

## “The Impact of Tourism Activities on Economic Growth in Saudi Arabia”

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**Abstract:**

The sacred places located in Saudi Arabia provide a particular opportunity for the tourism industry to develop in a sound direction and in a sustainable way. This paper is on the impact of the Hajj season as part of the tourism sector in Saudi Arabia on economic growth. Based on the ARDL test and Granger causality test from 1980 to 2018. The variables of study include the real non-oil GDP as an indicator of economic growth, the number of pilgrims from inside and the number of pilgrims from outside as representing indicators of Hajj season, and the Real effective exchange rates of Saudi Riyal consider important variables for affecting international tourism and its relationship with real income. The results show the existence of the cointegration between the variables. The variable of pilgrims from outside is considered a significant positive predictor for non-oil GDP. Moreover, there is a unidirectional Granger causality flow from the pilgrims from outside to real non-oil GDP, and unidirectional causality that runs from the real effective riyal exchange rates to real non-oil GDP. This study supports the consensus that the Hajj season acts as an engine of economic growth for Saudi Arabia during the estimation period, depending on the analysis result of the pilgrims from outside and the Real Effective Riyal Exchange rates. While the revenues of Hajj based on the pilgrims from inside may have only an effect on the private sector and not in the state treasury and do not represent great of the GDP as economists pointed out. Also, this study supports the Saudi Vision 2030, which set a clear goal to raise the capacity of the guests of Rahman, which will reach 30 million Pilgrims and Umrah pilgrims by 2030.

**Keywords:** Tourism Activities, Economic Growth, Hajj season, GDP, Pilgrims.

**1.1 Introduction**

Many countries in the world have recently resorted to diversifying sources of income, specifically from a permanent and renewable source of income. Income sources vary according to economic activities such as industrial, agricultural, commercial, and other activities. In addition, the tourism sector and its related activities have begun to play an important role in the economies of many countries. The tourism sector is considered one of the fastest-growing sectors in the world.

In particular, tourism is closely linked to economic development as it acts as an engine of economic growth whose income is crucial to enhancing the balance of payments. The sector, also adds to the value of exports and the provision of foreign exchange and contributes to the redistribution of income. Moreover, the sector contributes to the creation of new employment opportunities and provides other economic sectors with direct and indirect products, and energizes many support sectors such as services, transport, telecommunications, crafts, and traditional industries. Many researchers argued that tourism is an important factor in the diffusion of knowledge, stimulating learning, and the accumulation of human capital. Tourism has also been promoted in many Asian countries as part of the solution to their economic problems.

Tourism activities are mainly based on the process of continuous spending on the investment of natural, human and cultural resources that tourists taste and their demand for them is increasing. So, the growing business of providing goods and services to meet tourism demand provides a clear reason for recognizing the increasing role of the tourism sector in any economy. Thus, the growth and development of tourism are influenced by scientific and technical progress in the country as well as heritage and natural places. It becomes necessary to design the required plans, policies, and strategies for the tourism sector to play an effective role in the growth process of the national economies.

**Area of the research:** The Tourism sector in Saudi Arabia has been one of the main themes of the Kingdom's Vision 2030. Saudi enjoys a place of regional and international importance in several respects. Geographically, Saudi is covering an area of about two million squared kilometers, the largest country in the Middle East. The capital is the city of Riyadh. It is bordered by Iraq and Jordan to the north, Kuwait to the northeast, Qatar and the United Arab Emirates to the east, the Red Sea to the west, Yemen to the south, and Oman to the southeast. Bahrain is also connected to Saudi Arabia through the King Fahd Bridge, located on the waters of the Arabian Gulf. Saudi Arabia has the largest population in the Gulf Cooperation Council, with a population of 34,218,169 people according to the General Authority for Statistics for the year 2019. Also, Saudi has historical and heritage characteristics as well as natural and cultural diversity.

International economic importance stems from the existence of the largest oil reserves in the world in Saudi Arabia and it is one of the largest oil exporters. Moreover, it is a member of many organizations makes it of international political importance. It is a member of the Gulf Cooperation Council, a member of the Organization of the Islamic World, the League of Arab States, the Group of 20, and a member of the Organization of Petroleum Exporting Countries (OPEC).

