of development in a country (as measured by the urbanization rate). Furthermore, health risks (Malaria) and tourism infrastructures (hotel capacity) are tough determinants of tourism in Africa.

Mohd Salleh et al. (2007) examined the long-run and short-run relationships between tourist arrivals to Malaysia and income, tourism price, travel cost, substitute tourism prices, and exchange rates from Singapore, Hong Kong, Japan, and Australia during the period 1970-2004 using the bound test approach to cointegration within the autoregressive distributed lag (ARDL) model. Lean and Smyth (2008) used univariate and panel Lagrange multiplier (LM) unit root tests to examine the converging tourist arrivals from Singapore, Thailand, Indonesia, Japan, China, Brunei, Taiwan, the UK, Australia and the USA during the period January 1995 to December 2005.

3. Methodology and Data

The model constructed is based on the classical economic theory which supposes that total Iranian tourist arrivals to Malaysia are determined by the lagged Iranian tourist arrivals to Malaysia, level of income, tourism price, travel cost, tourist substitute piece, trade value, and dummy variables. In investigating Iranian tourism demand to Malaysia the following function is used:

$$\begin{aligned} \ln TA_t &= \beta_0 + \beta_1 \ln TA_{t-1} + \beta_2 \ln Y_t + \beta_3 \ln TP_t + \beta_4 \ln TC_t + \beta_5 \ln TPS_{j,t} \\ &+ \beta_6 \ln TV_t + \beta_7 D01 + \beta_8 D03 + \beta_9 D11 + \varepsilon_{it}, \end{aligned} \quad (1)$$

where $\ln TA_t$, $\ln TA_{t-1}$ are the logarithm of tourist arrivals from Iran to Malaysia at time t and time t-1 respectively; $\ln Y_t$ is the logarithm of GDP per capita in Iran at time t; $\ln TP_t$ is the logarithm of tourism prices (relative prices) at time t; $\ln TC_{i,t}$ is the logarithm of travel coast between Malaysia and Iran at time t; $\ln TPS_{j,t}$ is the logarithm of tourism price in substitute destination at time t; $\ln TV_{i,t}$ is the logarithm of trade value between Malaysia and Iran at time t; D01 is the dummy variable with a value of 1 for the September 11 attacks in 2001:Q4, and is 0 otherwise; and D03 is the dummy variable with a value of 1 for the SARS crisis in 2003:Q2, and is 0 otherwise; D11 is the dummy variable with a value of 1 for the increase in exchange rate in Iran in 2011:Q3, and is 0 otherwise.

Pesaran et al. (2001), Pesaran and Pesaran (1997), and Pesaran and Shin (1997) have developed cointegration technique known as the 'Autoregressive Distributed Lag (ARDL)' Bound test. The ARDL bound test approach has several advantages over the Johansen's cointegration method following: First the ARDL model its ability to detect long-run relationships and solve the small sample size problem. Second the ARDL approach can be applied irrespective of whether the underlying regressors are purely first orderintegrated, I(1), purely zero orderintegrated, I(0), or a mixture of both. Third advantage is in ARDL, one can include dummy variable in the cointegration test process.

The analysis of error correction terms and lag difference terms can test both short-run and long-run relationships between variables. Also, the ARDL model is an unrestricted error correction model, whose error correction factors for previous periods lack restrictions. Therefore, this paper applies bounds' tests to examine whether there is a long-term equilibrium among the number of inbound tourists from Iran to Malaysia, macroeconomic variables, and dummy variable. The selection of the appropriate number of lag terms is based on the Akaike Information Criterion (AIC).

