

Economics

D-level thesis 2009



What factors affect the destination choice of Jordanian tourists?

A panel data analysis

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1/23/2009

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Abstract

This paper investigates what factors affect the destination choice for Jordanian tourists to 8 countries (Oman, Saudi Arabia, Syria, Tunisia, Yemen, Egypt, Lebanon and Bahrain) using panel data analysis. Number of outbound tourists is represented as dependent variable, which is regressed over five explanatory variables using fixed effects model. The finding of this paper is that tourists from Jordan have weak demand for outbound tourism; Jordanian decision of travelling abroad is determined by the cost of travelling to different destinations and choosing the cheapest alternative.

Keywords: Outbound tourism, relative price, substitute price, gravity model, international tourism demand, fixed effects model.

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1. Introduction

In the recent years tourism sector has expanded and has become one of the major sectors in the economy. According to the world tourism organization, more than 715 million people were travelling internationally in 2002, generating more than USD 472 billion earnings. The prediction of the world tourism organization for the year 2020 is that there will be 16 billion international tourists spending more than USD 2 trillion annually or USD 5 billion daily. From this prospective governments are giving more attention to this sector understanding the benefits of it in generating foreign exchange earnings, creating jobs opportunities and contributing to tax revenues. From this angle the competition between countries in expanding its tourism sector and attracting huge number of tourist is becoming more and more intense.

The government benefits from the outbound tourism by collecting departure taxes, which have huge impact on the public sector accounts. But on the other hand there is a negative effect of the outbound tourism on the countries net international reserves. As there is an increase in travelling abroad, the expenditure abroad will rise and as a result there will be negative impact on the foreign reserves. Most of the developing countries regard the outbound tourism as a waste of valuable foreign reserves. Therefore, the governments of these countries impose restrictions on the outbound tourism in different forms such as exit taxes and restrictions on issuing passports. The main aim of these restrictions is to preserve the foreign reserve for essential imports and foreign debt reduction. This issue show that studying the outbound tourism is as important as studying the inbound tourism.

In this paper I am focusing on the tourism sector of Jordan. Through my research I reached for a conclusion that there is not many studies about the Jordanian outbound tourism, the researches that been implemented on Jordan tourism studied the inbound side of tourism, but as I stated above, outbound tourism have crucial role in the county's economy as well as the inbound tourism. So in this paper I am focusing on the outbound tourism of Jordan, building my research on the data that was provided by the Jordanian department of statistic and the Survey that was financed by the USAID project in Jordan for the year 2007.

My main aim from this research is to investigate what factors affect the destination choice of tourist from Jordan through the period 2000 till 2007 for 8 countries (Oman, Saudi Arabia, Syria, Tunisia, Yemen, Egypt, Lebanon and Bahrain). As a researcher finding out the factors that attract Jordanian to travel abroad will give a pure image on the Jordanian tourism sector performance. Studying outbound tourism can enhance inbound tourism, these two concepts are related, and mixing them together will create an effective policy that will enhance the economical performance of the tourism sector.

In my research I am using a panel data analysis, I used fixed effects model after conducting the necessary tests. In my model the number of outbound tourists is represented as dependent variable which is regressed over five explanatory variables which are the Income per capita of Jordan, Relative prices, Substitute prices, price of crude oil and a dummy variable which I chose it to be the Iraq war in 2003.

Followed by the introduction, the paper is divided into 5 parts. Definition of tourism is introduced at the first part. In the second part I am introducing some facts about the Jordanian tourism. The third part includes literature review on tourism demand models. My empirical analysis take place at the fourth part of the paper with the interpretation of the results followed with the conclusion at the end.

2. What is tourism?

Tourism is travelling abroad for leisure or recreational purpose. According to the world trade organization, tourism is defined as people who "travel to and stay in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited" . Hunziker and Krapf (1941 cited McCabe 2005) defined tourism as the sum of the phenomena and relationships arising from the travel and stay of non-residents, insofar as they do not lead to permanent residence and are not connected with any earning activity. The United Nations classified three forms of tourism in 1994 in its Recommendations on Tourism Statistics: Domestic tourism, which involves residents of the given country traveling only within this country; Inbound tourism, involving non-residents traveling in the given country; and Outbound tourism, involving residents traveling in another country.

Sathiendrakumar and Watson (1997) said that Tourism is a sector that brings together different kind of services; it's the business of providing services to people who are travelling for recreation. These services include transportation, accommodation, restaurant service, sightseeing and recreation. Gagnon and Quinn (1986, p.95) said that Service is "all those economic activities in which primary output is neither a product nor construction". Gronroos (1990 cited Kearsey And Varey 1998) defined a service as an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between the customers and service employees and/or physical resource or goods and/or system of the service provider, which are provided as solution to customer problem.

There are 4 characteristics for services; these characteristics are summarized as intangibility, inseparability, heterogeneity and perishability. (Harris *et al.* 1998)

Tourism Intangibility

In general tourism is intangible, which means that it can't be touched, smelled, tasted or seen like any other goods. A tourist can't experience a holiday before purchasing it. Travel agencies and information availability about the destination play crucial role in the degree of intangibility. Globalization and technology progress provide information enabling tourists to know other travelers reviews, for example about their experience and the degree of satisfaction from a specific destination or hotel. Travel agencies reduce the intangibility level by offering brochures which offers images, information and activities that can be practiced in a specified destination.

To be more specified tourism is not pure intangible neither pure tangible. As I mentioned above tourism is a bundle of services, it includes hotels, restaurants, transportation and other activities. These services could include tangible and intangible characteristic in the same time. For example, restaurants include catering which is intangible, while meal itself is tangible.

Tourism Inseparability

Goods are usually produced and packaged then transported to markets where they are offered for sale. Consumers buy these goods then consume it in another place. According to this, the production, selling and consumption are in different places. For tourism the production, selling and consumption can't be in different places. A tourist should buy the trip first, and then the production and consumption take place in the same time and place. In order for tourist to consume his purchase, he has to reach to the destination of his holiday.