Saudi Arabia is seeking to create new tourist places, currently working on the development of the future city of Neom, the city of Qiddiya culture, and the Knights Islands in addition to several tourism projects and entertainment around the Red Sea. Saudi Arabia has also developed transport companies by introducing railways and low-cost aviation to attract tourists. As the tourism sector does not grow without transportation, the most important means is aviation. Tourism and aviation work together as an engine of economic growth. Moreover, Saudi is also working to increase the capacity of its airports to 150 million passengers annually.

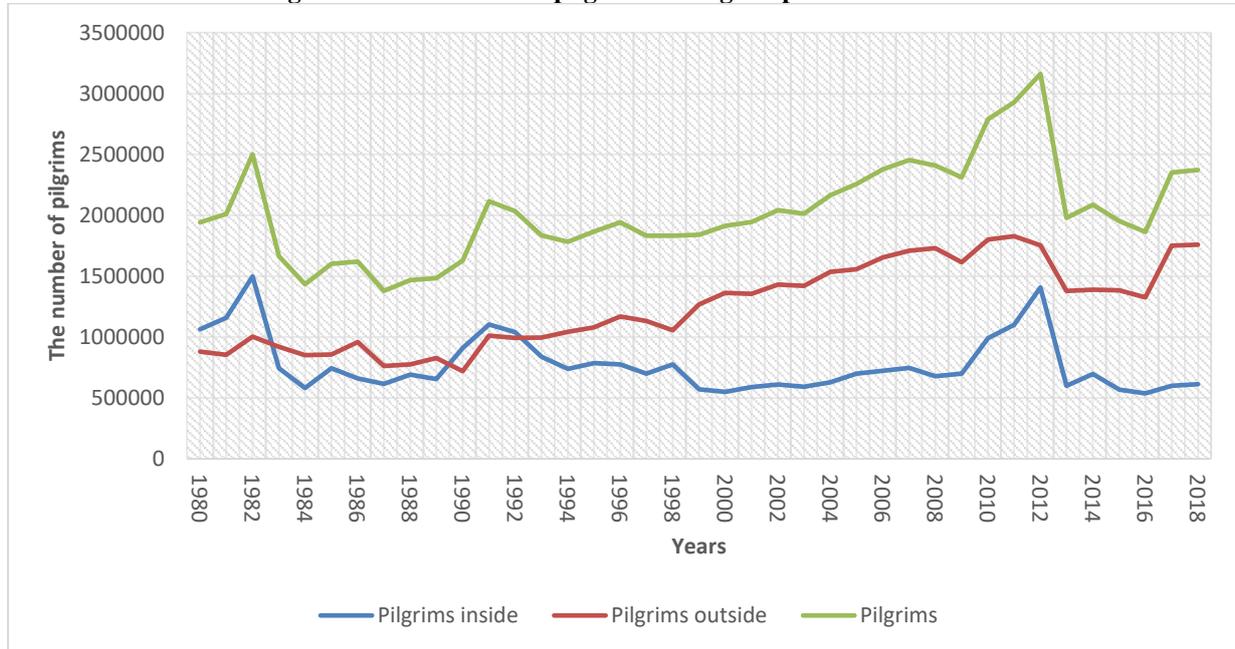
On September 27, 2019, Saudi Arabia opened its doors to the world for the first time in its history with a tourist visa that allows all citizens of the world to access it all year round according to new regulations with a validity of 90 days via an electronic tourist visa or upon arrival.

The number of visitors to Saudi Arabia annually reaches 12 million, and their number is expected to increase to 17 million by 2025. But before date Saudi opened its doors, it was difficult to get visa procedures to Saudi Arabia, only Hajj, Umrah, Business, and Visiting friends and relatives are the main reasons that can get visa procedures in Saudi Arabia. Therefore, it was the main motive for visiting Saudi Arabia for religious reasons, where the genesis of Islam on its soil and its precious religious attractions gives it a unique platform for marketing itself as a tourism destination, it is the heart of the Muslim world and it is a place of revelation, mission, the unique and only destination for Hajj and Umrah.

