# The Impact Of Corruption Indicators On Tourism Income In Equal Development Level Countries With Iran

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**Abstract**
Corruption and its related indicators are influential factors in the promotion and development of tourism in a country or region. In other words, the security and fragility of corruption is the first and most basic need of a tourist. Various studies indicate a decline in tourism entry rates as a result of political corruption and conflicts around the world. This research examined the role of some indicators of corruption such as corruption perception and good governance on tourism by Panel-Vector Autoregressive Model among the 30 developing countries during 2006-2015. The results show the positive and significant impact of economic growth, control of corruption, good governance and political stability on increasing tourism incomes, but, the significant negative effect of corruption on tourism in the countries under study.

**Keywords:** Corruption Perception, Tourism, Developing Countries, Control of Corruption, Panel-VAR

## Introduction

The tourism industry, as the second most important industry in the world, is a source of revenue for foreign exchange and government tax revenue, employment creation, private sector growth, and infrastructure development (Eremeeva EA, et. al., 2021; Nguyen CDT., 2022). Also, it is an important source for offsetting the shortage of other economic sectors (Tikhomirova T, et. al., 2021). The attraction and entry of international tourists to any country stimulates investment in both tourism and non-tourism sectors and leads to national and regional development. It should be noted that although the development of the tourism industry is rich in economic, social and cultural benefits, the wrong direction and organization of this industry will bring losses, which are more visible than its benefits.

Therefore, good governance and the reduction of corruption are inevitable, in order to efficiently guide in this industry.

Today, most countries have found that the presence of many architectural, historical, cultural and cultural attractions is not enough to attract tourists, so, the lack of corruption, as well as the existence of good governance, are very important. The issue of corruption has been more attention given in recent years for some reason such as high levels of corruption in industrialized countries, raising awareness of the cost of corruption around the world as well as the country's political and economic changes (Lawal, 2007).

Corruption is a consequence of an inadequate institutional environment, and it is important

because of its role in economic activities. The effects of corruption have largely investigated in various literature and different relationships have been proposed. Good governance also has a special place in the use of modern and efficient ways of earning money and improving economic, social and cultural conditions. Good governance and lack of corruption along with tourist attractions create political security, amenities and a means of protecting tourist attractions. It also provides the basis for expanding international cooperation and establishing constructive engagement with other countries of the world. It introduces tourism attractions of the country as well as a friendly invitation from other countries to enter the country and mutual respect for cultures. Corruption in most cases tends to reduce the inclination of tourists to visit and enter a country because it can damage the social and cultural image of a country and effect on competitiveness. It can lead to damage to businesses and increase tourists' costs, because, usually people tend to travel to countries with the least corruption.

In addition, good governance is identified as a contributory factor in the realization and development programs management. Accordingly, policy-makers and tourism planners at higher levels want to improve the quality and obtain the standard certificates of quality of tourism services carry out monitoring and control and punitive measures through related trade associations, facilitating, encouraging and supporting the production units of tourism products. Indeed, they want to minimize the concerns of tourists by making and passing laws, regulations, and clear executive guidelines. In general, the absence of good governance not only leads to problems such as unemployment, poverty, inflation, economic instability, environmental degradation, and tourist attraction but also, diminished the sense of comfort and safety in tourists and their willingness to enter the country. This is the beginning of depriving the country of the significant income of the tourism industry (Sharifi Renani, etal; 2004).

According to the results of different studies, it is important to select variables that incorporate different types of corruption in different ways. Important points of empirical studies in this field can be summarized in three cases. First, there is a lack of consideration of the impact of the variables of corruption on tourism, at the same time. Second, in most cases, one index of corruption (corruption perception or corruption index) is used as a level of corruption. Third, the lack of special focus on a sample selection of countries (in cross-country studies), with enough attention to choose countries with an equal level, in terms of per capita income and human development level together. As a result, the present study try to cover these issues as follow:

1. Contrary to most of the previous studies, which only the impact of good governance on tourism has considered, we examine the effect of good governance variables on tourism, at the same time.

2. Samples selection is different with other studies because Countries selection has some steps. We first choose 84 countries (middle- income and upper-middle-income countries) considered due to the proportion of the level of development and the country's position in middle-income countries. In other words, The GDP per capita without oil considered, because the Human Development Index, especially in oil countries in different years, cannot consider as an improvement in the quality of life. Because, the Human Development Index derived from the average of life expectancy, education, and per capita income. But, the rise in oil prices has led to an increase in per capita income, which has led to increasing the index of human development without necessarily major changes in life expectancy and educational progress. Therefore, the emphasis on improving the rate of human development index over a period of time can be misleading, especially in oil countries. In fact, what should be considered and used in policy making is the gap between the per capita income rating and the rank of the human development index, or the inclusion of economic growth without oil.

3. We considered Iran as the core of choosing other countries, so the results could expand to Iran.

So, this study aims to identify the factors affecting tourism with an emphasis on corruption perception and good governance as two indicators of corruption which show the level of corruption in a society. So the relationship between corruption, good governance and tourism, and the main factors which have more impact on attracting tourists are the main question. Then, the research method presented and the experimental findings of the model explained. In the end, the topic is summarized and concluded.

**Literature review**

The In most developing countries, tourism is regarded as a key sector in the export market. There has been a general consensus that causes an increase in foreign exchange income, presents plenty of employment opportunities, provides an improvement in the growth rate of tourism industry, and promotes economic growth (Jafari Samimi etal, 2011). So, most governments, especially in developing countries have successfully demonstrated a willingness to develop the tourism industry. Tourism is an area sensitive to uncertainties such as political instability, insecurity, and corruption (Opadia, etal, 2011). In other words, political unrest and corruption can impose the most harmful and costly burden on the tourism industry.

Therefore, now, security considered the most important and fundamental infrastructure in tourism development in the world. Because the sensitive and delicate tourism industry has a comprehensive connection in regional and national contexts, and any incidence of insecurity and the use of violence at different levels brings irreparable damage to the industry (Sameti etal, 2016). In this regard, International Transparency defines Corruption of the misuse of power entrusted to private interests. In addition, it has shown corruption in four levels: political corruption, administrative corruption, judicial and financial corruption which have resulted in some factors such as poor economic performance, especially in developing economies (Fahad, 2016). Corruption spread throughout the world in developing and developed countries alike, which causes a reduction in the rate of economic growth and investment levels. Many economists such as Alamo (2012), Wu (2010) and Aparana and Carticia (2011) have argued that high levels of corruption hinder the flow of investment.