Tourism Heterogeneity

Heterogeneity reflects the potential for high variability in service delivery (Harris *et al.* 1998). Because services are produced by individuals rather than mass production, they differ in characteristics and quality much more than goods. For example weather play main role in heterogeneity level of tourism. Tourist who experiences a sunny weather will enjoy more outdoor activities such as sightseeing, walking and swimming than tourist who is travelling on bad weather.

Tourism Perishability

In general, services cannot be stored and carried forward to a future time period. Services are time dependent (Harris *et al.* 1998). Tourism service can't be stored. For example, hotels try to maximize their profit by occupying all rooms; an unoccupied room means profit loss. Another example is the airline companies which they usually try to sell all tickets in order to occupy all seats, unlike physical goods which can be stored and sold for the same price in later time. In order to reduce perishability level, airlines companies make offers for last minute tickets to minimize their loss. Hotels usually make special offers for attracting tourists to occupy the empty rooms by offering discount prices for spending an additional night.

3. Jordanian tourism

Jordan “Hashemite Kingdom of Jordan” is located in the heart of the Middle East sharing borders with Syria, Iraq, Saudi Arabia and Israel. With a 5.5 million inhabitant, the Jordanian economy has shown a strong development over the past few years with high economic growth. Despite the regional security instability and the adverse effects of the increasing in oil prices and the reduction of oil grants, Jordan has managed to achieve a stable economic development. In 2005, the International Monetary Fund rated Jordan as one of the most dynamic Middle East and North African (MENA) economies. According to the World Bank “Jordan’s economy has shown strong performance in recent years with real growth averaging 7 percent during the 2004-2007 period and it continues to be robust at 6 percent in 2007”.

As a whole, services sector dominate the economy, with an estimated aggregate output at around 70 percent of GDP in 2005. Finance, insurance and real estate, government services, communication and storage, wholesale, retail, hotels and restaurants were the major contributors to the output of the services sector. (Central Bank of Jordan and Jordanian Department of Statistics)

Tourism sector is one of the most critical areas that the Jordanian government is focusing on. The Jordanian tourism sector represents the biggest export sector of the Jordanian economy. It is also the second biggest private sector employer and second biggest source of inflows of the foreign exchange. Tourism contributed more than USD800 million to Jordan’s economy in 2007 which was approximately 10 percent of the country's gross domestic product (GDP). (Ministry of tourism and antique Jordan)

Looking at the Jordanian tourism industry in more economical view I'm going to state some facts about the inbound and outbound tourism situation in Jordan.

In 2007 the ministry of tourism and antiques in corroboration with the Jordanian department of statistics made a comprehensive study about the tourism situation in Jordan. This study was financed by the USAID project. The main aim of this study was to compare the tourism situation between the years 1999/1998 and 2007/2006.

During the year 2007 the total net receipt from the tourism sector was 1465.71 million USD as a result of USD 2434.86 receipt and USD 969.15 million expenditure (the expenditure amount doesn't include the transportation cost). The total number of outbound tourism was 9.9 million tourists against number of inbound tourism that was 9.4million. The main destination for tourists from Jordan was to the Arabian countries which was 91 percent of the total. Figure 1 show the distribution of outbound tourism according to the destination in year 2007, the highest visited countries were Syria with 40 percent, 15 percent Saudi Arabia, 11 percent Egypt, 9 percent Palestine. For non Arabian countries it was 9 percent of the total.

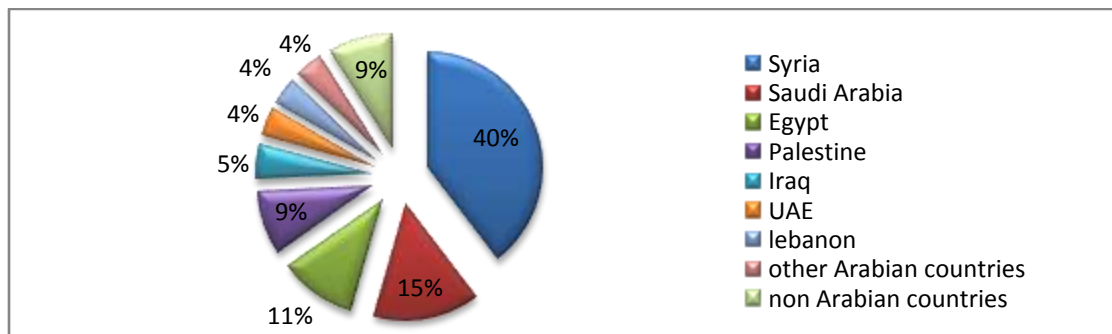


Fig.1. Distribution of outbound tourism according to the destination

According the survey of 2007 people travel outside Jordan for different reasons such as visiting friend and relatives: 40 percent, leisure and spending holidays: 22 percent, crew of tourism trip: 13 percent, business trips: 12 percent, religious trips "Hajj and Omrah": 9 percent and 4 percent for other activities.

The total expenditure in 2007 was USD 969.15 without transportation cost. This amount is distributed according to the purpose of travel as 32 percent for visiting friend and relatives, 20 percent for leisure and holidays, 16 percent business trips, 12 percent for studying , 12 percent for religious purpose, 3 percent medical treatment and 5 percent for other activities. And USD 1287.96 including the transportation cost.

According to the survey of 2007, in general the daily spending for a tourist travelling outside Jordan was around USD 30 (not including the transportation cost) and the average night spent was 13 nights. According to the survey travelling for studying purpose was the highest average night spending which were around 120 nights, followed by visiting friends and relatives with 19 nights and the lowest was for crew and employers of tourism trip which was 3 nights.

4. Literature review about the tourism demand models

Tourism demand models have been used to analyze the demand behavior and management demand issues in addition to forecast the future level of tourism demand.