Saudi Arabia has long experience in organizing the biggest Muslim event which is Hajj. Through long decades extending to the pre-oil stage, the pilgrimage season was and still represents a source of income in Saudi Arabia, as the actual receipts and transfers of pilgrimage fees for each year, the shares of different sectors of its revenues, and also the demand for the Saudi riyal externally during that period, which can be referred to as a macroeconomic economic dimension, where depends on the size of the Hajj revenues in each season on a most important factor which is the number of pilgrims from the inside and from outside.

Although religious tourism continues throughout the year, the Hajj season attracts about 2.5 million Muslims to Mecca and Medina, and across the city of Jeddah, where Hajj's direct economic effects are not limited to the holy city of Makkah only, but also include all areas that pilgrims pass through or stay, such as Medina, Jeddah, Taif and other areas, whose economies recover during the Hajj. Also, there are 1.8 billion Muslims in the world, increasing at a rate of 6.7 percent annually, and most of them are looking to perform the Hajj.

Figure 1 illustrates shows the evolution of the number of pilgrims during the period 1980-2018. Reach the number of pilgrims to 2,501,706 in 1982, where the number of pilgrims from inside exceeds the number of pilgrims from outside. After that became the number of pilgrims from outside are exceed the number of pilgrims from inside. But, in the Kuwait crisis in 1990 and two years later, the number of pilgrims from outside decreased from the number of pilgrims from inside. Also, in 2008 and 2009 the number of pilgrims from outside and inside decreased, that due to the global financial crisis. In 2012 reach the number of pilgrims to 3,161,573, which is considered the highest number reached of pilgrims during the period 1980 to 2018. The total number of pilgrims for the year 2013 compared to the total pilgrims for the last year 2012 decreased by 37.4%, to reach 1,980,249 pilgrims. The percentage of pilgrims decreased in that year, which witnessed the issuance of the order to reduce the numbers of pilgrims abroad by 20 percent and pilgrims at home by 50 percent, due to development projects in the holy capital, and to find future projects capable of absorbing larger numbers. As a result of development projects, the number of pilgrims began to increase in recent years.

**Figure 1: The number of pilgrims during the period 1980-2018.**


Source: prepared by the researcher using the program Excel.

Saudi's efforts are always appreciated and respected by Muslims in all countries of the world, from the care and attention the pilgrims receive since their arrival in Saudi Arabia until the end of their rituals, where the government is seeking to facilitate the services of pilgrims, through investments in religious tourism facilities. One of the most important facilities is transportation, it worked the railway between Mecca and Medina 276 miles, and In Mecca, there is the Metro of the Holy Places, which transports pilgrims between Muzdalifah, Mina, and Mount Arafat. There is also a project to develop Medina Airport to increase its capacity from 3 million to 12 million passengers annually. The King Abdul-Aziz Airport in Jeddah is also expanding to increase its capacity from 30 million passengers to 80 million passengers.

The Hajj season is one of the important economic tributaries of Saudi Arabia, and the Saudi Vision 2030 has set a clear goal to raise the capacity of the guests of Rahman, where the number of guests of Rahman will increase to eight million annually and even reach 30 million of Pilgrims and Umrah pilgrims by 2030<sup>1</sup>. It is expected that revenues will exceed 50 billion riyals from the Hajj season by 2030. Thus, the sacred places located in Saudi Arabia provide a particular opportunity for the tourism industry to develop in a sound direction and in a sustainable way. Also, the long experience of Saudi Arabia in organization and success in Hajj season enhances the credibility of tourism projects.

### 1.2 The problem statement

In light of the continuing fluctuations in oil prices in recent years, oil-exporting countries resort to diversifying sources of income and reducing dependence on oil. The tourism sector has been considered one of the promising sectors to lead the national economy of oil-producing economies. In particular, the Hajj season in Saudi Arabia has been considered one of the most important alternative oil revenues for long decades extending to the pre-oil stage.

<sup>1</sup> برنامج خدمة ضيوف الرحمن.. نقلة نوعية تلبى طموحات الحاج والمعتمر وإنشاء تجربتهم، (2019-05-29). وزارة الحج والعمرة.

The study problem, although the pilgrimage season was and still represents a source of income in Saudi Arabia, some economists point out that the revenues of Hajj are in the interest of the private sector and not in the state treasury and do not represent great the GDP.<sup>2</sup>

### 1.2.1 The objectives of the research

The research attempts to achieve the following objective:

- Investigating the impact of Hajj season as part tourism sector in Saudi Arabia on economic growth.