Many of the studies provided the necessary data for corruption from international institutions and organizations such as TI, WB, and ICDGE. It should be noted that the data used for corruption is mainly a combination of economic, political and legal indicators, and these data are not limited to the government only. Corruption is not just limited to the public sector, but the private sector also plays a role in corruption in many countries. So far, several indicators have defined for corruption, but in general, the following indicators considered as the main indicators of corruption (Office of Economic Studies report, 2007):

Corruption perception index (CPI), defined by the International Transparency Organization, which shows the demand for corruption. It is a combined index which obtained by filed and documentation measurements and is based on the perception and attitude of a number of businessmen, economists, politicians, and public sector managers. This index shows the health of countries from zero to ten. As the number is closer to ten, the country cleaner and healthier.

Business international (BI) Index, International Country Risk Guide (ICRG) index, Global Competitiveness Report (GCR) index, and corporate corruption indices, and the other indices. Also, good governance is used as a reliable index of accountability and voice, political stability, non-violence, organizational effectiveness, quality of regulations, law practices, and control of corruption.

A variety of studies have investigated the effect of corruption on tourism. Corruption as a form of insecurity may influence behavior patterns of tourists. Political instability and corruption increase business expense in the tourism industry by creating serious obstacles in the path of investment (Santatna, et al, 2016). It has an effect on the vision of people for a

destination, and makes them uncertain as to the cost and safety of their trip. Propawe (2015) has reflected the general perception that people especially those from countries in which corruption is a rare event, display preference for travel to countries with the least corruption. Common corruption likely causes an increase in travel costs the same impact as a tax. Tourists may be required to pay extra cost in bribes, for example, to get a passport, to convince a police officer to let them cross a road is impassable, or even to receive the VIP treatment in restaurants.

Different studies have surveyed the impact of corruption on tourism. Anatusi and Nnabuko (2012) brought control of corruption into focus to build up a positive image in the mind of tourists in Nigeria by executing strategies aimed at desired improvements in public relations. Given the fact that enough rules are available for preventing corruption, they suggested applying such rules in a blanket term, not randomly. Meknic et al. (2015) investigated the phenomenon of organized crime and corruption to evaluate and describe the direct and indirect effects of organized crime and corruption on the processes of environmentally sustainable development and creating perfect destinations for tourists. Their results confirmed the direct effect of organized crime and corruption on offering efficient services by sustainable tourism.

Ivanov and webster (2017) analyzed the effect of political instability on the tourism industry in Ukraine. Their findings, in agreement with the previous study results, revealed the negative effects of political instability on the tourism industry, such as a drop in tourist revenue and the number of tourists and overnights. It was also observed that political instability had a distinct role in tourist accommodation arrangements and travel agencies. Saha & Yap (2014) discovered that political instability had a more serious effect on tourism than a terrorist attack. Their surprising finding was that terrorist attacks had a non-significant or even moderately positive effect on tourism in countries with a low level of political instability, compared to ones with a high level of political instability. Propawe

(2015) observed a 1-point increase in CPI (Corruption Perception Index) with a reduction in corruption by using fixed-effects and Dynamic GMM specifications and a database of over 100 countries during 16 years. It resulted in a 2 to 7% increase in tourism.

Based on the aforementioned statistics we can deduce that the tourism as an emerging industry in a new era, has become one of the determining factors behind the world trade economy, and positive features and outcomes makes it a main pillar of sustainable development. Some developers and policymakers hold a personal belief about tourism as an item with multiple roles in occurring sustainable development at a regional level. Meanwhile, it should be noticed that sustainability is maintained as an acceptable standard in every development program such as tourism development one. Thus, sustainable development in the tourism industry necessitates a competent management and harmonious relations between the public and private sectors (Nabi Najafi et al, 2016).

**Methodology**
**Data description**
To obtain information concerning the effect of corruption on tourism, the variables of tourism income (TOUR), corruption perception index (CPI), good governance (GG), inflation rate (INF) and economic growth (GDP), as well as indicators including political stability (PS) and control of corruption (COC) were two important indicators of good governance which affect the attraction of tourists, (Sharifi Renani et al., 2013), used to measuring corruption. World Tourism Organization specifies good governance as an indicator of corruption, also, can have a significant positive impact on tourism. Furthermore, inflation somehow causing corruption and had an impact on corruption in different studies (Bazrpach and Torabi, 2016; Moshiri and Kianpour, 2012; Razmi and Shahraki, 2009). In other words, reducing competitiveness levels and increasing in production cost are the result of inflation, according to theories and empirical studies. In addition, inflation is a reason for instability and lack of control of macro policies can lead to a decline in a tourist

attraction (Daryaie etal, 2012).

Tourism income represents revenues earned from international visitors, such as payments to national transportation networks. Any payment collected for goods or services provided by the destination country is also regarded as a source of tourist revenues. They may also contain receipts and payments received from same-day visitors, provided that their immediate importance can be justifiable reason for being included in a separate category (World Bank, 2016).

Governance is a broad concept that has direct relevance to economic and political security, the way of dealing with the affairs of the country and developmental plans, which are the most fundamental factors in attracting tourists. Various researches such as Daryaie et al. (2012) showed that increasing good governance will have a positive impact on tourism. The World Bank defines good governance on the basis of six indicators such as accountability and voice, political stability, non-violence, organizational effectiveness, quality of regulations, law practices, and control of corruption. Political stability as a key factor affects the tourist attraction of host countries. Political instability usually creates unfavorable conditions in the destination country that seriously undermines the trust of tourists. According to various research, political instability leads to a higher risk of travel to the destination and it negatively affects tourism by a decrease in the number of tourists (Ivanoff et al., 2017; Basu and Sarbaiy, 2010).