Large numbers of empirical papers on international tourism demand are found in the literature (Ferda 2008). Empirical models are divided into two main categories: first category consists of studies that use time series models, where cointegration techniques are used to model and forecast the dependent variable between one or several pairs of countries. The second category includes papers that estimate the determinants of international tourism.

The international tourism literature is rich with studies about inbound tourism but according to Mithcekk and Campbell (2005), there are few studies in the literature that attempted to model outbound tourism.

Liu, Romilly and Song (2000) conducted an empirical study on outbound tourism of the UK. Their main aim was to construct and estimate outbound tourism demand model according to the holiday destination for the UK residents and generate a forecast of the UK demand for overseas holiday. In their empirical work they used co-integration analysis and two stage error correlation approach. The model was constructed in log-log form. Total holiday visit per capita to each destination was regressed by the cost of living index in each destination measured by consumer price index and adjusted by exchange rate.

Sathiedrakumar and Watson (1997) conducted a study on the outbound tourism of Singapore. The main aim of the paper was to develop a demand model which investigates the factors that determine the outbound tourism from Singapore. The dependent variable in the model is per capita tourist expenditure, which was a function of exchange rates and per capita income over the time period 1968 to 1995. As a conclusion from the estimated model, Sathiedrakumar and Watson found out that Singaporean travelling abroad increases due to

several factors which are; increase in per capita income, the strong value of Singapore dollar, and the geographic property of Singapore of being a small country with limited domestic activities.

Hamal (1998) studied Australian outbound holiday travel demand. His concept was to compare the Long-haul Versus Short-haul. In his study he used econometric model to estimate and analyze the demand parameter of outbound travel. The models were estimated using annual historical data from 1974 to 1996. In the econometric model he included population, real income, domestic and overseas price of travel and accommodation and exchange value as explanatory variables. Hamal used single equation models which are specified in a simple double log linear function. From the estimated model he concluded that “Australian outbound travelers are very sensitive to the domestic price of travel and accommodation while selecting short- haul overseas holiday destination but less sensitive while choosing long-haul destination”.

One of the new studies that were conducted using the gravity model is by Christoph Vietze (1998). In his paper he discussed the effects of cultural and particular religious factors on tourist flows into the USA. He used the gravity approach and as a result he found out that the gravity equation is an adequate instrument to explain variation in international tourists flows. In a conclusion he found out that people usually go on holidays to countries with a similar cultural and political background.

5. Empirical analysis

5.1 Modeling

In order to model tourism demand it's important to understand the definition of international tourist, origin and destination. The world tourism organization defined international tourist as a person who makes temporary visits across international borders, resides there for at least 24 hours to less than one year and for other purpose than establishing residence. Origins are defined as the tourist generating country while destination is tourist receiving country.

The general international tourism demand model is typically estimated as

$$DT_{ij} = f(y_j, TC_{ij}, RP_{ij}, ER_{ij}, QF_{ij}) \quad (1)$$

DT_{ij} is demand for international travel service by origin j for destination i , y_j is Income of origin j , TC_{ij} is Transportation cost between destination i and origin j , RP_{ij} is Relative prices (the ratio of prices in destination i to prices in origin j and in alternative destination), ER_{ij} is Currency exchange rate measured as unit of j 's currency and QF_{ij} is Qualitative factors in destination i .

According to Economics of tourism book, in forecasting tourism demand there are three main methods; Econometric forecasting model (single equation, system of equation model), qualitative methods and univariate and multivariate prediction methods. In my thesis I am going to apply a model that is similar to the gravity model which represents a particular class of regression model that has been widely used in the past to forecast tourism demand.

Gravity model state that: the degree of interaction between two geographic areas varies directly with the degree of concentration of persons in two areas and inversely with the distance. In economic prospective if i want to apply the gravity model on tourism the basic gravity model normally takes the form of:

$$I_{ij} = G \left(\frac{P_i P_j}{D_{ij}^b} \right) \quad (2)$$

I_{ij} : Number of tourists travel from country i to country j , P_i : Population of country i , P_j : Population of country j , D_{ij} : distance between country i and j , b and G are parameters.

Equation 2 can be converted into:

$$I_{ij} = G P_i P_j D_{ij}^{-b} \quad (3)$$

Transforming equation 3 into logarithm form:

$$\ln I_{ij} = \ln G + \ln P_i + \ln P_j - b \ln D_{ij} \quad (4)$$

According to the international tourism demand literature, in practice, gravity model is used in more simplified form; population and distance are replaced by some more appropriate explanatory variables. In my model there will be five explanatory variables. My dependent variable will be the number of outbound tourists $TArr_{it}$, it will be function of income per capita \ln_t , relative price $R_{P_{it}}$, substitute prices SP_{it} , prices of crude oil (PCO_t) and dummy variable $d01$:

$$TArr_{it} = f(\ln_t, R_{P_{it}}, SP_{it}, PCO_t, d01) \quad (5)$$

Since the linear relationship is considered to be the simplest way of illustrating relationship between dependent and explanatory variables. The tourism demand model will be

$$TArr_{it} = \beta_0 + \beta_1 \ln_t + \beta_2 R_{P_{it}} + \beta_3 S_{P_{it}} + \beta_4 PCO_t + \beta_5 d01 + \varepsilon \quad (6)$$

In my research I am going to assume a linear relationship between the depended and explanatory variables. According to Marno Verbeek in his book (Guide to Modern Econometrics) the linear models implies that elasticity's are non constant while the log linear model imposes constant elasticity's.

In order to have constant elasticity I'm going to apply natural logs for all variables except the dummy variable. My econometric model that will be estimated is:

$$\ln(TArr_{it}) = \beta_0 + \beta_1 \ln(\ln_t) + \beta_2 \ln(R_{P_{it}}) + \beta_3 \ln(S_{P_{it}}) + \beta_4 \ln(PCO_t) + \beta_5 d01 + \varepsilon \quad (7)$$

5.2 The explanation of the variables

$TArr_{it}$: Number of outbound tourists from Jordan to destination i in year t .

