

## **The survey of fluctuation in the tourism industry and its impact on economic growth in Iran**

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### **Abstract**

*Tourism industry is one of the most important economic sectors in the world that create a lot of value added in developed and many of the developing countries. For Iran country, the spread of tourism industry is very effective because of the dependence on oil. Accordingly, this paper evaluates the relationship between tourism and economic growth using changes in tourism industry. We used the data from the Islamic Republic of Iran spanning over 1370-1391. We used mathematical modeling to capture the impact of tourism on economic growth. The estimates reveal that the growth of the tourism industry in Iran has positive significant effect on the model and had the greatest impact on economic growth in this case study.*

**Keywords: tourism, economic growth, development, Iran**

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## **1- Introduction**

Tourism industry by providing an appropriate foreign exchange income has a substantial share of Gross Domestic Product (GDP) in any country, and then it is important to examine the role of tourism on GDP and its growth.

The experience of most developed and some developing countries reveal that economic growth is positively and substantially affected by tourism (Gartner, 1996).

In addition to the tourism, economic growth is under the influence of many variables and its improvement and it is affected by a variety of policies (Saari, 2006; Khazabi, 2008 and Deiwert et al., 2009). The six most prominent explanatory variables of economic growth are: education, investment, export, import, real exchange and R&D.

The education variable is ordinary is measured by the expenditures appropriated to education (public or private) or by the average years in schooling. An increase in both of them is expected to improve the economic growth (Barro, 1991, Mankiw, et al, 1992, Romer, 1986).

Another variable that is expected to affect economic growth is investment. It is expected that an increase in this proxy can improve economic growth (Chansarn, 2010).

The explanatory power of export and import as determinant of economic growth are also strong. Export can lead to efficient allocation of resources and better economies of scale and technological progress (Krugman, 1985) also, export improve foreign exchange which increases the imports of intermediate goods and capital then It is expected that an increase in this variable can improve economic growth (Balassa, 1978).

Imports can also increase economic growth and decrease it. If developing countries import capital goods instead of consumption goods, their economics will improve and they will be faced with economic growth (Lucas, 1988).

R&D and exchange are the variables that are expected to have a positive affect economic growth (Ibid).

A question that has not been attempted and that we intend to take up in this paper is how tourism is likely to affect economic growth in the Islamic Republic of Iran. Finding an answer to this question is

particularly important because the problem of economic growth is especially for Iran.

The paper is organized as follows: section 2 is about the history of research, in section data and variables. In Section 3, our methodology is spelled out such that after reviewing the data and some procedural issues, we present our econometric model and result. Finally in section 4 we summarize and conclude the paper.

## **2- History of research**

Drytsakys (2004) test the impact of tourism on economic growth in the long term using Granger causality test for Greece. He observed that there was a Co-integration vector between the GDP and income from international tourism during 1960 to 2000.

there was a Granger causality tests based on error correction models that indicated a strong two-way causal relation between income from international tourism and economic growth in Greece. The results of his study suggest that the growth of tourism has a positive impact on economic growth in low- and middle-income countries such as Latin American countries.

Balakover and Kantavla (2002), examined the role of tourism in the long term growth of the Spanish, using Granger causality test and co-integration deal. They examined the relationship between tourism and economic growth using mathematical modeling. The used variables were included : real GDP, the attracting tourist and real exchange rates and for this study have used data from the 1997-1975. The results show that economic growth in Spain has led international tourism (at least in the last three decades).

Selkivra and composer (2005) in an article used from panel data spanning over 1980 to 1999, showed that on average tourist countries are more growth-oriented than other countries. They also point out that tourism cannot explain their higher growth rate alone.

Agniv (2004) used dynamic panel data approach to examine the relationship between economic growth and the development of the tourism industry in Latin America over the period 1985- 1998. The relationship between these two variables was evaluated using a macroeconomic model in this study. The results of this study indicate that tourism development is a prerequisite for economic growth in low

and middle-income countries in Latin America while that is not necessary for high-income countries.

Gondos (2002), examined the relationship between tourism industry and economic growth for Turkey over 1963- 2003.

The study found a one-way relationship from the tourism industry to economic growth.

Tang and Zhang (2006) analyzed the relationship between the performance of tourism-related industries (airlines, hotels and restaurants) and GDP for the United States in period of 1981 to 2005 in a study entitled "The causality between tourism and economic growth in the United States.

the results showed the Co-integration relationship between economic growth and the performance in the United States. The results also showed a two-way causal relationship between the number of tourists and revenue growth of airlines, hotels and restaurants.

Kim et al (2006), examined the causal relationship between the development of tourism and economic growth in Taiwan using the convergence of Granger causality test. The results indicated a two-way causality relationship between these two variables. In the other words, the development of tourism and economic growth reinforce each other in Taiwan.

Lee and Chang (2008) used the method of collective heterogeneous panel to assess the long-term relationships between tourism growth and economic growth in OCED countries and non OCED (countries in Asia, Latin America and sub-Saharan Africa) for the period 1990-2000. their article entitled "Tourism Development and Economic Growth: A closer look by the panel". This study showed that there is a large impact on GDP growth of tourism growth in member countries to nonmember countries.

The result showed that real exchange rate has a significant impact on economic growth in OCED countries.

Kaplan and Silk (2008) used the method of VAR to examine relationship between the development of tourism and economic performance in the period of 1963 to 2006.

The result showed that there is a co-integration vector between real production, the revenue from tourism to real price and real exchange rate and so, tourism has a long run impact on production.