To execute the ARDL approach requires three steps. First we have estimate of ARDL equation by using Ordinary Least Square (OLS) method. The second step is to examine the null hypothesis (of no cointegration)

against the alternative hypothesis (there is cointegration) between all variables by using Wald- coefficient or F-test with the respective critical values tabulated by Narayan (2005). In the next step, we estimate the short run and long run elasticities. An ARDL representation of Equation (1) is formulated as follows:

(2)

$$\Delta \ln TA_t = \beta_0 + \sum_{i=1}^{n1} \beta_1 \Delta \ln TA_{t-1} + \sum_{i=0}^{n2} \beta_2 \Delta \ln Y_t + \sum_{i=0}^{n3} \beta_3 \Delta \ln TP_t + \sum_{i=0}^{n4} \beta_4 \Delta \ln TC_t + \sum_{i=0}^{n5} \beta_5 \Delta \ln TPS_{j,t} + \sum_{i=0}^{n6} \beta_6 \Delta \ln TV_t + \beta_7 D_{01} + \beta_8 D_{03} + \beta_9 D_{11} + \lambda_1 \ln TA_{t-1} + \lambda_2 \ln Y_{t-1} + \lambda_3 \ln TP_{t-1} + \lambda_4 \ln TC_{t-1} + \lambda_5 \ln TPS_{j,t-1} + \lambda_6 \ln TV_{t-1} + \varepsilon_{1t}$$

where Δ is the first-difference operator, n1-n6 are the lag lengths based on the AIC. From the first part of Equation (2), β_1, β_2, β_3, β_4, β_5, β_6, β_7, $\beta_8$and $\beta_9$represent the short run dynamics of the model, where as in the second part, λ_1, λ_2, λ_3, λ_4, λ_5 and λ_6 represent the long-run relationship. From the estimation of UECMs, the long-run elasticities are the coefficient of the one lagged explanatory variable divided by the coefficient of the one lagged dependent variable. For example, in (2), the long-run income and Tourist price elasticities are (β_2/ β_1) and (β_3/ β_1), respectively. The short-run effects are captured by the coefficients of the first-differenced variables in Equation (2).

The ARDL model takes the error correction term into account in its lagging period. The error correction and autoregressive lag analyzes fully cover the long-run and short-term relationships of the tested variables. Since the error correction term in the ARDL model does not have restrictive error corrections, ARDL is an unrestricted error correction model (UECM). A general error correction representation of Equation (2) is formulated as follows:

(3)

$$\Delta \ln TA_t = \beta_0 + \sum_{i=1}^{n1} \beta_1 \Delta \ln TA_{t-1} + \sum_{i=0}^{n2} \beta_2 \Delta \ln Y_t + \sum_{i=0}^{n3} \beta_3 \Delta \ln TP_t + \sum_{i=0}^{n4} \beta_4 \Delta \ln TC_t + \sum_{i=0}^{n5} \beta_5 \Delta \ln TPS_{j,t} + \sum_{i=0}^{n6} \beta_6 \Delta \ln TV_t + \beta_7 D_{01} + \beta_8 D_{03} + \beta_9 D_{11} + \gamma EC_{t-1} + \mu_t$$

where γ is the speed of the adjustment parameter, and is expected to be negative. This parameter indicates how fast the current differences in tourist arrivals respond to the error correction term disequilibrium in the previous period. EC represents the residuals obtained from the estimated cointegration model of Equation (3).

The second step is to examine the existence of long run cointegration relationship among all variables. The F-test is used for testing the existence of long run relationships. The null hypothesis for no cointegration between the variables in Equation (2) is:

(H_0: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$)

(H_a: $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq \lambda_6 \neq 0$)

If the computed F-statistics is higher than the upper bound critical value (CV), the null hypothesis of no cointegration is rejected, therefore there is a long run relationship between tourist arrivals, income, tourism price, travel cost, tourism price substitute, and trade value. If the computed F-statistics is smaller than lower bound critical value (CV), then the null hypothesis of no cointegration cannot be rejected. The third step is to estimate the elasticities of the short run and long run relationship. The long run elasticities are calculated from the estimated respective coefficients of the one lagged level explanatory (independent) variables divided by the coefficient of the one lagged level dependent variable (multiplied with a negative sign).

3.1. Variables and Data

3.1.1. Dependent Variable

The international tourism demand is often measured in terms of the number of tourist arrivals, tourist expenditure, and number of tourist nights in the destination country (Ouerfelli, 2008). In this study, the available data have not permitted the construction of a tourism receipts or number of tourist night's variables. An alternative way of measuring the volume of tourism is to use the number of Iranian tourist arrivals to Malaysia.