\ln_t : Income per capita of Jordan in thousands.

$R_{P_{it}}$: The relative price of main destination country i at year t .

SP_{it} : The substitute price for the main destination country i at year t .

PCO_t : Price of crude oil in year t .

$d01$: Dummy variable.

ε : Error terms.

5.3 Data

The data that I will use in the model is obtained from 8 countries (Egypt, Syria, Lebanon, Oman, Tunisia, Saudi Arabia, Bahrain and Yemen) throughout the years from 2000-2007. According to the Jordanian department of statistic, 91 percent of tourists from Jordan travel to Arabian countries. ¹

According to Hamal (1998) People travel for several reasons such as holidays, visiting friends and relatives (VFR), business, employment and sports. But travel holidays remain the dominant sector of the international market; the data that I managed to get for these countries doesn't allow me to conduct research for the outbound tourism for different purposes. The only study that was made about the Jordanian inbound and outbound for purpose of travel was for the year 2007 only. For this reason my study will focus on total trips abroad with overnight stay within period 2000-2007.

Historically, tourism demand modeling has focused on total or holiday flows, without attempting to compare the determinants of tourism demand for different purposes of visit to specific destinations (Reisinger *et al* .1998).

Dependent variable

International tourism demand can be measured in terms of tourist arrival/departure, tourist expenditure/receipts, travel exports/imports, tourist length of stay and others (Lim 1997). Recent studies also have paid more attention to disaggregated tourism markets according to travel purpose or modes of transportation (Dwyer and Forsyth 2006). The demand variable measured by the total tourist arrivals is still the most frequently used measure of tourism demand, followed by tourist expenditure (Song and Turner 2006). According to Li (2004 cited Dawyer and Forsyth 2006) among 45 selected studies published after 1990, 37 of them used

¹ For more information about the distribution of number of outbound tourism in Jordan check Jordanian tourism section

tourist arrivals as the dependent variable, while only six employed tourist's expenditure as the dependent variable.

In my study I am going to use tourist arrivals as the dependent variable due to the lack of information of the different purpose of travelling. According to the Jordanian department of statistics the only study they made about the purpose of visit was implemented only for the year of 2007.

Due to the information that I was provided I am going to present the dependent variable by the number of tourist arrival to the destination country referring to it as $TArr_t$. Table A.1 in the appendix represent the number of total trips abroad with overnight stay within time period 2000 and 2007 for the eight chosen countries. According to the Jordanian department of statistics these eight countries are the most visited countries as I mentioned in the Jordanian tourism section.

The data was provided mainly from the immigration board of Jordan and the Jordanian department of statistic. They are also available in the world fact book. Information about Egypt was provided by contacting Egypt information portal. Since the data is collected from different resources it may differ in the method of collecting which it might reflect on the results accuracy.

Explanatory variables

the most common used explanatory variables in the tourism demand are the level of income which affects the ability to pay for overseas travel, relative prices of goods and services purchased by tourists in the destination compared with the origin and competing destinations, transportation cost, exchange rates between the currencies of origin and destination, dynamics, trend, and qualitative factors (Lim 1997). Fig 2 is a classification by the type of explanatory variable that is used in forecasting tourism demand which was created by Christine Lim.

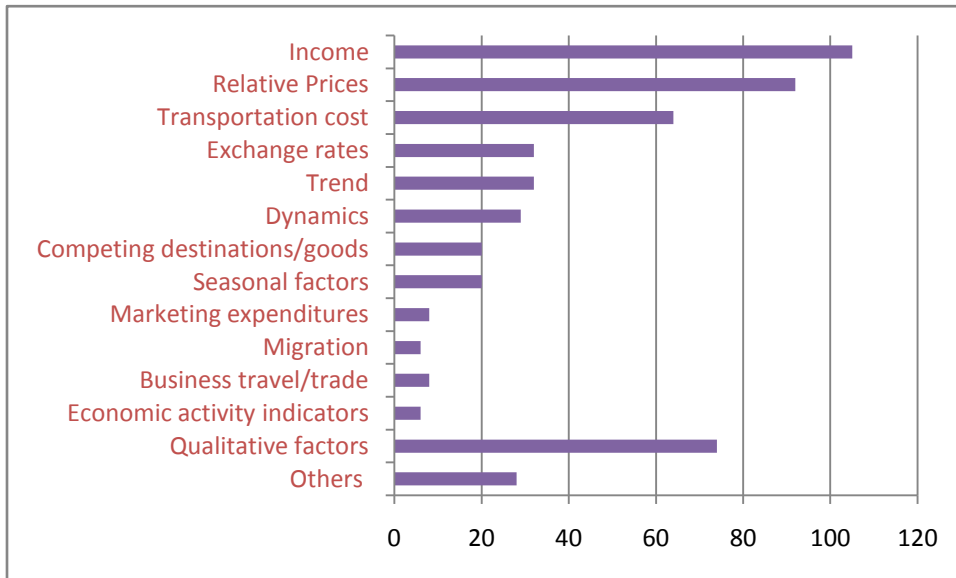


Fig.2. Classification of explanatory variables that are used in forecasting tourism demand

Source: International Handbook on the Economics of Tourism

In my research the explanatory variables that I chose are income, relative price, substitute prices, cost of travel and qualitative factors.