### 1.2.2 Research questions

The research problem can be highlighted by asking the following questions:

- Does Hajj season have an impact on economic growth?
- What is the direction of impact between Hajj season and economic growth?

### 1.3 The scope of the research

This research analyzes the impact of the Hajj season as part tourism sector on economic growth in Saudi Arabia.

### 1.4 The relevance of the research

Tourism is one of the most important sectors in the world economy, it is an efficient tool for promoting economic growth, and the importance of the role is related to several other productive sectors of the national economy, it needs the services provided by the clover sectors, hotels, food and beverage establishments, cultural and entertainment institutions, banks, tourism advertising, and promotion institutions, which makes tourism play an important role in influencing the national income directly or indirectly. Direct through employment and enterprise opportunities for those working in the tourism sector, and indirect through employment and enterprise opportunities for those in other sectors that supply tourism such as services, construction, and manufacturing. As tourism consider is an important factor in the diffusion of knowledge, stimulating learning, and the accumulation of human capital. Also, it activates many support sectors such as services, transport, telecommunications, crafts, and traditional industries. This ultimately focuses on the gross value of GDP. Thus, the Hajj season as part tourism sector in Saudi Arabia is working as a source of income for the state.

The results of this study will identify the relationship between the Hajj season as part tourism sector in Saudi Arabia and real non-oil GDP. This research produces results that are only for Saudi Arabia, as it is the only face of Hajj.

## 2. Literature Review

Many studies around the world appear in research on the economics of tourism, but very few have been conducted in Saudi Arabia.

Balaguer and Cantavella-Jordá (2002) provide necessary arguments to support the tourism-led growth hypothesis through analyses of the role of tourism in the economic growth in Spain from 1975 to 1997 period. The study variables include the real gross domestic product as the dependent variable, international tourism earnings, and the real effective exchange rate as independent variables. These variables represent indicators of Spanish economic growth, international tourism income, and external competitiveness. Based on the Johansen cointegration test and Granger causality test, the results show that a long-run stable relationship between economic growth and tourism expansion exists, where the earnings from international tourism impact positively the Spanish economic growth.

<sup>2</sup> خيشوم، نواف، "عائدات موسم الحج.. مكاسب معنوية يفخر بها السعوديون كل عام"، الاقتصاد، جريدة الرياض، الخميس 31 أغسطس 2017م.

This study by Gunduz and Hatemi (2006) investigates whether tourism contributes to the economic growth in Turkey from 1963 to 2002. The interaction between tourism and economic growth is investigated by making use of leveraged bootstrap causality tests. The study variables include the real gross domestic product as the dependent variable, the number of tourist arrivals, and real exchange rates as independent variables. The results show that the tourism-led growth hypothesis is supported empirically in the case of Turkey.

Mulok et al. (2012) test the hypothesis of the relationship between the tourism sector and economic growth in Malaysia from 1974 to 2010. The study variables include the real gross domestic product as the dependent variable and the number of tourist arrival as the independent variable. This study uses the ARDL bounds testing approach to cointegration. The results show that economic growth has a direct significant effect on tourism, indicating that economic growth influences tourism activities in Malaysia and not the other way around.

Salmani et al. (2012) employ a panel data model to investigate the effect of tourism development on economic growth for developed and developing countries for 36 developed and 54 developing countries separately over the period of 1995-2010. The variables in this study include growth of the GDP per capita as the dependent variable, GDP, gross fixed capital formation, general government final consumption expenditure, openness (exports plus imports to output ratio), and several international tourism arrivals as independent variables. The results show that tourism expansion has a positive and significant effect on economic growth in both developed and developing countries.

Milanović and Stamenković (2012) examine the causal relationship between tourism and economic growth in Serbia from 2002 to 2011. The study variables include the real gross domestic product as the dependent variable and foreign tourist arrivals in Serbia as the independent variable. Using the cointegration test, and Causality test, the results indicate that there is a long-run equilibrium relationship between study variables, as well as positive unidirectional causality from economic growth to tourism development, indicating that economic growth stimulates the expansion of tourism in Serbia.