Control of corruption (COC) measures the level of government use for personal gain, including micro and macro corruption (Fazeli and Jalili, 2012). The Corruption Perceptions Index (CPI), which shows the demand for corruption is a composite index that is obtained by various field and documentation measurements and based on the perception and attitude of a number of businessmen, economic analysts, politicians, and public sector managers (Office of Economic Studies, 2006). The number of this indicator was between 0 and 10 in 2011 and 0 to 100 in 2012. Countries with the lowest score have the highest degree of corruption and vice versa (Bazrpach and Torabi, 1983). This index entered the model

because of the differentiation of this index with the index of corruption control and other variables of the model. In other words, the index focuses on the rate of government employee bribery, the corruption index shows the level of personal use of the authorities, and the other variables also focus on other areas of corruption in countries.

World Bank has been access point to information about macroeconomic data, tourism income, good governance, control of corruption and political stability, and data on corruption perception has been derived from Transparency International Organization. In this paper, we assess these issues, by applying a panel vector auto-regression setup with these variables for a sample comprising 30 developing countries in the period from 2006 to 2015, with annual frequency. According to the vector self-regression method, when multi-variable behavior is studied, it is necessary to consider the interrelationship of variables in the form of a system model of simultaneous equations. These models used if there is no linear relationship between variables.

**Panel-VAR framework**

An efficient method of investigation can be developed by VAR models that make it possible to infer dynamic effects and to create specific pattern of interaction among oil price, tourism, and macro-variables (Kim, Lee, 2008).

Since there is no theory about the relationship between the price change of oil and the development of tourism sector in oil producer and exporter countries, P-VAR method is an appropriate choice for this study. This method works within a framework that lets all the variables to enter as an endogenous variable in a system of equations where energetic relationships can be subsequently developed in the short run (Filippaki, Mamatzakis 2009).

P-VAR method is based on a same structure as VAR models. They take a convergent view that all the variables are endogenous and interdependent, but the former gives a regional dimension to the representation. P-VAR method is a combination of traditional VAR approach entering all the variables an endogenous variable in the system, and panel data approach considering unobserved

heterogeneity in the data context.

The econometric model takes the following degrade form:

$$y_{0i} = A_{0i}(t) + A_i(l)Y_{t-1} + u_{it} \quad i = 1.\ldots.N \quad t = 1.\ldots.T$$

Where $u_{it}$ indicates a $G \times 1$ vector for random disturbances, and $A_{0i}(t)$ and $A_i$ may have dependence on the unit, as made clear by the notation. For a panel VARX, representation is as follows

$$y_{0i} = A_{0i}(t) + A_i(l)Y_{1t-1} + F_i(l)W_t + u_{it}$$

Where $u_t = [u_{it}.u_{it}.\ldots.u_{Nt}]'\sim iid(0.\sum)$, $F_{i,j}$ are $G \times M$ matrices per lag j=1,…,q, and $W_t$ indicates a $M \times 1$ vector of predetermined or exogenous variables, which is common among all the units I (Canova and Cicarelli, 2013).

P-VAR is typically used in financial and macroeconomic analyses. It has a degree of similarity to VAR on a large scale that allows for dynamic and static interdependencies. Having imposed a structure on the covariance matrix of the error terms, cross-sectional heterogeneity makes P-VAR a different method. It has been also used to deal with different matters in which macroeconomists and policymakers are interested. P-VAR is especially suitable for analysis of transmitting idiosyncratic shocks. As another potential application, it can be used in evaluating the importance of interdependencies, and in checking to see whether feedbacks are received from all or certain units (Cicarelli, 2013).

In this research, two models have been estimated to assess the effect of corruption indicators on tourist industry among the selected countries. The first model surveys the effects of variables such as economic growth (GDP), inflation (INF), perceptions of corruption (CPI) and good governance (GG) on tourism income (TOUR) which as follows:
TOUR= F (INF, GDP, GG, CPI)

In the second model, two indicators of the most important and most common good governance indicators that effect on tourism are entered to the model instead of the good governance, namely, political stability (PS) and control of corruption (COC). Their distinct effects on tourism have been analyzed, as follows:
TOUR= F (INF, GDP, PS, COC, CPI).

**Empirical Finding**
The method used in this study is the Panel VAR approach which based on 5 steps. At first, the panel root test used when the data accumulation is tested using the panel coincidence test. In the third stage, the optimal lag is selected to explain the model. Also, the function is estimated; and finally, the Impulse Response Function investigated.

**Stationary Test**
Necessity forces a test on the reliability of variables used in estimates before model estimation, because the non-stationary of the variables in both the time series and panel data causes the problem in regression. (Verhrami et al., 2016). Dicky Fuller and augmented Dicky Fuller tests cannot use in combined data, but, it is also necessary to test the static of variables (Hazare et al., 2016). Therefore, before estimating the static, we tested Im, Pesaran and Shin W-test (IPS).

**Table 1.** Panel unit Root test - Im, Pesaran and Shin W-test (IPS)

| variebles | 1 ST DIFFERENCE | | LEVEL | |
|---|---|---|---|---|
| | Intercept | Trend and Intercept | Intercept | Trend and Intercept |
| CPI | - | - | -2.40 (0.008)** | 0.2666 (0.6166) |
| GDP | - | - | -4.99 (0.0000)*** | -2.074 (0.0190) |
| GG | - | - | -4.097 (0.0000)*** | -1.1555 (0.1240) |
| GG | - | - | -7.74 (0.0000)*** | -2.525 (0.0058) |
| TOUR | -2.8497 (2.002)** | 0.2744 | 1.4587 (0.9277) | 0.054 (0.5215) |
| COC | - | - | -5.544 (0.0000)*** | -1.23 (0.1093) |
| PS | - | - | -3.534 (0.0000)*** | -1.186 (0.1177) |

**. *** Significant at 5 and 1% respectively.

The IPS test shows the existence of a separate unit root for each section. According to the result in table 1, all the variables are at a stationary level, with intercept and with no

differentiation, and, the tourism income is stationary only with differentiation and with intercept.

**Cointegration test**
As a next stage, conitigration in the variables is investigated by Pedroni residual cointegration test in the long run.