Income

As I stated above income is the most important explanatory variable in tourism demand models. Demand for tourism depends upon the total budget which is available for spending and on preferences for tourism relative to other goods and services (Sinclair and Stabler 1997)

Tourism is a normal good (Sathiendrakumar and Watson 1997), normal good is any good for which demand increases when income increases and falls when income decreases taking into consideration that the prices are fixed. For normal goods, the Engel curve has a positive slope, when the income increases, the quantity demanded increases. From this prospective an increase in income will lead to increase in tourism demand, so The Engle curve has positive slope for tourism. Tourism is regarded as a luxury good, in this case the discretionary income of origin

country (income remaining after expenditure on necessities) would be appropriate income variable (Lim 1997). Hence discretionary income is subjective variable and is hard to measure, most researchers have related on nominal or real (per capita) personal, disposable, or national income and GDP or GNP as measure for income in the origin.

In my research I'm going to assume that tourism is a normal good, so I am going to use income per capita as an explanatory variable in order to capture the income effect. The income per capita is obtained by the division of the gross domestic product of Jordan (GDP) for year t by the Jordanian population number for year t :

$$ln_t = GDP_t / N_t \tag{8}$$

ln_t : Income per capita in thousands.

GDP_t : Gross domestic product in USD for the end of the year t in billions.

N_t : The number of population for the end of year t (in millions).

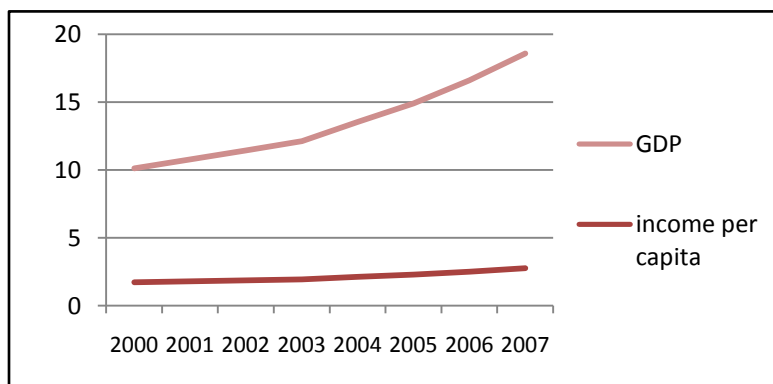


Fig.3. Jordan GDP in billions, income per capita in millions over 2002 till 2007

Source: department of statistic Jordan

According to Song and Turner (2006), the appropriate income variable is personal disposable income or private consumption expenditure in the origin country (In constant price

terms) and is expected to have a positive influence on tourism demand. Income usually enters the demand function in per capita form corresponding to the specification demand in per capita.

I expect that as income per capita increases the number of total trips abroad also increases. According to fig.3 the GDP of Jordan is increasing in high rates but income per capita is increasing in low rate. The information about the GDP of Jordan and population number are obtained from World economic Outlook Database of International Monetary Fund.

Relative prices

According to Lim (1997), relative prices are the second most used explanatory variable. Relative prices are cost of goods and services that tourists are likely to pay while they are visiting the destination.

The tourist price indices (TPI) are Indices on tourism that can be divided into two main categories: Price Indices on tourism from the demand side which measures changes in prices over time of a given pattern of tourist expenditure. The second categories Price Indices on tourism from the supply side which measures changes over time in the cost of tourist production and of gross fixed capital formation due to changes in the prices of relative goods and services and changes in the remuneration of production factors. The tourist price is typically unavailable and for this reason we use the consumer price indices (CPI) of the origin and destination to reflect the relative prices of foreign goods and services.

I am going to adjust the consumer price of Jordan for the differences in the exchange rate between the Jordanian dinar (JOD) and the destination countries. To capture the impact of the inflation and exchange rate I'm going to use the relative price formula that was suggested by Ferda (2008) in an Econometric Analysis of Aggregate Outbound Tourism Demand of Turkey and Mammadov (2008) in What Factors Affect Swedish Outbound Tourism Demand. The formula is as follow:

$$R_{P_{it}} = \frac{CPI_{i,t}}{(CPI_{jordan,t} * ER_{i:s,t})} \quad (9)$$

$R_{P_{it}}$: The relative price of main destination country i at year t .

$CPI_{i,t}$: The consumer price index of the destination country i for the year t .

$CPI_{jordan,t}$: The consumer price index of Jordan for the year t .

$ER_{i:s,t}$: The average exchange rate of the monetary unit for the destination country in terms of monetary unit of Jordan (JOD) for year t .

The expected sign for the coefficient of this variable is negative. I expect that relative price is inversely proportional with the number of total trips abroad by Jordanian tourist.

In order to calculate the relative price I used the CPI that is provided by the World Economic Outlook Database of International Monetary Fund. Year 2000 was set as a base year in the calculation of their CPI. The exchange rates are provided from the central bank of each destination countries it is also available on historical currency exchange rate website.

Substitute prices

Economic theories suggest that substitute price have a great impact on demand of tourism. Tourist compares the price of foreign holiday in order to make their holiday decision. They also compare the costs of holidaying in a particular foreign destination with the cost involved in visiting other foreign courtiers.

Substitute prices are preformed in the demand model by a weighted average substitute tourist's cost of living. Travel prices have been empirically observed to have significant influence on travel demand (Hamal 1998). Tourist chose the destination that maximizes their holiday utility. According to Hamal in his study on Australian outbound holiday travel demand, tourist chose to go for an overseas tourism than domestic one because the domestic one is more

expensive than the overseas one. According to Song and Turner (2006) substitute prices are expected to have a positive influence on the demand model.

In my research I want to capture the impact of the tourist cost of living in other foreign countries by using the weighted average of the consumer price index of destination countries. According to Mammadov (2008) all international tourist demand studies are restricted to tourists' destination living cost as a proxy of living cost so I will use CPI's of the destination countries. Substitute price is the weighted average of tourists' cost of living in other destination countries and will be calculated by the formula:

$$SP_{it} = \sum_{j=1}^8 \alpha_j \left(\frac{CPI_{jt}}{ER_{jt}} \right) \quad (10)$$

SP_{it} : The substitute price for the main destination country i at year t .

CPI_{jt} : The consumer price index of the competing destination country j at year t .

