International Review of Business Research Papers
Vol. 8. No.2. March 2012. Pp. 85 - 95

Investigating the Relationship between Tourism Industry and GDP in the Islamic Republic of Iran

Ahmad Assadzadeh[1] and Mir Hojjat Najafi Nasab[2]

In developing countries, where problems such as high rate of unemployment, limited foreign exchange resources and single-product economy prevail, development of a tourism industry plays an important role in the country's economy. The Purpose of this study is to investigate the relationship between tourism industry and gross domestic product of Iran during 1968-2007. The link between income obtained from tourism and GDP is analyzed using the Johansen-Juseliusco integration method. Also the causal relationship between income obtained from tourism and GDP is investigated using the Granger and Hsiao causality tests. The results of the Johansen-Juseliusco integration test suggest a long-run positive relationship between mentioned variables and the income obtained from tourism. Also causality tests showed that there was bidirectional causality between income obtained from tourism and GDP. We concluded that the tourism industry can increase GDP and vice versa.

Keyword: tourism industry, Iranian economy

JEL Codes: C220, F100, Z000

1. Introduction

The tourism industry is a *relatively new* phenomenon in international economic trades. Nowadays, it contributes to the foreign income sources of many nations. It also plays a significant role in the economic, cultural and social development of many countries. If managed properly, it could lead to increased production, higher standard of living, increased public welfare and a high level employment.

With many historical, religious and natural attractions, Iran has the potential to become one of the main tourist attractions in the world. With a strong tourism industry, Iran will play an effective economic role in the region. It will also enable the country to introduce Persian cultural heritage to the world. From the earning point, tourism is the largest service industry in the world. Therefore, its growth has led to many social and economic changes. A large attention to tourism is partly due to its economic importance and partly due to its cultural and social effects. However, the main stimulus behind the growth of the tourism industry in many countries has been its economic benefits. According to UNWTO earnings of all countries from international tourism in 1950 was 2.1 billion US dollars. This figure reached $856 billion in 2007 and it is forecasted to hit one trillion dollars in 2010 (Soleymani, 2008).

[1]Assadzadeh, Ahmad, PhD in Economics, Assistant Professor, Faculty of Economics, University of Tabriz, IRAN- (assadzadeh@gmail.com)

[2] Najafi Nasab, Mir Hojjat, MA of Economics,Tabriz Business Training Centre, BTC

(Najafi1387@gmail.com)

This paper is trying to examine the relationship between tourism industry and gross domestic products in Iran. Based on a theoretical background and previous research, our hypotheses are as follows:

***A*.** There is a bidirectional causal relationship between the income obtained from visiting tourists to Iran and the gross domestic product.
***B*.** There is a positive long-run co-integrated relationship between income obtained from the tourism industry and the gross domestic production.

In the next part a theoretical basis is discussed. Then, some previous studies are reviewed. In the fourth part methodology and in the fifth part estimation of the model and the findings of the research are explained. In the last part the conclusion and the policy recommendations are described.

2. Theoretical Basis

According to the export-led growth hypothesis, tourism can be seen as a kind of export, differing from the export of other goods and services because of the fact that consumers consume it in the host country. Another hypothesis is known as the tourism-led growth hypothesis in the economic literature. This is a specific variant of the export-led growth hypothesis that many researches in different countries have been based upon, and it is proved to be true in most studies. The theory argues that economic growth of a country, not only is a function of labor, capital, export and other factors in that country, but also can be affected by the number of tourists entering that country. In fact tourism affects economic growth through different ways (Cortes and Paulina 2006).UNWTO has suggested five main aspects in measuring economic effects of tourism industry:

1. *Increase in gross domestic product:* income obtained from tourism helps increase the gross domestic product.

2. *Increase in foreign exchange:* this is calculated as the gross foreign exchange earnings from tourism incomes minus the foreign exchange spent on the import of goods and services used by tourists.

3. *Employment:* Local employment created by tourism. It includes several types:

***A*.** *Direct employment*: People who are working in tourism related institutions such as hotels, restaurants, touristic stores and etc.
***B*.** *Indirect employment*: Jobs created in the supply section like agriculture, fishing and related industries.
***C*.** *Induced employment*: People who are supported by spending income obtained from direct and indirect participants.
***D*.** *Construction sector employment*: Jobs created in constructing facilities and touristic infrastructures.