3.1.2. Independent Variables

3.1.2.1. Lagged dependent variable

Once people have been on holiday to a special destination and liked it, they tend to come back to that destination. Moreover, information about the destination extends as people share their holiday experiences with friends and family, thus reducing the amount of uncertainty for potential visitors to that country. In fact this 'word of mouth' recommendation may well be involved a more important role in destination selection rather than commercial advertising. Therefore, the number of people choosing a given destination in any year depends on the numbers who chose it in the previous years (Song et al., 2003).Word of mouth is proxied by number of tourist arrivals in the past year (Tresa Mounoz, 2007; Dritsakis, 2004; Narayan, 2004).

3.1.2.2. Income

This factor seems to be suitably measured by the disposable income level, however, because of the problem of data unavailability, the real gross domestic product per capita (GDP) (2005=100) is used to measure the income variable in Iran.

3.1.2.3. Tourism Price

The price of goods and services bought in the destination would usually account for a significant part of the total price. The price variable specified in this way combines the effects of prices and exchange rate between Malaysia and Iran. The consumer price indices were used as a proxy for the

cost of tourism in Malaysia relative to the cost of living in Iran adjusted by the exchange rate (Morley, 1993; Carey, 1991; Martin and Witt, 1987). We therefore expect a negative sign for this variable. The definition of the tourism price variable in this study is

$$TP_t = \left(CPI_{m,t} / CPI_{i,t}\right)\left(ER_{m,t} / ER_{i,t}\right) \quad (4)$$

where TP_t is the tourism Price in Malaysia relative to Iran at time t; $CPI_{m,t}$ is the consumer price index in Malysia at time t; $CPI_{i,t}$ is the consumer price index in Iran at time t; $ER_{m,t}$is the average rate of the Ringgit against the US dollar; $ER_{i,t}$ is the average rate of the Rial against the US dollar.

3.1.2.4. Travel cost

Another important component of the tourism price is the travel cost. Transportation costs have attracted much less attention in empirical studies, basically due to a lack of precise measures for effective transportation costs. Some of studies used airfares index between origin and destination include (Algieri, 2006; Dritsakis, 2004; Kulendran and Witt, 2003) and another studies used the price of crude oil for this variable (Mervar and Payne, 2007; Teresa, 2007; Teresa and Martin, 2007). In this study the price of crude oil is used as a proxy for this variable.

3.1.2.5. Substitute Price

In the background of tourism, there are two possible substitution effects. The first substitution effect is substitution among competing destinations, and the second is between international tourism and domestic tourism. Both geographic and cultural characteristics are considered when selecting the substitute destinations. In this study selects five most popular alternative destinations out of ten destinations in the Asia Pacific Region for Iranian tourists as competitors for travel demand for Malaysia. These ten destinations from a competitor set in Asia in Dwyer et al. (2000) where price competitiveness of travel and tourism is studied (China, Hong Kong, Indonesia, Japan, Macau, Philippines, Singapore, South Korea, Taiwan, Thailand). The substitute price index was calculated by weighing the consumer price index of each of the five substitute destinations (China, Indonesia, Singapore, Thailand, and Hong Kong) according to its share of the international tourism arrivals, and it is given as

$$TPS = \sum_{(j=1)}^{n} wjCPIj / ERj \quad (4)$$

CPI_j and ER_j are, respectively, the consumer price index and the exchange rate of the currency of the rival country j, j= 1, 2, 3, 4 and 5; w_j is the share of international tourism arrivals for country j, which is calculated from $w_j=\frac{TAj}{\sum_{j=1}^{5} TAj}$, TA_j designates the tourist arrivals from country j, $\sum_{j=1}^{5} TAj$ total arrivals.

3.1.2.6. Trade Value

Value of trade is hypothesized to affect the demand of travel to Malaysia and it was therefore contained in the model in order to help explain the tourism demand (Song and Witt, 2003; Turner and Witt, 2001; Turner et al., 1998). Value of trade is measure as the total value of import and export of goods and services between Malaysia and Iran.