ER_{jt} : The exchange rate of the rival country j at year t .

α_{jt} : The weight for the country j at year t . In this part I will be calculating the weight by division of number of total tourist arrivals from Jordan to the country j at year t by the sum of number of total tourist trips to all competing countries from Jordan at year t

$$\alpha_{jt} = \left(\frac{TArr_{jt}}{\sum_{j=1}^8 TArr_{jt}} \right) \quad (11)$$

Where α_{jt} is the weight of the competing destination country j at year t . $TArr_{jt}$ is the number of total tourist trips to the country j at year t .

According to Song and Turner (2006) substitute prices are expected to have a positive influence on the demand model. So when substitute price rises, the demand for tourism in the main destination country increases. In my research I am going to assume that domestic tourism

can play the role of competitor for foreign tourism. In this case the tourists' cost of living in destination countries will be compared with that one of tourists' origin country which is Jordan.

Transportation cost

Transportation cost or the cost of travel is the cost of round trip between the origin and destination countries. Only 51 percent of published papers included the transportation cost (Lim 1997). The reason for the exclusion of the transportation cost is the unavailability of data and the fear of the multicollinearity in the ordinary least square regression (OLS).

In tourism literature some papers included the transportation cost, but an unexpected result was achieved, this explanatory variable was insignificant such as in the case of US travel to a range of countries For example Redman and Stronge (1982) in U.S. tourism in Mexico. Other studies found that the transportation cost have a significant negative impact on tourism demand.

The Jordanian department of statistic classified the transportation to three categories by the way of traveling, that is: land, air and sea. The land category was classified to car, bus, others. Fig 4 shows the weight of these categories.

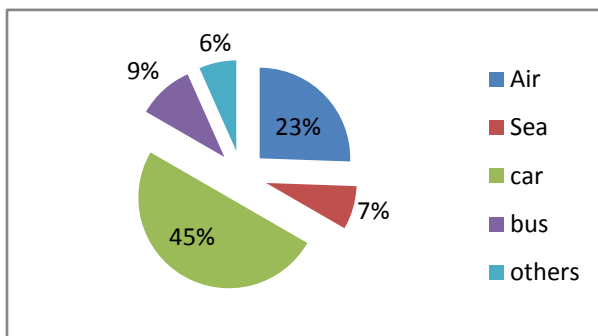


Fig.4. Distribution of transportation type

Source: department of statistics, ministry of tourism and antiques Jordan

Garín-Muñoz and Montero-Martín (2006) used the real price of crude oil as a proxy variable for the transportation cost due to the unavailability of information in their paper about tourism in the Balearic Islands: A dynamic model for international demand using panel data. In my thesis I'm going to follow the same method and add crude oil as an explanatory variable. The crude oil prices are obtained from Organization of the petroleum exporting countries (OPEC). According to Song and Turner (2006) I expect that the transportation cost will have a negative impact on the tourism demand so as the crude oil increase the demand on tourism will decrease.

Qualitative factors

There are a large number of qualitative factors that influence the demand of international tourism. The qualitative factors are included in the model as dummy variables. According to Song and Turner (2006, p.92) “dummy variables are often included in international tourism demand function to allow for the impact of one off events”. Qualitative variable include tourist attributes (gender, age, educational level etc) trip motive, destination attractiveness, political and social event. In the literature a big amount of studies took in consideration the terrorist attack of September 11, 2001.

In my case since I am interested in studying a country located in the Middle East, I will include the Iraq war of 2003 as a dummy variable. Jordan is highly dependable on Iraq oil. In return for food supplies, medicines and clothes, Jordan receives Iraqi oil at extremely favorable prices. So the Jordanian industries, trade and transport are all highly dependent on opportunities in Iraq which it will also affect the tourism sector. In my model the Iraq war is introduced as a dummy variable which will take the value of 1 in year 2003 and 0 other wise.

5.4 Estimation

Gardiner, Luo and Roman (2008) stated that there are three general categories of models: the marginal model, RE model and FE model. Each broad category could have linear and nonlinear cases. According to Verbeek (2008) in his book A Guide to modern Econometrics “Most panel data models are estimated under either the fixed effects or the random effects assumption”.

In order to choose between the models, Husman (1978) has suggested a test for the null hypothesis. The general idea of the test is to compare two estimators; an estimator that is consistent under the null and alternative hypothesis, the other is consistent only under the null hypothesis. The null hypothesis which is tested is that x_{it} and α_i are uncorrelated. A significant difference between the two estimators indicates that the null hypothesis is unlikely to hold.

In my empirical work I am going to estimate my demand model by fixed effects model and random effects model. Table (1) shows the estimation results for both fixed effects and random effects model.

Table 1- Estimation results for both fixed effects and random effects model

	fixed effects regression		Random effects regression	
	Coef	P> t	Coef	P> t
lnSPit	0.5568467	0.000	.932502	0.000
lnRPit	-.1227005	0.760	-.9244416	0.000
lnPCOit	.3744151	0.266	.5292949	0.199
lnLnt	.7353822	0.386	.6548095	0.530
d01	.0383073	0.413	.0379113	.511
number of observation	64		64	
R-sq:				
within	0.6807		0.6491	
between	0.3492		0.9971	
overall	0.3637		0.9708	

In order to choose between the two models I decided to apply Breusch and Pagan Lagrangian multiplier test for random effects. Table (A7) in appendix show the results of the test. According to the results of this test I can reject the null hypothesis of no random effects if $\text{prob}>\chi^2$ is less than 0.05. As the results of my testing $\text{prob}>\chi^2 = 0.8984$. So as a conclusion I can't reject the null hypothesis of no random effects.

In order to choose between the random or fixed effect models I applied the Husman test the results of the test are shown in table (A8) in the appendix. If $\text{prob}>\chi^2$ is less than 0.05 I can reject the null hypothesis that the fixed effects and the random effects are the same.