4. *Multiplier:* This refers to the effect of a foreign income source on the economy. It measures the impact of touristic incomes on the economy through creating economic activities.

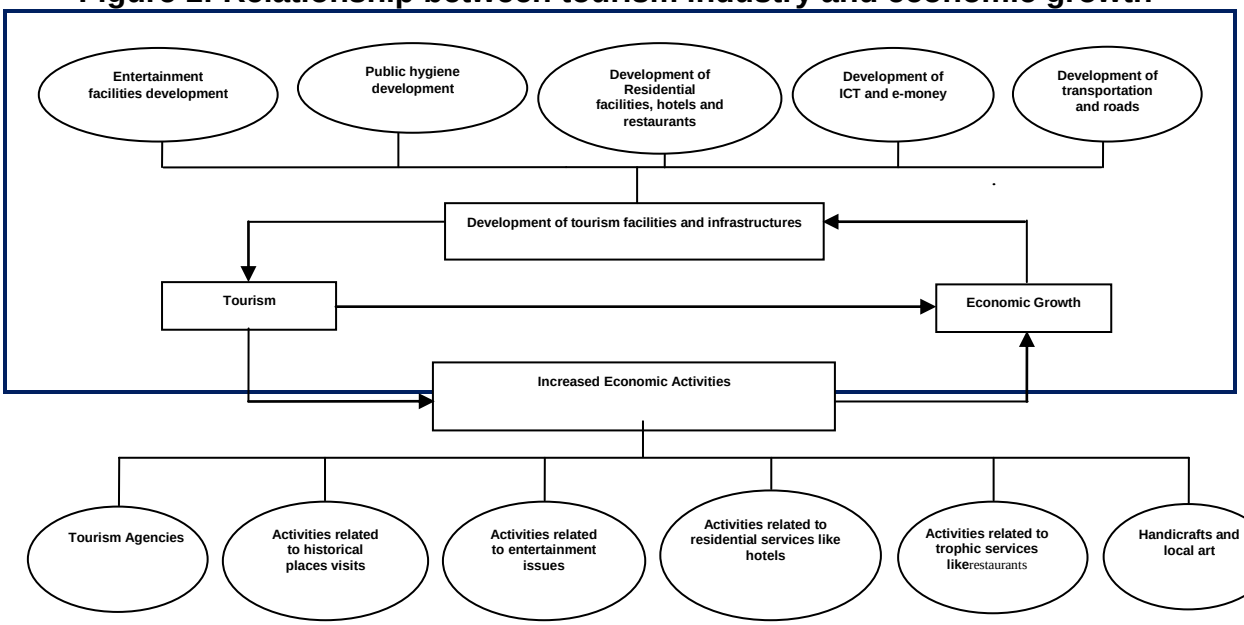
5. ***Increasing government income:*** This includes government income tax earned from hotels and other kinds of touristic taxes, airport exit duties, and tourism industry import duties, income tax levied on tourism institutions and practitioners, and capital gain tax on assets of touristic institutions.

Tourism affects economic growth in direct and indirect ways.

A. Direct effect:

Tourism is a service industry, income obtained from tourism is part of a host country's GDP, and therefore its growth directly affects economic growth. In 1998 for instance, international tourism contributed to 8 percent of the world total income and 37 percent of the world service export. According to the official forecast of UNWTO, income obtained from tourism in 2020 will approximately amount to 2 trillion dollars around the world (UNWTO, Statistics, 2007).