Data Source: Data on international arrivals from Iran were obtained from the Tourism Statistics Update published by Ministry of Tourism Malaysia (2000-2014). Quarterly arrival data for Iranian destination pair are taken from the Tourism Statistical Yearbook published by World Tourism Organization (WTO, 2014) and website of each competitive destination. Data on Gross Domestic Product of Iran, CPI and Exchange rate of Iran and Malaysia, substitute destination, export and import values between Malaysia and Iran were collected from the Direction of Trade Statistics and International Financial Statistics Yearbook published by the International Monetary Fund (IFS, 2014). Data on crude oil were collected from Energy Information Administration (EIA) Website.

4. Empirical Results

4.1. Unit root test

The result of ADF and PP unit root tests for Malaysia is presented in Table 1. As can be seen in Table 1 the ADF and PP test confirm that all variables are non-stationary at level. After the first differencing, all variables are of I(1) order. Next, we estimate the bounds test in order to determine if a long-run relationship exists between variables.

Table 1. ADF and PP Unit Root Tests

Variable	ADF				PP			
	Level		First Difference		Level		First Difference	
	Constant	Constant + Trend	Constant	Constant + Trend	Constant	Constant + Trend	Constant	Constant + Trend
LTA	-2.55(0)	-2.11(0)	-5.89(0)*	-4.78(0)*	-0.74(4)	-2.45(4)	-8.87(6)*	-8.91(11)*
LY	-0.66(2)	-1.98(0)	-6.99(3)*	-6.02(3)*	-1.81(3)	-1.67(2)	-6.00(3)*	-5.34(1)*
LTP	-1.98(1)	-2.65(0)	-4.38(0)*	-5.21(0)*	-0.48(1)	-1.64(2)	-5.26(4)*	-6.18(5)*
LLTPS	-1.43(0)	-1.55(0)	-5.23(2)*	-6.06(0)*	-1.50(3)	-2.88(2)	-4.87(2)*	-5.65(2)*
LTC	-2.08(0)	-2.04(0)	-6.08(0)*	-4.63(4)*	-1.65(3)	-1.97(3)	-7.98(1)*	-6.91(1)*
LTV	-1.62(1)	-2.03(0)	-4.14(2)*	-5.99(0)*	-0.85(2)	-2.56(2)	-4.63(6)*	-5.97(6)*

Note: The numbers in parenthesis are lag length. The symbol ***, ** and * indicates that the parameters are significant at the 1%, 5% and 10% levels.

4.2. Cointegration test

The calculated F-statistics in the Wald test as reported in Table 2 is greater than the upper bound critical value at 1 percent level. Thus, the null

hypothesis of no cointegration is rejected. The results indicate that there is a cointegration relationship between tourist arrivals, income, tourism price, tourism substitute price, traveling cost and trade value. The F-statistic for testing the joint null hypothesis (no long run relationship between LTA, LY, LTP, LTPS, LTC and LTV is rejected as F = 8.67 exceeds the upper bound of the critical value bound of 7.62 at the 1 percent of significance level. Thus, the results suggest that a long-run relationship exists between these variable.

Table 2. Results of Bound Test Cointegration

F- Computed	**8.67**	
Critical Value	Lower bound test	Upper bound test
1 percent	4.65	7.62
5 Percent	3.54	5.67
10 Percent	2.61	4.35

Critical values for the partial F-statistics were obtained from Narayan (2005, p 1988 Table of Critical value of bound test case III: unrestricted intercept and no trend).

4.3. Long- Run Elasticities

The selection of the order of the ARDL model for the computation of the long-run coefficients is based on Akaike's information criteria up to two lags. Table 3 shows the results of long run ARDL estimations. Results indicate that the all variables have an expected sign and statistically significant except travel cost. The estimate coefficient of lag tourist arrivals is positive (0.78) and statistically significant at 1 percent level. The results of this study indicate that the estimated coefficients of lagged dependent variable (word-of-mouth, LTA_{t-1}) is positive 0.78 and statistically significant at the 1 percent level. These results are consistent with some previous studies which also found a significant positive effect on tourist arrivals (Mohd Salleh et al., 2007; Teresa Munoz, 2007; Teresa and Martin, 2007; Song et al., 2003). The results show that habit persistence is important for explaining Iranian tourist visit Malaysia. According to the Profile of Tourists by Selected Markets in 2012, more than 55 percent of Iranian tourist arrivals to Malaysia visited twice or more. This suggests that the word-of-mouth effect and/or consumer persistence, features importantly in the Iranian demand for Malaysia's tourism.