According to the results of the test $\text{prob}>\chi^2 = 0$. I reject the null hypothesis that the fixed effects and random effects are the same, which means that there is a correlation between one or some explanatory variables and individual effect. This will imply that the fixed effects model is efficient and is the appropriate model.

In conclusion I am going to build my interpretations of results based on the fixed effects model.

5.5 Interpretation of results

In order to explain what factors affect the destination choice for Jordanian tourists, I built up a model that has five explanatory variables. I used natural logs for all variables except the dummy variable in order to have a constant elasticity. In this way the coefficients show relative change in the model. I will start my interpretation of the results with relative price.

Relative price

The expected sign for the coefficient of this variable is negative. I expected that relative price is inversely proportional with the number of total trips abroad by Jordanian tourist. According to Song and Turner (2006) relative price is expected to have negative influences on the tourism demand. This means the lower the cost of living in the destination relative to the origin country the higher the tourism demand. According to the results the coefficient sign is negative 0.1227005 as I expected which means that an increase in relative price by one percent will decrease total tourist trips abroad for Jordanian by 0.12 percent. But according to the p value of 0.760 we can't reject null hypothesis of \ln_r_p is equal to zero. So this variable is statistically insignificant. \ln_r_p doesn't explain any variation in dependent variable \ln_tarr .

Substitute prices

According to Song and Turner (2006) substitute prices are expected to have a positive influence on the demand model. So when the substitute prices increase, the demand for tourism in the main destination country increases. As results from my estimation the coefficient sign of the substitute price was positive 0.5568467. So one percent increase in substitute price will increase the demand for tourism by 0.5568467 percent. P value of 0.00 implies that \ln_s_p is statistically significant and is important in explaining the variation of \ln_tarr .

Income per capita

I expected that as income per capita increases the number of total trips abroad also increases as ln_t and $TArr_t$ are proportional. According to the result the sign of the coefficient is positive 0.7353822 which mean that an increase in the income per capita by one percent will increase the total trips by 0.7353822 percent based on the p value of 0.386 we can't reject the null hypothesis of being equal to zero. So this variable is statically insignificant.

Price of crude oil

According to Song and Turner (2006) I expect that the transportation cost will have a negative impact on the tourism demand so as the crude oil increase the demand on tourism will decrease. the results of the estimating are opposite to my expectations as the coefficient sign turned out to be positive .3744151 which mean that 1 percent increase in crude oil prices will increase the trips abroad by .3744151 percent but according to the p value of 0.266 we can't reject the null hypothesis of being equal to zero. So the crude oil price is insignificant.

Qualitative factors

As I mentioned I introduced a dummy variable in my model to capture the impact of the Iraq war in year 2003. The results show the dummy variable coefficient with positive value of 0.0383073 but according to the p value of .463769 we can't reject the null hypothesis of being zero. The dummy variable is insignificant statistically.

6. Conclusions

In my thesis I tried to explain what factors affect the destination choice of tourist from Jordan, the study included 8 countries which are Syria, Saudi Arabia, Egypt, Yemen, Lebanon, Tunisia, Bahrain and Oman. According to the Jordanian department of statistic, 91 percent of tourists from Jordan travel to Arabian counties. Syria, Saudi Arabia, Egypt and Lebanon are the most visited destinations.

In order to investigate the factors that affect the destination choice of tourists, I conducted my tourism demand model basing on the gravity model which is applied broadly in international tourism literature. In the model the dependent variable was total number of outbound tourists from Jordan to the 8 destination countries during the year 2000 till 2007, the dependent variable was regressed by five explanatory variables which are relative price, substitute price, income per capita, price of crude oil and a dummy variable of the 2003 Iraq war.

The results of the estimation showed that all variables signs were as I expected, except price of crude oil, which took a positive value while I expected it to be negative. The only variable that turned out to be significant is the substitute price.

The insignificant of the results may be due to data problems, Jordan used to purchase crude oil from 4 main Arabian counties on discounted prices, farther more, the Jordanian government used to support the oil prices until 2008. From this prospective, the lack of data about local prices of crude oil is reflected on the accuracy of the estimated sign of crude oil variable.

The disposable income per capita is an average, and it neglects the personal income distribution within the country especially in developing countries. In the case of Jordan, the higher income is concentrated in the hands of just few people. In addition the time lag between tourism expenditure and income creation will reduce the effect of income per capita factor, that is, people who want to travel abroad would be facing an opportunity cost of extra working hour,

which means lower income achievement. From this prospective the income per capita factor resulted in an insignificant estimation.

The highest percentage of traveling was for visiting friends and relative, and business trips. This makes the relative price insignificant specially that business trips are offered discount prices and tourist who is travelling for visiting friends and relative will be spending much less than holidaying tourist. The dummy variable of Iraq war 2003 didn't have a significant effect, because of the instability in the region since 1976 after the Arab Israel war, followed by the first and second gulf war.

As a conclusion of my analysis Jordanian tourist have very low demand for travelling abroad. The only factor that affects the decision making of travelling abroad is the substitute price; they usually compare the cost of holidaying in a particular foreign destination with the cost involved in holidaying domestically.

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Appendix

Table A1. Number of outbound tourists from Jordan to the eight destination countries

country	2000	2001	2002	2003	2004	2005	2006	2007
Oman	7,435	7,274	8,277	9,167	11,953	11,132	8,256	6,498
Saudi Arabia	253,814	259,834	263,592	240,356	306,495	279,288	322,548	533,830
Syrian Arab Republic	148,234	152,867	160,269	316,233	384,725	489,015	734,671	822,094
Tunisia	1,007	1,498	1,846	2,208	2,745	2,637	2,528	2,073
Yemen	1,856	2,135	2,385	2,689	5,129	3,483	6,060	5,602
Egypt	78,481	77,731	86,835	98,716	118,108	125,673	146,973	167,527
Lebanon	79,358	80,237	81,705	87,798	92,840	135,227	144,166	19,331
Bahrain	52,097	61,890	67,301	74,362	90,365	95,732	112,894	23,929

Source: ministry of tourism and antiques Jordan, immigration board of Jordan, world fact book, information center of Egypt.