Figure 1: Relationship between tourism industry and economic growth

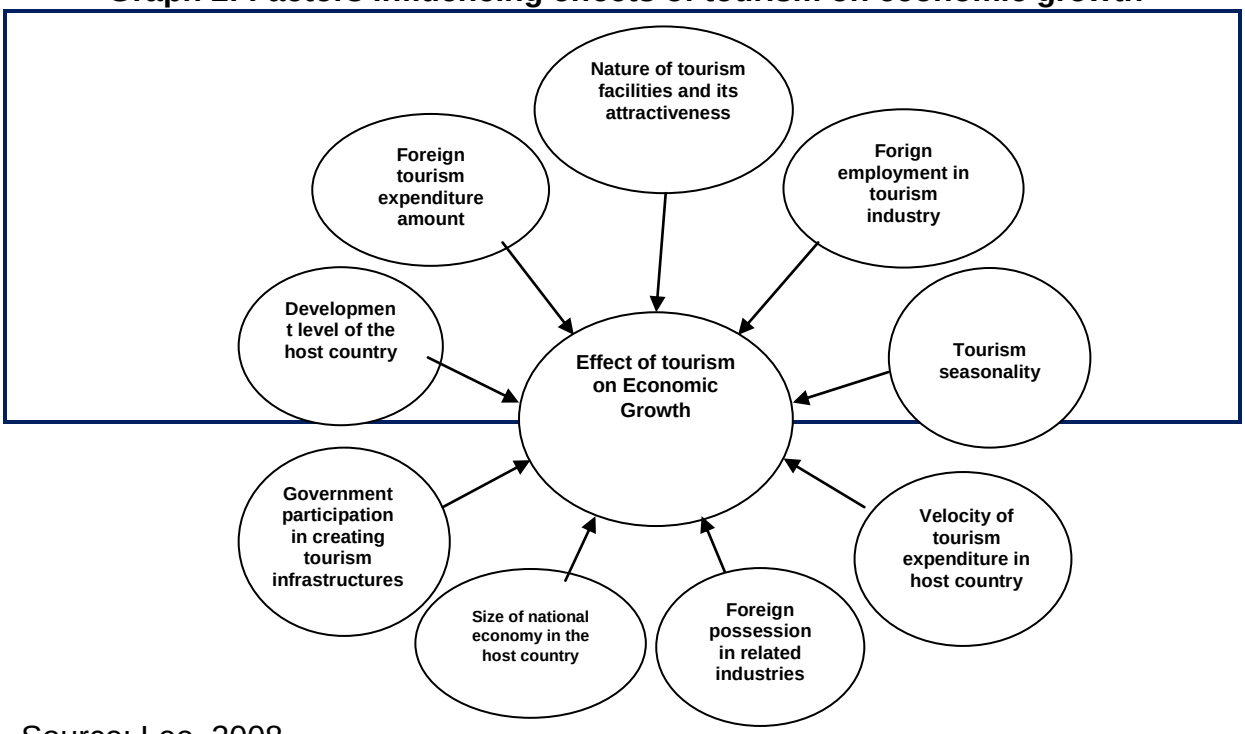


Source: Tayyebi et al. 2008

B. Indirect effect:

Tourism affects the growth indirectly too. It has a dynamic effect on the entire economy via spillovers and externalities to other sectors of the economy (Marin, 1992, P 680). As a result of the interactions with other economic activities, if the tourism sector enjoys prosperity, other economic sectors that are servicing it or are consuming its products will also move with that. In other words, tourism can act as growth engine; it motivates economic growth that leads to increase in other economic activities. On the other hand, economic growth has also positive impacts on the tourism development. Economic growth can push up the tourism industry through the development of tourism facilities, infrastructures such as transportation development, information and communication technology development, electronic money, hotels, restaurants, public health, entertainment facilities and etc. (Figure 2)

Graph 2: Factors influencing effects of tourism on economic growth



Source: Lee, 2008

3. Literature Review

Balaguer and Cantavella (2002) examined the tourism led-growth hypothesis for the first time. They used the Johansen-Juseliusco integration analysis in order to investigate the relationship between the tourism industry and long-run economic development in Spain during 1975-1997. They reviewed the tourism led-growth hypothesis and concluded that during the study period, economic growth in Spain was strongly influenced by income obtained from tourism intensely. They also advocated that growth in the tourism industry had a positive long run impact on economic development through multiplier effects.

Eugenio, Morales and Scarpa (2004) used the dynamic panel data approach to study the relationship between economic growth and the tourism industry in South American countries during 1985-1998. They studied the relationship between the above mentioned variables using a macroeconomics model. The results suggested that while tourism development was essential for the economic growth of low and average income countries of South America, it was not necessary for the economic growth of high income countries in the region.

Sequeira and Campos (2005) studied the relationship between economic growth and international tourism using the panel data approach during 1980-1999 in selected countries. Their results suggested that growth in tourism industry alone cannot bring high economic growth. Also in their study the tourism industry did not have a significant relationship with economic growth of the selected countries.

Vanegas and Croes (2007) used the Johansen-Juseliusco integration analysis and the Granger causality test to investigate the relationship between the tourism industry and gross domestic product during 1980-2005 in Nicaragua. They concluded a long-

run steady relationship between gross domestic product and tourism and a causal relationship between tourism and economic growth.