**Table 2.** Pedroni residual cointegration test

|  | In first model | | In second model | |
|---|---|---|---|---|
|  | Statistics | Prob | Statistics | Prob |
| Panel v-Statistic | -1.359263 | 0.9130 | 1.135705 | 0.1280 |
| Panel rho-Statistic | 2.177846 | 0.9853 | 5.577649 | 1.0000 |
| Panel PP-Statistic | -9.054386 | 0.0000* | -5.412628 | 0.0000 |
| Panel ADF-Statistic | 5.357496 | 1.0000 | -2.066929 | 0.0194 |
| Group rho-Statistic | 5.595095 | 1.0000 | 7.600373 | 1.0000 |
| Group PP-Statistic | -9.929252 | 0.0000* | -8.243679 | 0.0000 |
| Group ADF-Statistic | 4.960113 | 1.0000 | 2.023009 | 0.9785 |

*Denotes significance at 10% level.

Based on the result, the variables of the model are significant at 1% level using Group PP-Statistic statistics and Panel PP-Statistic in both the first and second models. Therefore, the zero hypotheses rejected. So, the variables cointegrated in countries and there is a long-term relationship between them.

Optimal lag
Understanding of optimum lag and model variables is a necessary condition to achieve an optimal model providing a proper estimation of variables, it is necessary to have. The correct predictions are dependent on the choice of optimal lag. If the lag is short-run, it cannot show system dynamics, and it brings about the problem of deleted variables in the model, and, probability makes errors in correlation. On the other side, long lags may cause a rapid decline in measure of freedom and excessive characteristics (Hezare et al, 2016). In order to determine the optimal lag, all variables are estimated in the form of the VAR model. Akaike and Schwarz and Hannan-Quinn criteria are used to determine the optimal lags, which is calculated from the log-likelihood function. Accordingly, table 3 presents findings form a test for determining optimal lags.

**Table 3.** Findings from a test for determining VAR lags

|  | Lag | Log L | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|---|
|  | 0 | 98.80348 | NA | 2.13e-08 | -3.474203 | -3.290038 | -3.403178 |
|  | 1 | 255.9265 | 279.3298 | 1.61e-10 | -8.367648 | -7.262657* | -7.941496* |
| First mode | 2 | 276.0135 | 31.99044 | 1.97e-10 | -8.037445 | -6.159868 | -7.404407 |
|  | 3 | 297.0110 | 29.55205 | 2.44e-10 | -8.037445 | -5.090802 | -6.901040 |
|  | 4 | 338.1337 | 50.26102* | 1.52e-10* | -8.634580 | -4.767111 | -7.143049 |
|  | 0 | 96.25213 | NA | 2.64e-08 | -3.259005 | -3.0781170 | -3.1888895 |
|  | 1 | 263.8739 | 299.3246 | 1.63e-10 | -8.35264* | -7.267630* | -7.931984 |
| Second model | 2 | 309.2247 | 72.88517 | 8.05e-11 | -9.079453 | -7.090269 | -8.308251 |
|  | 3 | 330.4076 | 30.26123 | 9.75e-11 | -9.297735 | -6.049767 | -7.821378 |
|  | 4 | 365.3366 | 43.66127 | 7.64e-11 | -9.29773* | -5.500200 | -7.825439 |

* indicating the optimal lag of model.

Based on the result and to prevent the reduction of degree of freedom and loss of data based on the Schwartz statistics, we can claim that the optimal number of interruptions for two models is equal 1.

Model estimation
Due to the choice of one lag period, the empirical model of research is proposed. Accordingly, the first model is as follow.

$$CPI_{it} = \alpha_{11}CPI_{it-1} + \beta_{11}GDP_{it-1} + \gamma_{11}GG_{it-1} + \delta_{11}INF_{it-1} + \theta_{11}TOUR_{it-1}$$

$$INF_{it} = \alpha_{21}CPI_{it-1} + \beta_{21}INF_{it-1} + \gamma_{21}GDP_{it-1} + \delta_{21}GG_{it-1} + \theta_{21}TOUR_{it-1}$$
$$GDP_{it} = \alpha_{31}CPI_{it-1} + \beta_{31}INF_{it-1} + \gamma_{31}GDP_{it-1} + \delta_{31}GG_{it-1} + \theta_{31}TOUR_{it-1} \qquad (5)$$
$$GG_{it} = \alpha_{41}CPI_{it-1} + \beta_{41}INF_{it-1} + \gamma_{41}GDP_{it-1} + \delta_{41}GG_{it-1} + \theta_{41}TOUR_{it-1}$$
$$TOUR_{it} = \alpha_{61}CPI_{it-1} + \beta_{61}INF_{it-1} + \gamma_{61}GDP_{it-1} + \delta_{61}GG_{it-1} + \theta_{61}TOUR_{it-1}$$

Also, in the second model is as follow:
$$CPI_{it} = \alpha_{11}CPI_{it-1} + \beta_{11}GDP_{it-1} + \gamma_{11}COC_{it-1} + \sigma_{11}PS_{it-1} + \delta_{11}INF_{it-1} + \theta_{11}TOUR_{it-1}$$
$$INF_{it} = \alpha_{21}CPI_{it-1} + \beta_{21}INF_{it-1} + \gamma_{21}GDP_{it-1} + \delta_{21}COC_{it-1} + \sigma_{21}PS_{it-1} + \theta_{21}TOUR_{it-1}$$
$$GDP_{it} = \alpha_{31}CPI_{it-1} + \beta_{31}INF_{it-1} + \gamma_{31}GDP_{it-1} + \delta_{31}COC_{it-1} + \sigma_{31}PS_{it-1} + \theta_{31}TOUR_{it-1}$$
$$COC_{it} = \alpha_{41}CPI_{it-1} + \beta_{41}INF_{it-1} + \gamma_{41}GDP_{it-1} + \delta_{41}COC_{it-1} + \sigma_{41}PS_{it-1} + \theta_{41}TOUR_{it-1}$$
$$PS_{it} = \alpha_{51}CPI_{it-1} + \beta_{51}INF_{it-1} + \gamma_{51}GDP_{it-1} + \delta_{51}COC_{it-1} + \sigma_{51}PS_{it-1} + \theta_{51}TOUR_{it-1}$$
$$TOUR_{it} = \alpha_{61}CPI_{it-1} + \beta_{61}INF_{it-1} + \gamma_{61}GDP_{it-1} + \delta_{61}COC_{it-1} + \sigma_{61}PS_{it-1} + \theta_{61}TOUR_{it-1}$$

In the mentioned equations the variables are the Corruption Perceptions (CPI), Inflation (INF), Economic Growth (GDP), Good Governance (GG), Political Stability (PS), Corruption Control (COC), and International Tourism Revenues (TOUR).