As can be seen from the Table 3, for example, if income in Iran increases by 1 percent, Iranian tourist arrivals to Malaysia increases by 0.54 percent; thus tourism to Malaysia is considered by foreigners as a non-luxury service. Therefore, the level income of Iran is an important determinant of Iranian tourism demand in Malaysia. These findings of the current study are consistent with some previous studies which also found a significant positive effect of income on tourist arrivals (Athanasopoulos and Hyndman, 2008; Teresa Munoz, 2007).

The price of tourism product (service) is also an important factor that determines Iranian tourist arrivals to Malaysia. The current study found that the estimated coefficients of the tourism price variable (LTP) is negative (-

0.03) and statistically significant at the 10 percent level respectively. The negative sign of tourism price indicated that increase in price of goods and services which purchased by tourists in Malaysia consequence to decrease their arrivals to Malaysia. The estimated tourism price elasticity suggests that 1percent increase in price of goods and services in Malaysia lead to in a 0.03 percent decrease in tourist arrivals to Malaysia from Iran. The negative signs indicate that higher tourism price in Malaysia would lead to less Iranian tourists visiting Malaysia. Especially, with the increase in the exchange rate will further increase the relative prices and this leads to a decrease in tourists from the country that is Iran. In 2011 exchange rate in Iran increase by 300 percent led to decrease Iranian tourist arrivals to Malaysia by 40 percent.

The sign of substitute tourism prices at the alternative destinations can be either positive or negative. Positive sign implies that the alternative destination is a substitute destination for Malaysia or is otherwise a complementary destination. The negative sign of substitute tourism price indicates that these five alternative destinations are complementary destinations to Malaysia. Previous studies have found significant effects of substitute tourism price on tourist arrivals (Ouerfelli, 2008; Mohd Salleh et al., 2007). Our empirical results show that the estimated coefficients for the substitute tourism price variable (LTPS) have a negative sign -0.49 and statistically significant at the 1 percent level. This result imply that five alternative destination are complementary destination to Malaysia for Iranian tourist. Also, the cost of tourism price in competing destinations is also important in influencing Iranian tourism demand for Malaysia.

The estimate coefficient of Trade value between Iran and Malaysia is positive (0.88) and statistically significant at 1 percent level. The estimated trade value elasticity suggests that 1 percent increase in trade (Export and import between this to countries) lead to in a 0.88 percent increase in Iranian tourist arrivals to Malaysia. Previous studies have found significant positive effects of trade on tourist arrivals to country (Katircioglu, 2009; Kulindran and Wilson, 2002).

Table 3. Long Run Results Using ARDL Approach

Variables	Coeff.	t-stats	Prob.
TA(-1)	0.780	6.357	0.000
Y	0.541	2.254	0.037
TP	-0.031	-1.542	-0.061
TPS	-0.493	-2.452	-0.037
TC	0.745	1.645	0.126
TV	0.888	6.354	0.000
D_{01}	0.337	6.786	0.000
D_{03}	0.866	3.254	0.006
D_{11}	-0.584	-3.965	0.000

4.4. Short-run Elasticities

The following model is used to check the short run relationship among the considered variables with the different lag length. The results of short-run elasticity's indicate that lag dependent variable (word of mouth), income and travel cost have positive sign and statistically significant at 1 percent level. Tourists from Iran are negatively influenced by tourist price and Tourism price substitute. The negative sign of tourism price substitute indicate that the five select competitive destinations have a complementary destination to Malaysia. Hence, a 1 percent increase in price of goods and services in China, Indonesia, Singapore, Thailand, and Hong Kong would lead to decrease by 35 percent of Iranian tourists. The coefficient of trade value has significant and positive sign indicated that a 1 percent increase in trade value between Malaysia and Iran results in a 0.45 increase in Iranian tourist arrivals to Malaysia.

The results also imply that tourism price, tourism substitute price, the 1999 political instability (D99), the attack terrorist in 2001 (D01) and the outbreak of SARS (D03) are affected tourist arrivals to Malaysia. Word of mouth shows a positive relationship, while D99, D01 and D03 show a negative relationship.