Yavari et al (2011) in a study entitled “ the impact of tourism on economic growth in OIC countries” used the method of fixed effect to examine the impact of tourism on economic growth in Islamic countries. This study showed that investment in human and physical capital and consumer spending can lead OIC member countries to increasing of economic growth. Islamic countries not only through the development of common resources (such as investment in physical and human capital, trade, foreign direct investment, etc. ), but also by improving the tourism industry can develop their economies.

### **3- Data and variables**

This paper consists of data for Islamic Republic of Iran over the period 1370-1391. All of the data come from the world tourism organization and World Bank.

We intend to investigate the relationship between economic growth and tourism with a regression analysis. For this, the explained variable in our model is the economic growth in Iran country in determined period that can be measured by the growth of real GDP per capita.

#### **3-1- Independent variables**

##### **a) Receipts from international tourists entering the Iran (ITER).**

The variable of receipts from international tourists entering the country is an important growth factor which arrive a lot of foreign exchange income into the country.

This variable is an invisible export and as with exports, arrived money into the country.

##### **b) Real exchange rate (RER).**

There are various variables that impact on economic growth such as: Investment, physical capital, Export, import, R&D, education, tourism and Most of the previous studies analyzed the significance and relevance of these variables on economic growth (Barro, 1991, Mankiw, et al, 1992). However, we used few of them to examine the accurate impact of them on economic growth. This paper introduces a new variable, namely tourism as a proxy of export.

### **4- Methodology**

The empirical model estimating total production function can be represented as:

$$GDP = F (ITR, RER) \quad (1)$$

$$\text{LnGDP} = \alpha_0 + \alpha_1 \text{LnITR} + \alpha_2 \text{LnRER} + e \quad (2)$$

Where:

**LnGDP**= the logarithm of GDP per capita;

**LnITR**= the logarithm of receipts from international tourists entering the Iran;

**LnRER**= the logarithm of real exchange rate;

**e**= Stochastic term.

Then we use the following empirical model:

This relationship is a formal representation of the Factors affecting on economic growth, describing a process where the dependent and independent variables have a maximum correlation.

We can write the new equation for Iran at time t as follows:

$$\text{LnGDP}_t = \alpha_0 + \alpha_1 \text{LnITR}_t + \alpha_2 \text{LnRER}_t + e_t \quad (2)(3)$$

#### 4-1- Result

This paper uses time series data in the manner of Ordinary Least Square (OLS) methodology that covers the data of Iran over the period of 1370-1391. The data was compiled from the world bank and world tourism organization source.

Equation 2 is the basis of our estimates and we have used the Augmented Dickey-Fuller Unit (ADF) test to test for Unit Root in level of 1%, 5%, 10%. (table 1).

**Table1. Results of the ADF unit root test**

Stability	t. Statistic 10%	t. Statistic 5%	t. Statistic 1%	Coefficient ADF	intercept	Variables
I(2)	2. 701103	3. 119910	4. 057910	4. 398 369	C	LGDP
I(1)	2. 681330	3. 081002	3. 959148	4. 334128	C	LITR
I(1)	2. 681330	3. 081002	3. 959148	3. 552103	C	LRER

Source: Research finding

According to finding shown in the table1, the calculated absolute statistics of generalized Dickey - Fuller for LGDP, LTR, LRER is larger than absolute critical statistic, so all of the variables are stable. Then we estimate the model (table 2).

**Table2. Results of the model (the impact of tourism on economic growth)**

Variables	Coefficient	Prob
C	18. 74	0. 0000
LITER	0. 17	0. 03004
LRER	0. 4	0. 0419
R-squared		0. 690959
Adjusted R-squared		0. 676811
F-statistic		15. 65074
Prob(F-statistic)		0. 000269
Durbin-Watson stat		0. 441488

Source: Research finding

**Table3. the results of the estimation after the autocorrelation**

Variables	Coefficient	Prob
C	25.60001	0.0000
LITER	0.2286	0.04063
LRER	0.112051	0.0343
AR(1)	1.0458468	0.0000
R-squared		0.697115
Adjusted R-squared		0.672430
F-statistic		210.6824
Prob(F-statistic)		0.000000
Durbin-Watson stat		1.98670

Source: Research finding

### **5- Summary and Conclusions**

This paper examined the impact of tourism on economic growth Islamic Republic of Iran. The data extracted from World Bank and World Tourism Organization with data spanned over the 1370-1391 period. The procedure employed was OLS methodology. Our estimations reveal that an increase in receipt of international tourist and real exchange rate has a significant effect on economic growth in Iran.

Based on these findings we conclude the following implication:

1) The estimates reported in Table 2 are from a logarithmic form of equation 2 and hence the coefficients obtained directly represent elasticity. Based on statistics reported in table 2, namely the D-W we cannot safely conclude that our model and estimation procedure choice is robust with respect to the results obtained because its coefficient is 0.44. so, this model faced with autocorrelation.

We use AR (1) or MA (1) in order to eliminate of autocorrelation (table 3).

The result after than autocorrelation shows that D. W is 1.98 that is this model are suitable.

2) Inferring from table 3, we can say growth in tourism and real exchange rate have a positive and significant effect on economic growth at least in Iran, such that a 1% increase in the receipt of international tourist, for example, increases economic growth by about 0.22 percent. Similarly, 1% increase in real exchange rate increases economic growth by about 0.1 percent respectively.

3) Also, the estimate of this model shows that the used independent variables determined 0.69 percent of the change of dependent variable (economic growth).

4) Furthermore, positive sign and very high of the coefficient and receipt of international tourist variable implies that the increase of receipt of tourists in Iran have high effect in improving their economic growth. That result show that increase in the receipt of international tourist hence increase in the number of tourists and this improve the economic growth in Iran. And it cannot be achieved without improving the tourism infrastructure in the country.

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