The result of panel VAR estimation in the first model shows in table 4. The economic growth with one lag exerts a significant positive effect on economic growth rate. In other words, a one-point increase in economic growth will accelerate economic growth by 0.426 in the current period. Also, one unit increase in GDP with one lag makes 0.271 unit changes in tourism revenues, which the result is matched with Daryia et al (2012).

Studying of coefficients of GDP growth as an indicator of countries shows that economic growth has coincided with an increase in tourism and associated vulnerability of a country. This relationship shows that tourists like to visit countries with more economic growth increases. In other words, the rising income significantly affects the growing tourism industry.

Corruption Perceptions Index (CPI) with one lag exerts a significant negative effect on tourism income, and a unit increase in corruption, reduce the tourism revenues by 0.129.Also, the estimated model shows that a positive relationship exists between development of tourism industry and control of corruption.

The good governance is showing a response to the needs of people against achieving sustainable development and environmental issues. In addition, the good governance variable positively affects tourism revenues, and, with one unit increase in good governance, 0.088 units will add to tourism revenues. This result is the same as Sharifi Renani et al (2014) results. In other words, "good governance" is one of the effective factors to improve and develop the tourism industry.

Finally, the variable of tourism revenues in the last period has a positive and significant impact on tourism income in the current period, and with one unit increasing, 0.988 units will be added to the tourism income in the current period. In addition, with each increase in tourism revenues, 0.011 units will be added to the gross domestic product, so domestic gross product is positively affected by tourism revenues. In other words, tourism is a decisive factor for growth (Brida et al, 2008; Fayissa et al, 2007), because it can lead to more employment and a better distribution of income. More specifically, tourism can have a direct and indirect effect on economic growth (Gholizade, 2017). Indeed, the higher the number of the arrived tourists in a country, the more revenues for the country. Revenues from tourism as a service industry constitute a part of GDP in the host country, and they have a direct effect on its economic growth. Hence, tourist industry may be a good solution for gaining vast foreign exchange earnings for countries, as a result of higher economic growth. Also, tourism indirectly affects growth, if tourism flourishes because of its high interaction with other economic activities.

**Table 4.** The results of model estimation using Panel Vector Autoregressive Model in the first model

| | GDP | | | CPI | | | INF | | | GG | | | TOUR | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic |
| GDP(-1) | 0.4262 | 0.0524 | 8.1278* | 0.1474 | 0.1653 | 0.8919 | 1.0989 | 1.2415 | 0.8851 | -0.5921 | 0.0402 | -0.1139 | 0.2713 | 0.1345 | 2.0163* |
| CPI(-1) | -0.0246 | 0.0202 | -1.2219 | 0.2079 | 0.0636 | 3.2661* | 0.6845 | 0.4782 | 1.4319*** | 0.0676 | 0.0544 | 1.2435 | -0.1219 | 0.0518 | -2.3533* |
| INF(-1) | -0.0105 | 0.0025 | -4.1292* | 0.0023 | 0.008 | 0.2963 | 0.3063 | 0.060 | 5.0647* | -0.0020 | 0.0068 | -0.3027 | -0.0100 | 0.00656 | -1.5316** |
| TOUR(-1) | 0.0115 | 0.0033 | 2.1612* | -0.0026 | 0.0106 | -0.2503 | 0.0246 | 0.0800 | 0.3077 | 0.0010 | 0.0091 | 0.1173 | 0.9880 | 0.0086 | 113.841* |
| GG(-1) | 0.02143 | 0.0149 | 1.4345 | 0.0827 | 0.0471 | 1.7564** | 0.0689 | 0.3537 | -0.1948 | 0.5921 | 0.0402 | 14.7086* | 0.0889 | 0.0383 | 113.841* |
| C | 0.0187 | 0.0310 | 0.06024 | 0.04115 | 0.0979 | 0.4201 | 0.3430 | 0.7356 | -0.4663 | -0.0087 | 0.0837 | -0.1050 | 0.1314 | 0.0797 | 1.6480 |
| R2 | 0.2391 | | | 0.8539 | | | 0.3981 | | | 0.7746 | | | 0.9808 | | |
| Adj.R2 | 0.2241 | | | 0.8353 | | | 0.3803 | | | 0.7746 | | | 0.9805 | | |
| F | 15.965 | | | 2.8979 | | | 5.5264 | | | 45.8907 | | | 2608.637 | | |

\*. \*\*. \*\*\*Denotes significance at three levels of 1%, 5% and 10%.

The results from an estimation by P-VAR in the second model have been presented in Table 5. In agreement with the first model, the results show that a significant positive effect of economic growth on tourism revenues, and that each unit increases in economic growth will increase tourism revenues by 0.25. However, the inflation variable did not have a significant effect on tourism income.

The corruption perception in this model had negative significant impact on tourism revenues like the first model, and, based on the results, every increase in corruption will lead to 0.099 units decrease in tourism revenues.

Some researches such as Sameti et al, (2016) and Ingram et al, (2013) show that political stability has a significant positive effect on tourism revenues, and that every increase in this variable will increase tourism income by 0.06. Tourism is largely affected by war, terrorism, and chaos, and they change their destination very easily in short term because of the lack of peace (Satani, 2010). The unstable political environment is not welcome for foreign tourists, and political instability in one country reduces security and exposes foreign tourists to insecurity. The growth of foreign tourists and its income may signify political stability in a country in some way (Komeijani et al, 2014).

Control of corruption had a positive but negligible impact on tourism revenues, and each increase in this variable leads to 0.008 increase in tourism revenues. Control of corruption related to fighting with bribery, unfair private gain, and neglect of the rules, so, we have more foreign investment, the number of tourists, therefore, more foreign currency in a country with the lack of corruption.