Table A2. Income per capita for Jordan

year	GDP	population in million	income per capita
2007	15.83	5.723	2.766032
2006	14.1	5.6	2.517857
2005	12.61	5.473	2.304038
2004	11.41	5.35	2.13271
2003	10.19	5.23	1.948375
2002	9.58	5.098	1.879168
2001	8.98	4.978	1.803937
2000	8.4	4.857	1.729463

Source: department of statistic Jordan

Table A3. Exchange rates

year	EGP	SYP	LBP	OMR	SAR	TND	BHD	YER
2000	5.00717	90.2596	2135.29	0.54342	5.29547	1.93751	0.53229	227.08
2001	5.73855	78.0304	2153.74	0.54436	5.30098	2.03683	0.53316	237.03
2002	6.62243	74.3514	2226.27	0.54908	5.33249	2.03213	0.5369	247.274
2003	8.39241	68.8526	2204.58	0.54753	5.32352	1.88991	0.53586	234.435
2004	8.85493	73.9956	2195.17	0.54715	5.3194	1.83623	0.53535	258.195
2005	8.26901	75.1127	2149.17	0.54638	5.31724	1.85108	0.53463	258.856
2006	8.26377	77.0044	2191.18	0.54851	5.3271	1.90681	0.5396	256.597
2007	8.13185	75.6905	2184.49	0.54894	5.32922	1.83997	0.53906	267.994

Source: central bank of Lebanon, Egypt, Oman, Saudi Arabia, Tunisia, Bahrain, Yemen
Historical currency exchange rate website

Table A4. Consumer price index for the eight destination countries

year	Oman	Saudi Arabia	Syrian Arab Republic	Tunisia	Yemen	Egypt	Lebanon	Bahrain	Jordan
2000	100	100	100	100	100	100	100	100	100
2001	99.159	98.862	103.401	101.969	111.916	102.425	99.633	98.781	102
2002	98.828	99.09	102.866	104.728	125.613	104.915	101.386	98.335	104
2003	98.992	99.671	108.829	107.582	139.218	108.282	102.671	100	105
2004	99.658	100.025	113.653	111.479	156.607	117.06	104.388	102.253	109
2005	101.505	100.657	121.882	113.725	175.028	127.363	103.638	104.897	113
2006	104.998	102.983	134.546	118.847	206.967	132.711	109.41	107.198	120
2007	111.186	107.213	140.839	122.587	232.792	147.245	113.849	110.834	126.57

Source: world economic database of international monetary fund for the relevant years, Central administration of Statistics Lebanon

Table A5. Substitute price

country	2000	2001	2002	2003	2004	2005	2006	2007	total
Oman	2.1987	2.0592	2.2162	1.9932	2.1505	1.8106	0.0710	0.8325	13.3319
Saudi Arabia	7.7024	7.5308	7.2866	5.4119	5.6929	4.6288	4.2186	6.7934	49.2654
Syrian Arab Republic	0.2729	0.3132	0.3490	0.6278	0.6260	0.7669	0.9091	0.9676	4.8324
Tunisia	0.0835	0.1165	0.1415	0.1512	0.1646	0.1418	0.1066	0.0874	0.9932
Yemen	0.0013	0.0016	0.0018	0.0019	0.0031	0.0021	0.0033	0.0031	0.0181
Egypt	2.5187	2.1561	2.0465	1.6559	1.6780	1.7659	1.7717	1.9188	15.5117
Lebanon	0.0060	0.0058	0.0055	0.0049	0.0044	0.0057	0.0049	0.0006	0.0378
Bahrain	15.7281	17.8201	19.3935	16.6887	17.0492	16.4448	15.1734	3.1121	121.4100

Table A6. Relative price

year	Oman	Saudi Arabia	Syrian Arab Republic	Tunisia	Yemen	Egypt	Lebanon	Bahrain
2000	1.840197	0.188841	0.011079154	0.516126	0.004404	0.199714	0.000468	1.878675
2001	1.785853	0.182841	0.012991541	0.49081	0.004629	0.174986	0.000454	1.816418
2002	1.730657	0.178676	0.013302998	0.495539	0.004885	0.152331	0.000438	1.761089
2003	1.72188	0.178312	0.015053414	0.542137	0.005656	0.12288	0.000444	1.777294
2004	1.671011	0.172512	0.014091215	0.55698	0.005565	0.121282	0.000436	1.752313
2005	1.644047	0.167525	0.014359781	0.543691	0.005984	0.136305	0.000427	1.736326
2006	1.5952	0.161099	0.014560429	0.519397	0.006722	0.133828	0.000416	1.655516
2007	1.600274	0.158947	0.014701124	0.526384	0.006863	0.143061	0.000412	1.624445

Table A.7 Breusch and Pagan Lagrangian multiplier test for random effects

	Var	sd = sqrt(Var)
lnTArr	.6970292	.8348827
e	.0134315	.1158944
u	.0012949	.0359851

Test : Var(u) = 0
 chi2(1) = 0.02
 prop> chi2 = 0.8984

Table A.8 Husman test

	coefficients		(b-B)
	(b)	(B)	
	fixed	random	Difference
lnSPit	.5568467	.932502	-.3756553
lnRPit	-.1227005	-.9244416	.8017411
lnPCOit	.3744151	.5292949	-.1548798
lnLnt	.7353822	.6548095	.0805726
d01	.0383073	.0379113	.000396

b = consistent under Ho
 and Ha
 B = inconsistent under Ha, efficient under Ho
 chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)=36.48
 prob>chi2 = 0.0000
 (V_b-V_B is not positive definite)