Three dummy variables are used in this study. First, September 11 attacks (D01), Second the outbreak of SARS (D03), and Third the increase exchange rate in Iran in 2011 (D11). The empirical results of short-run elastisicites show that the estimated coefficient of September 11 attacks (D01) is positive sign and statistically significant at 1 percent level. Hamzah (2004) argue ever since the September 11 attack, Malaysia has become an oasis for tourists from the Middle East as it is able to provide a safe haven for Muslim tourists as an alternative destination. The estimated coefficient of the outbreak of SARS (D03) is not significant. The results also imply that the estimated coefficient of increase exchange rate (D11) with Sanctions is negative sign and statistically significant at 1 percent level. It means that, since 2011, Iranian tourist arrivals to Malaysia decrease by 40 percent to 2009 due to reform subsidies, increasing exchange rate and sanctions.

Several diagnostic tests were carried out to ensure the model is an appropriate model, such as the test for serial correlation (LM test), heteroscedasticity (ARCH test), normality (JB (N)), and the test for structural break (Cusum and Cusum(sc)). The statistics reported shows that there are no problems associated with serial correlation, normality or heteroscedasticity.

Table 4. Short Run Results Using ARDL Approach

Variables	Coeff.	t-stats	Prob.
B_0	1.652	6.357	0.000
TA(-1)	0.780	7.635	0.000
Y(-1)	0.422	5.652	0.000
TP(-1)	-0.244	2.231	0.0365
TPS(-1)	-0.385	-8.635	0.000
TC(-1)	-0.581	-3.628	0.034
TV(-1)	0.693	4.385	0.000
D(TA(-1))	0.425	3.568	0.005
D(Y(-1))	0.546	2.254	0.037
D(Y)	0.325	3.684	0.009
D(TP)	-0.075	-3.542	-0.054
D(TPS)	-0.354	-2.452	-0.037
D(TPS(-1)	0.635	-4.524	0.007
D(TC)	0.035	1.645	0.126
D(TV)	0.451	6.354	0.003
D01	0.263	4.357	0.001
D03	0.676	2.386	0.254
D11	-0.456	-6.384	-0.002
Adj. R^2	0.754		
D.W.stats	1.867		
F.stats (Prob)	425.542(0.000)		
Diagnostic Test			
Normality Test: 2.4351[0.6532]			
Serial Correlation LM Test: Lag (1), 2.3654[0.1524];Lag (2), 1.5745[0.2645]			
ARCH: Lag (1), 0.7754[0.3587]; Lag (2), 1.4257[0.2367]			
Ramsey Rest Test: 0.1859[0.6543]			

Notes: D denotes the first difference of variables. () and [] denote the t-statistics and probability respectively. Significance levels denoted as follows ****(1%), **(5%) and * (10%).

6. Conclusion and Policy Implication

The objective of this paper is to analyses the long run and short-run relationship between tourist arrivals and income, tourism price, tourism substitute price, travel cost, and trade value variables. In addition three dummy variables, namely September 11 attack terrorist in 2001, the outbreak of SARS in 2003 and increase exchange rate (D11) are also included as short-run variables. A single cointegration technique, ARDL in version ECM, was applied to estimate tourism demand from Iran to Malaysia. The results indicate that there is a cointegration between the variables. Most of the variables are significant in the long-run as well as for the short-run causality.

Iranian tourist arrivals to Malaysia are positively influenced by Lag dependent variable (word of mouth), tourism price adjusted by exchange rate, tourism price substitute and trade value. Iranian tourists seem to be highly sensitive to the price variable. Knowledge of the variables that influence the demand for international tourism is valuable to policy makers in planning growth strategies for the tourism industry in Malaysia. The Australia tourists seem to be highly sensitive to the price variable. Hence, policy makers and suppliers must closely monitor all tourism service providers such as hotels, restaurants, tourist operators, and transportation companies such as airport taxis and tourist buses to ensure that they do not

charge ‘unreasonable’ prices for their services. As the demand is price elastic, a small percentage reduction in price could attract a large percentage of tourist arrivals and the pay-off could be significant.

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