Also, according to many studies (Hasanwand & Alparnah, 1393; Litawoo, 2011) tourism incomes positively affect GDP, and, each increasing in tourism revenues leads to 0.012 increase in GDP. We will have economic diversification without excessive reliance on traditional exports because increasing in tourism, especially in low-income countries cannot have rapid industrialization. Indeed, the direct effects of tourism industry affected by the initial cost of tourism for goods and services. This part of the effects will create direct employment and earn revenues through the production and sale of goods and services to tourists. Also, tourism indirectly leads to economic growth, because it can act as a driving force and makes the growth of other economic activates that are related to that industry which offers goods or services.

**Table 5.** The results of model estimation using Panel Vector Autoregressive Model in the second model

| | GDP | | | CPI | | | INF | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic |
| GDP(-1) | 0.4353 | 0.0529 | 8.2202* | 0.1531 | 0.1671 | 0.9162 | 1.3245 | 1.2486 | 1.0775 |
| CPI(-1) | -0.0256 | 0.0025 | -4.1374* | 0.1987 | 0.0646 | 3.0723* | 0.5826 | 0.4833 | 1.2055 |
| INF(-1) | -0.0106 | 0.0025 | -4.1374* | 0.0026 | 0.0081 | 0.3328 | 0.3110 | 0.0605 | 5.1399* |
| TOUR(-1) | 0.0129 | 0.0034 | 2.2889* | -0.0031 | 0.0107 | -0.2922 | 0.0153 | 0.0801 | 0.1914 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| COC(-1) | 0.0036 | 0.0029 | 1.2570 | 0.0111 | 0.0092 | 1.2119 | 0.0034 | 0.0688 | 0.0497 |
| PS(-1) | -0.0037 | 0.0107 | -0.3507 | 0.0245 | 0.0339 | 0.7242 | -0.3294 | 0.2534 | -1.2996 |
| C | 0.0228 | 0.0312 | 0.7302 | 0.0459 | 0.0986 | 0.4664 | -0.2599 | 0.7362 | -0.3530 |
| R2 | 0.2379 | | | 0.5503 | | | 0.1039 | | |
| Adj.R2 | 0.2198 | | | 0.5278 | | | 0.0827 | | |
| F | 13.1675 | | | 2.2345 | | | 4.8924 | | |

**Table 5.** The results of model estimation using Panel Vector Autoregressive Model in the second model (continue)

| | Tour | | | ps | | | coc | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statistic | Coefficient | Standard error | t-statestic |
| GDP(-1) | 0.25311 | 0.1354 | 1.8682* | 0.1545 | 0.3156 | 0.4895 | -0.1461 | 0.5012 | -0.2915 |
| CPI(-1) | -0.0998 | 0.0524 | -1.9037* | 0.1953 | 0.1221 | 1.5991*** | 0.0107 | 0.19400 | 0.0556 |
| INF(-1) | -0.0009 | 0.0067 | -1.3976 | -0.0041 | 0.0153 | -0.2741 | -0.0076 | 0.0242 | -0.3134 |
| TOUR(-1) | 0.9886 | 0.0087 | 113.637* | -0.0185 | 0.0202 | -0.9145 | -0.0007 | 0.03218 | -0.01230 |
| COC(-1) | 0.0081 | 0.0074 | 1.5934*** | 0.0025 | 0.0174 | 0.1488 | 0.7251 | 0.0276 | 26.2322* |
| PS(-1) | 0.0616 | 0.0275 | 2.2397* | 0.0729 | 0.0640 | 1.9391* | -0.0379 | 0.1017 | -0.3734 |
| C | 0.1268 | 0.0798 | 1.5874 | 0.1704 | 0.1861 | 0.9159 | -0.0003 | 0.2955 | -0.0013 |
| R2 | 0.9809 | | | 0.8205 | | | 0.7349 | | |
| Adj.R2 | 0.9805 | | | 0.8027 | | | 0.7286 | | |
| F | 2174.910 | | | 25.8826 | | | 116.9024 | | |

*. **. ***Denotes significance at three levels of 1%, 5% and 10%

After estimating it is necessary to examine the interrelationships between the variables of the model. Regarding the subject, the effects of the indicator such as corruption perception, good governance, economic growth and inflation on international tourism income examined. Chart (1) shows the dynamic response of the economic growth variable to the shocks of the explanatory variables of the research. In this chart, the middle lines represent the Impulse Response Functions effects of the variable international tourism revenues up to 10 periods. Also, the upper and lower lines are positive and negative lines for the standard deviation of Impulse Response Functions at a level of 5%, which is calculated through a simulation of Monte Carlo for 1000 iterations. Based on the results, the response of international tourism revenues to gross domestic product, corruption perception and good governance is increasing, and it remains permanent after 10 periods of influence. Also, the shock caused by inflation has a poor effect on international tourism revenues.
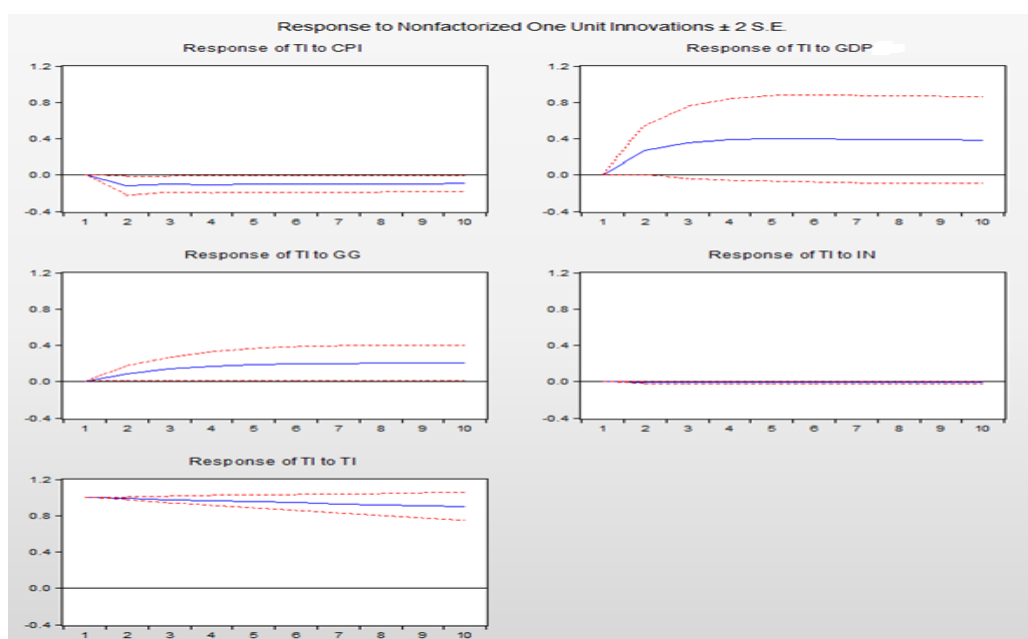