Olayinka (2008) studied the causal relationship between tourism spending and gross domestic product using the Granger causality test and panel data in selected African countries during 1995-2004. Their results suggested that there is a unidirectional causal relationship from real GDP to tourism spending. In other words, income obtained from tourism industry did not have a significant effect on economic growth of the selected African countries.

Brida, Carrera and Risso (2008) used the Johansen-Juselius econometrics method, the Granger causality test and impulse response analysis of shocks in order to investigate the long-run effect of tourism industry on economic growth in Mexico. The Johansen-Juselius test showed aco integrated vector between real GDP, tourism spending and real exchange rate. Granger causality test showed that causality goes unidirectional from tourism spending and RER to the real GDP. They found out that a shock in tourism spending have produced a short run as well as a long run long-run positive effect on economic growth.

In this paper we have two hypotheses: the first one states that there is no long-run convergence between GDP and tourism industry in Iran. The second hypothesis states that there is no causal relationship between tourism industry and GDP in Iran.

4. The Methodology and Model

The main purpose of this study is to examine the causal relationship between income obtained from foreign tourists and gross domestic product in Iran and also to investigate the co integrated relationship between mentioned variables during 1968-2007. We apply Balaguer and Cantavella model and Brida et al. model in order to examine tourism led-growth hypothesis. Our model is:

$$GDP_t = \beta_1 + \beta_2 RER_t + \beta_3 TOURI_t + \beta_4 Dumrev_t + \beta_5 Dumwar_t + \varepsilon_t$$

Where GDP is gross domestic product of Iran, RER is real exchange rate, TOURI is income obtained from foreign tourists visiting the country, Dumrev is dummy variable for years after revolution and Dumwar is dummy variable for years after the Iran-Iraq war. In this study the Granger causality, Hsiao causality, impulse response analysis and Johansen-Juseliusco integration estimation methods are used. At first, time-series properties should be examined to see if they are stationary or not.

4.1 Stationary Test of Variables

To examine the stationary of variables, augmented Dickey-Fuller and Phillips Perron tests are used. Results are shown in table 1. According to table 1 investigating the stationary of variables using ADF and PP tests shows that none of the variables were stationary at the level and become stationary after first order difference. It is then suggested that all the variables in the model namely, real exchange rate, GDP and the number of tourists visited the country are of I(1). If two non-stationary variables are co integrated in the same order and there be a linear expression of them that is also stationary, then those variables are said to be co integrated and it can be

claimed that there is a long-run relationship preventing them from diverging over time. In other words, the two variables follow each other over time. So, we use the Johansen-Juselius technique to examine the co integration between variables based on the vector auto regressive, VAR model.

Table 1: Augmented Dickey-Fuller and Phillips Perron Tests for Variables of Model

Variable	ADF Test Criteria (prob)		PP Test Criteria (prob)	
	Level,Constant,Trend	First Difference, Constant	Level, Constant, Trend	First Difference, Constant
GDP	0.997	0.031	0.991	0.0318
RER	0.95	0.0006	0.93	0.007
TOURI	1.000	0.0011	1.000	0.0012

4.2 Johansen-Juseliusco Integration Test

In order to estimate the long-run relationship between variables using the Johansen-Juseliusco integration technique, first, it is necessary to find the optimal order of the VAR model using lag determining criteria. Then, one can estimate the long-run relationship between variables.

Table 2: Number of Optimal Lag Using Schwarz-Bayesian Criteria

Number of Lags	Schwarz-Bayesian Criteria
3	77.675
2	77.256
1	76.784*
0	81.653

*Indicates amount of optimal lag

According to the above table it can be claimed that optimal lag of the VAR model regarding the Schwarz –Bayesian criteria is one. According to tables 3 and 4 both trace matrix and maximum eigenvalue tests confirm a co integrated vector between variables of the model. In other words, based on trace matrix and maximum eigenvalue tests, the null hypothesis that there is no co integrated vector or long-run relationship between variables of model at 5 percent significance level is rejected.

Table 3: Trace Matrix Test $\lambda Trace$

Null Hypothesis	Alternative Hypothesis	Test Stat.	Critical Value in 95% Level	Prob Value in 95% Level
r=0*	R≥1	**45.46**	**29.79**	**0.0004**
r≤1	r≥2	12.18	15.49	0.148
r≤2	r≥3	0.68	3.84	0.407

*Indicates Null Hypothesis rejection and existence of a co integration vector in 0.05 significance level

Table 4: Maximum $\lambda \max$

Null Hypothesis	Alternative Hypothesis	Test Stat.	Critical Value in 95% Level	Prob Value in 95% Level
r=0*	r=1	**33.28**	**13.21**	**0.0006**
r=1	r=2	11.49	14.26	0.13
r=2	r=3	0.6869	3.84	0.4072

*Indicates rejection of Null Hypothesis and existence of a co integration vector in 0.05 significance level

According to table 5, the real exchange rate has negative and significant effects on gross domestic product in Iran. In the mean time, the number of tourists visiting the country has positive, but not significant effect on GDP of Iran.

Table 5: Convergence Vector Estimation

Variable	Coefficient	Standard Error	t Stat.
GDP(-1)*	1	-----	-------
RER(-1)	39.54	6.68	5.91
TOURI(-1)	$-5.66\text{-}e^{-6}$	$4.3e^{-6}$	-1.33

*Co integration vector is normalized to GDP.

Table 6: Convergence Equation Estimation

Variable	Coefficient	Standard Error	t Stat.
GDP(-1)	1	-----	--------
RER(-1)	39.54	6.68	5.91
TOURI(-1)	$-5.66e^{-6}$	$4.3e^{-6}$	-1.33
C	-42977	-------	--------

Table 5 and 6 show that the coefficient of RER is significant as the t-ratio is more than 2. The coefficient of TOUR, however, isn't significant (-1.33≤2). This indicates that tourism industry have a weak convergence relationship with GDP.

Table 7:VEC Model Estimation

Variable	Coefficient	Standard Error	t Stat.
ΔGDP_t	-----	------	-----
C	**156.63**	**1142.95**	**0.1370**
ecm (-1)	**-0.015**	**0.0468**	**-0.3172**
$R^2 = 0.35$، $\bar{R^2} = 0.21$T, $F = 2.6$			

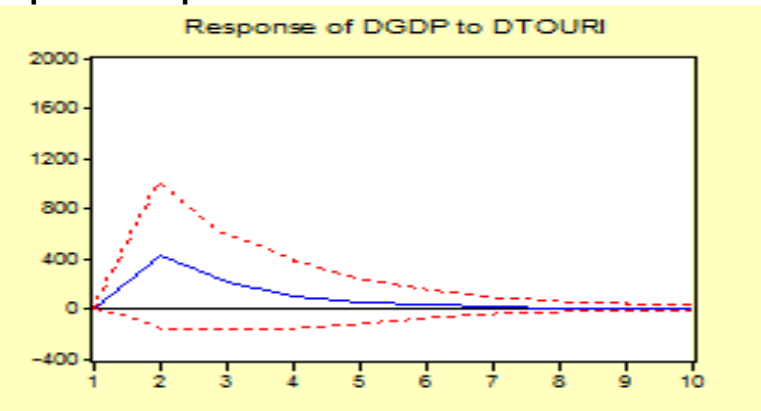
According to table 7, the pace of short-run error correction toward equilibrium and long-run state is about -0.015. This clearly indicates that there is a very slow adjustment to the long-run equilibrium.

4.3 Impulse Response Function

In this section all response functions are graphed and analyzed using the VAR model. With these functions, shocks in variables and the required time to eliminate the effects of shocks can be evaluated. The following graphs show impulse response functions to the VAR model. This includes GDP, income obtained from tourism and

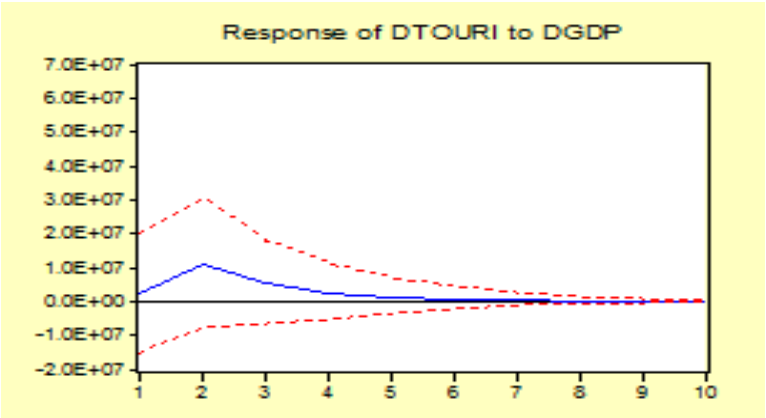
real exchange rate. In graph 3 response of GDP to shock in income obtained from foreign tourists has been indicated.