**Figure 1**. Dynamic Reaction of International Tourism Revenues to Explainable Shocks in the First Model

Chart (2) shows Impulse Response Function in the second model. Based on the results, the response of international tourism revenues to GDP, political stability and corruption are increasing, and the effect remains permanent after 10 periods. But control of corruption and inflation has a poor effect on international tourism revenues. Thus, in general, the shock of economic growth and good governance, as well as political stability had the greatest impact on international tourism revenues.
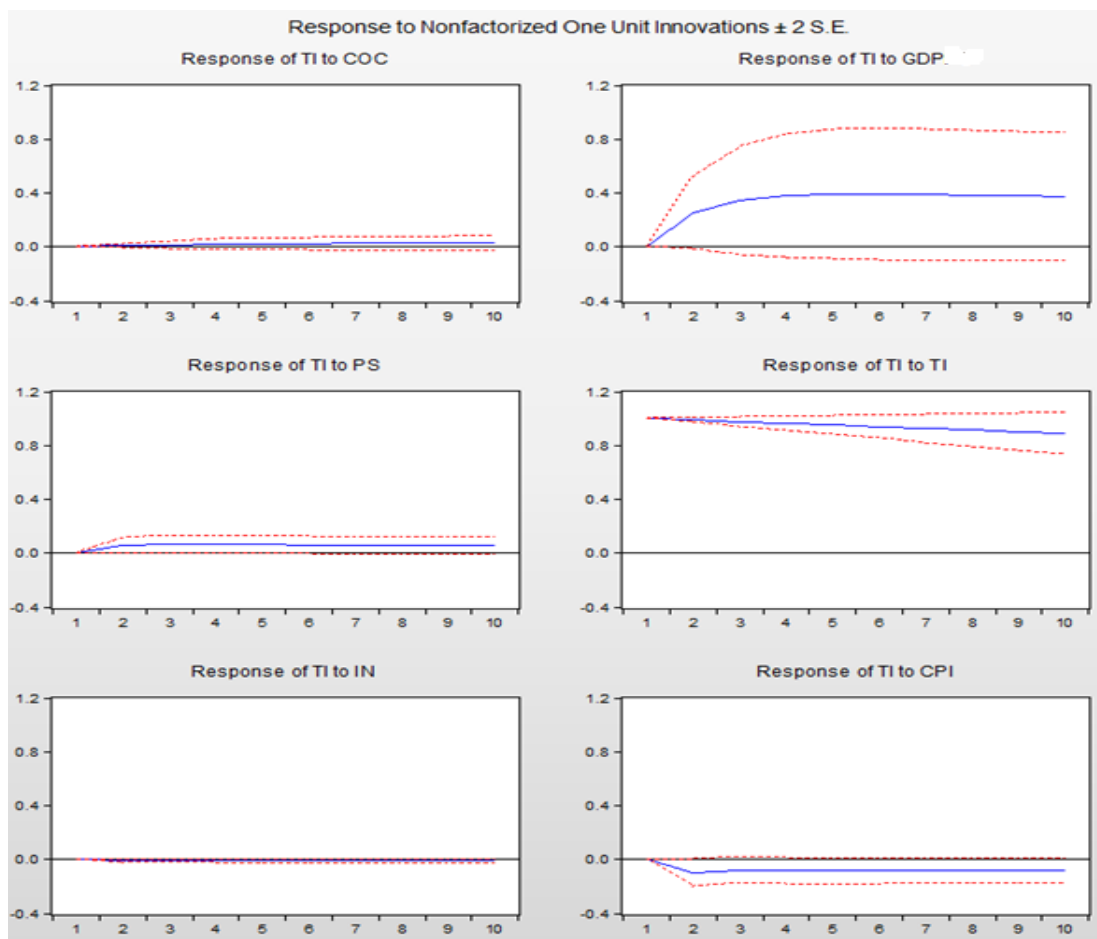


**Figure 2**. Dynamic Reaction of International Tourism Revenues to Explainable Variable Shocks in the Second Model

The analysis of variance in two models discussed after analyzing Impulse Response Function survives. Function of Impulse Response represents the reaction given by an endogenous variable in response to the shock caused by the other variable of the system over time, but, analysis of variance measures the contribution of each shock to the variance of an intrinsic variable. The results of the analysis of variance for the two models shown in Tables 6 and 7. Given that the forecast error is calculated each year based on the error of the previous year which is constantly increasing during the considered period. The columns in the table show the percentage of forecast variance due to various shocks, which means the sum of each row should be 100%. Based on the results in the first model (Table 6), in the first period (short term) 91.172% of the description in the international tourist income described by the variable itself, and about 3 percent of description was made by inflation and GDP. In the second period, 84.333 percent of the error variance of international tourism income was described by itself, 5.12 percent by GDP and other description made by other variables. The share of international tourism income reduced and added to the share of inflation and GDP with increasing periods, as in the tenth period, only 75.171% of the changes explained by the variable itself, and 8.89% explained by gross domestic product and 6.94% by inflation.