Graph 3: GDP Impulse Response Function to Income Obtained From Tourism



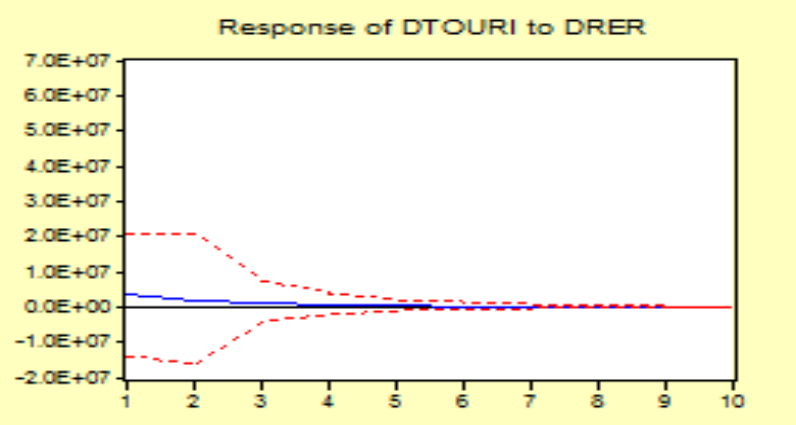
Graph 3 shows that a shock in income obtained from foreign tourists, increases GDP. This increase continues until the second period and then falls until the sixth period. In the sixth period the effect of the shock is completely eliminated. Results support the theoretical basis. This is not surprising, however as tourism is part of the service sector. The income obtained from this industry contributes to the GDP of the host country and therefore, affects economic growth directly.

Graph 4: Income Obtained from Tourism Impulse Response Function to GDPShock



Graph 4 shows that a shock in GDP, increases income obtained from foreign tourists. But, it falls from the second period and in the sixth period these effects are eliminated.

Graph 5: Income Obtained from Tourism Impulse Response Function to Real Exchange Rate Shock



Graph 5 indicates that a shock in the real exchange rate increases income obtained from tourism slightly. This effect lasts until the fourth period and is eliminated afterward. The result clearly indicates that with a rise in real exchange rate, the competitiveness of the country enhances. In other words, an increase in the exchange rate improves the purchasing power of foreign tourists, which in turn, increases the number of tourists entering the country.

4.4 Hsiao Causality Test

The Hsiao test is performed in order to discover the type of causality between variables. Results of the Hsiao causality test show that there is a bidirectional causal relationship between the number of tourists entering the country and GDP. Results of the final prediction errors are:

Table 8: Results of Hsiao Causality Test When GDP Is Dependent Variable

Test Steps	Optimal Lags	FPE
First Regression Equation	1	FPE(1)= 1817184
Second Regression Equation	(1,1)	FPE(1,1)=1686120

According to the Hsiao causality test and the final prediction error, it is indicated that FPE of second regression equation is less than FPE of first regression equation. This means that in the short run, there is a causal relationship emanating from tourism income to GDP. Examining the relationship the other way around, reveals bidirectional causality between GDP and income obtained from tourism. In Table 9, FPE calculations for first and second regression equation show that FPE of second regression equation is less than FPE of first regression equation. So, short-run causality relationship follows from GDP to tourism income. Therefore, the Hsiao causality test confirms bidirectional causality in the short-run.

Table 9: Results of Hsiao Causality Test When Tourism is Dependent Variable

Test Steps	Optimal Lags	FPE
First Regression Equation	2	FPE(1)=6387768
Second Regression Equation	(2,1)	FPE(1,1)=6355085

Restating our hypotheses specifically; there is no long run convergence between GDP and tourism industry in Iran, and there is no causality between GDP and tourism industry in Iran, we found that according to Johansen-Juselius co-integration test the first null hypothesis was rejected.According to Hisao Causality test the second null hypothesis was also rejected.

5. Conclusion and Recommendations

This paper studies the effect of income obtained from the tourism industry on GDP in Iran using annual time-series data for 1968-2007 periods. The estimation of the main model using the Johansen-Juseliusco integration method suggests that there is a positive relationship between income obtained from tourism industry and GDP. Also our findings show that there is a negative relationship between real exchange rate and GDP. The coefficient of income obtained from tourism was positive but insignificant. We conclude that, income obtained from tourism cannot affect GDP significantly. This is mainly due to the fact that in Iran, despite huge potentials, the actual amount of tourism income is very small and its share in Iran's total GDP is minimal. In this paper, we used Johansen-Juselius co-integration test to examine the long-run convergence between GDP and tourism industry. In addition, Hsiao causality test was used for investigating a causal relationship between the above variables. Results show that both null hypotheses were rejected. In other words, there is long-run convergence and bidirectional causality between tourism industry and GDP in Iran.

Given the results and findings from the study we suggest the following recommendations:
Due to the ever-i*ncreasi*ng importance of the tourism industry and in light of the fact that Iran ranks amongst the top 10 countries of the world in having a tourist attraction potential, it is necessary that the political and economic issues be addressed in order to thrive this industry. Tourism income will diversify the country's income and reduce its dependence on oil revenue. It also provides an opportunity to introduce Iran's rich cultural and Islamic heritage to the rest of the world.

- Eliminating the negative and insecure perception of Iran in foreign countries by improving political relationships with western and other Islamic countries.
- Creating a tourism database and information centers, exchanging and disseminating information about tourism, with all countries in the world and with Islamic countries in particular.

References

BahmaniOskooee, M 2005, 'History of the Rial and Foreign Exchange Policy in Iran', *Iranian Economic review*, vol.10, No14.PP.1-18.

Balaguer, J and J,Cantavella 2002, 'Tourism as a Long–run Economic Growth Factor: the Spanish Case', *Applied Economics*, no.34, pp.877-884.

Bhagwati, J and T,Srinvasan 1979, '*Trade Policy and Development inInternational Economic: Theory and Policy'*, Johns Hopkins University press, Baltimore.

Brida, J, C, Carrera and W,Risso2008, 'Tourism's Impact on Long-Run Mexican Economic Growth' *Economics Bulletin*, no21, pp.1-8.

Cortes, I and M,Pulina 2006, 'A further step into ELGH and TLGH for Spain and Italy', http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm

Dritsakis, N 2004, 'Tourism as a Long-run Economic Growth Factor a Empirical Investigation for Greece', *Tourism Economics*, no3,pp.305-316.

Enders, W 2004, '*Applied Econometric Time Series'*, University of Alabama.

Engel, RF and CWJ, Granger 1987 '*Co integration and error correction: Representation, estimation and testing',* Econometrica,55, pp.76-251.

Eugenio, J, M, Morales, and R,Scarpa 2004, 'Tourism and economic growth in Latin American Countries: A panel data approach', *Natural Resources Management*, no 26, pp. 1-28.

Hsiao, C 1981, 'Autoregressive Modeling & Money –income Causality Detection', *Journal of Monetary Economics,* pp.85-106.

Juselius, K 2006, '*The co integrated VAR model methodology and applications'*, New York, Oxford University Press.

Kim, H, H, Chen, and S, Jan 2006, 'Tourism Expansion and Economic Development: The Case of Taiwan', *Tourism Management*, no.27, pp. 925-933.

Lee, Ch and Me,Chien 2008, 'Structural Breaks, Tourism Development, and Economic Growth: evidence from Taiwan', *Mathematics and Computers in Simulation*, no.77, pp. 358-368.

Marin, D 1992, 'Is The Export-Led Hypothesis Valid For Industrialized Countries?' *Review of Economics and Statistics*, no.74, pp. 678–688.

Olayinka, Kareem 2008, 'Tourism-exports and economic growth in Africa', *African Econometrics Society (AES), Conference in Pretoria, South Africa,-*
http://www.africametrics.org/documents/conference08/day1/sessioniz/kareem.pdf.

Samina, khalil 2006, 'Role of Tourism in Economic Growth: Empirical Evidence from Pakistan Economy', http://www.pid.org.pk/psde23/pdf/samina khalil.pdf.

Sequeira, T and C, Campos (2005), 'International Tourism and Economic Growth', *Natural Resources Management*, no. 14, pp. 1-25.

Vanegas, Manuel and R,Croes, 2007, 'Tourism, Economic Expansion and Poverty in Nicaragua', *Second International Conference on Tourism Economics*,
http://jtr.sagepub.com/cgi/rapidpdf/0047287507312429v1/pdf.

The World Tourism Organization UNWTO2007 www.unwto.org.

World Bank (2008), 2008WDI, CD, Washington DC.