**Table 6.** Analysis of the variance of international tourism revenues in the first model

| Period | S.E. | CPI | GDP | GG | INF | TOUR |
|---|---|---|---|---|---|---|
| 1 | 0.1099 | 1.3259 | 3.1839 | 0.4182 | 3.8926 | 91.1792 |
| 2 | 0.1126 | 3.5186 | 5.1284 | 1.3647 | 5.6546 | 84.3334 |
| 3 | 0.1128 | 3.7549 | 6.3817 | 2.1996 | 6.1673 | 81.4962 |
| 4 | 0.1128 | 3.8487 | 7.1918 | 2.9162 | 6.4682 | 79.5748 |
| 5 | 0.1128 | 3.8729 | 7.7362 | 3.5034 | 6.6424 | 78.2448 |
| 6 | 0.1128 | 3.8758 | 8.1164 | 3.9770 | 6.7557 | 77.2750 |
| 7 | 0.1128 | 3.8710 | 8.3927 | 4.3567 | 6.8332 | 76.5452 |
| 8 | 0.1128 | 3.8640 | 8.6007 | 4.6649 | 6.8893 | 75.9809 |
| 9 | 0.1128 | 3.8567 | 8.7620 | 4.9150 | 6.9316 | 75.5344 |
| 10 | 0.1128 | 3.8499 | 8.8905 | 5.1205 | 6.9647 | 75.1741 |

In the second model (table 7), in the first period (short term), 94.633% of the description is made by the tourism income, 2.814 percent by GDP and 2.226 percent by political stability. In the second period, 88.596 percent of the error variance described by the tourism income, 5.611 percent by political stability and 4.382 percent by gross domestic product, and the remainder explained by other variables. The share of international tourism revenues will not change with increasing periods, and the largest share is for tourism income itself.

**Table 7.** Analysis of the variance of international tourism revenues in the second model

| Period | S.E. | COC | GDP | PS | TOUR | INF | CPI |
|---|---|---|---|---|---|---|---|
| 1 | 0.3311 | 0.3261 | 2.8143 | 2.2260 | 94.6334 | 0.0000 | 0.0000 |
| 2 | 0.4087 | 0.4971 | 4.3826 | 5.6114 | 88.5961 | 0.2573 | 0.6552 |
| 3 | 0.4440 | 0.6910 | 5.4714 | 6.6701 | 86.1230 | 0.3539 | 0.6902 |
| 4 | 0.4614 | 0.8748 | 6.1471 | 7.1755 | 84.6461 | 0.4234 | 0.7328 |
| 5 | 0.4703 | 1.0432 | 6.5890 | 7.4559 | 83.6848 | 0.4692 | 0.7576 |
| 6 | 0.4748 | 1.1935 | 6.8892 | 7.6319 | 83.009 | 0.5012 | 0.7749 |
| 7 | 0.4772 | 1.3259 | 7.1019 | 7.7513 | 82.5093 | 0.5244 | 0.7870 |
| 8 | 0.4784 | 1.4414 | 7.2585 | 7.8311 | 82.1250 | 0.5417 | 0.7960 |
| 9 | 0.4791 | 1.5420 | 7.3777 | 7.9015 | 81.8206 | 0.5551 | 0.8029 |
| 10 | 0.4794 | 1.6294 | 7.4710 | 7.9515 | 81.5738 | 0.5658 | 0.8082 |

**Discussion and conclusive remarks**

The results show the significant positive effect of economic growth on international tourism revenues in both models with one lag period. The number of tourists will increase as increasing economic growth in countries (Taybie et al., 2007). It is most likely tourists choose countries with a higher economic growth to travel in many cases. In fact, a reciprocal relationship exists between tourism and economic growth, and a country with more economic growth will receive more tourists. So, the more tourist, the more economic growth for countries.

The Corruption perception had a negative significant effect on tourism income with one lag in both models. Corruption has some effects such as reducing incomes, increasing government spending, and creating income inequality. Also, it leads to the elimination of incentives, increasing poverty and pessimism, as well as the reduction of government power for the necessary controls to correct market failures, in the process of labor markets and resource allocation. All of mentioned above can effects tourism revenues.

In addition, inflation had a negative impact on tourism income in the first model, but it does not have any effect on the second model. It was also observed the significant negative effect of inflation on GDP and economic growth in two models. Sayyid Shukri and factory, 2011; Diriver and Dadur, 2011; Aja & Dang, 2012; and Sultan Taie et al., 2012 have indicated the

significant negative effect of inflation on production. In fact, high inflation with many fluctuations increases transaction costs and reduces investment in productive activities, so decline the economic growth. This negative effect leads to decreasing economic growth, which leads to less willingness of tourists to select a country as a tourist destination. The second model justifies the negative impact of inflation on tourism.

The results obtained from the first model show that good governance leads to increase tourism income, indeed, political stability and control of corruption are considered as two factors positively affecting tourism income in the second model, and leads to increasing the tourism incomes. Also, more responsive and efficient government and political stability lead to less additional regulations, wider rule of law and less corruption makes better governance. All of these factors, due to the creation of better condition for tourism, will increase the arrival of tourists and the growth of tourism. Researchers (Ardekani et al., 2010) believe that the political factors affecting tourism include four external factors such as War against another country or terrorist acts against one or more countries, internal instability like a coup or civil war or rebellion against the government, immigration for prosperity and comfort and the effectiveness of security forces in protecting tourists against global damage or financial losses. Therefore, a country can take preventive activities and thus the development of political stability and tourism by crisis management and the establishment of tourism crisis management. In fact, political stability indicates nonviolence and peace in a society. Violence in a society not only watches over time the spirit and vitality of the people of the community but as is one of the main factors in reducing tourist attraction, because the existence of violence would be a serious threat to the health and safety. Moreover, political stability and control of corruption can lead to attracting foreign investment and tourists and foreign exchange resource.

Finally, international tourism revenues had a direct impact on economic growth in both models. The tourism sector in addition to the direct and indirect effects in the short term can have dynamic and long-term effects on the increase of incomes in the economy. These effects can take place through the development of infrastructure and public goods, human resource development, private sector development (small and medium enterprises), changes in the structure of production of economy and communication between different sectors. And, because, tourism is described as a viable strategy for sustainable economic development in most developing and less developed countries, and foreign exchange earnings are mainly generated by it in a number of countries, provided that tourism focuses on increasing production and incomes with a managerial perspective, it can directly lead to countries' economic growth.

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