Hoshmand and Hazari (2012) investigate Hawaii as a case study to determine the long-run relationship between tourism and economic growth and development from 1963-2007. The study variables include the real gross domestic product as the dependent variable, agriculture, the U.S. Department of Defense expenditures (military and civilian employees, as well as defense contracts given to the State of Hawaii), and the earnings of the tourism sector as independent variables. Based on the cointegration test, the results indicate that tourism has contributed positively to the long-run growth of the economy of Hawaii.

Ageli (2013) conducted a study on the causal relationship between tourism spending and non-oil GDP in Saudi Arabia during the period 1970-2012. Tourism spending was measured as a percentage of GDP for economic growth as a dependent variable, and Real non-oil GDP as an independent variable. Using the Granger causality test, the result revealed a bilateral causal relationship, A long-term positive relationship extending from non-oil GDP to tourism spending, there is a short-run adjustment process toward long-run equilibrium. The result of the study supports the tourism-led growth hypothesis.

Leana et al. (2014) examine and compare the relationship between tourism and economic growth in Malaysia and Singapore from 1980 to 2009 period. The study variables include the real GDP as the dependent variable, total number of international tourist arrivals, total tourism receipts, total international trade, and Real effective exchange rate for both Malaysia and Singapore as independent variables. Based on the Johansen cointegration test and Granger Causality test, the results show that tourism expansion is cointegrated with economic growth, Real effective exchange, and total trade in both countries and that the economic-driven tourism growth hypothesis is supported in Malaysia, compatible with the study result by Mulok et al. (2012), while tourism-led economic growth hypothesis has been identified for Singapore. Moreover, maintaining a competitive exchange rate is vital to improving tourism and economic growth.

The study by Kreishan, (2015) also yields positive relation between tourism and economic growth in Bahrain from the period 1990-2014. The study variables include the Real GDP as a dependent variable, and the number of international tourists as an independent variable, the researcher notes that there are multiple linear problems when using tourism revenues, and use the

ARDL test approach due to the small sample size. The results refer long-term relationship between tourism development and GDP but there is only a unidirectional causal flow from tourism to economic growth. The results of this study are consistent with the tourism-led growth hypothesis.

In another study for Malaysia, Habibi (2015) includes foreign direct investment, to investigate a long-run relationship and the direction of causality among tourism, foreign direct investment, and economic growth from 1975 to 2013. Based on the cointegration and Causality test, the results show that a long-run equilibrium relationship between variables, their existence of bidirectional causalities among tourism and economic growth, and growth in FDI also stimulate an increase in international tourist receipts.

Alhowaish (2016) attempts to investigate the causal relationship between tourism development and economic growth in Gulf Cooperation Council (GCC) countries, using panel data from 1995 to 2012. The study variables include the real gross domestic product as a dependent variable and real international tourism revenue as the independent variable. Based on the causality test, the study result refers to the case of GCC countries as a whole, that there is a one-way causality, from economic growth to tourism growth. Separately Kuwait, Saudi Arabia, Qatar, and the United Arab Emirates follow the path of economy-driven tourism growth, tourism-led growth hypothesis in the case of the Bahraini economy, is compatible with the study result by Kreishan, (2015), while there seems to be no causal relationship between tourism and economic growth in the case of Oman.

The study by Aslam and Nimsith (2016) fills research by estimating the income elasticity of tourism in Sri Lanka. The study variables include the gross domestic product as the dependent variable and the tourism income as the independent variable. The simple regression model was used to test the coefficient of tourism and the equation of income elasticity was employed to test the income elasticity of the tourism industry from the period 1970 to 2015. This study shows that the value of income elasticity of tourism was 0.16, this means that if the tourism industry was changed by 1 unit, the gross domestic product had been changed by 16unit. Therefore, tourism earnings had maintained a positive relationship with the economic growth of Sri Lanka.

Govdeli and Direkci (2017) examine the relationship between economic growth and tourism for 34 OECD countries from 1997 to 2012. The study variables include GDP as the dependent variable and tourism revenues as the independent variable. Based on Pedroni cointegration Test, Kao cointegration test, and Panel FMOLS test, the results show that a 1% increase in tourism revenues increased the economic growth of 34 OECD countries on average at a rate of 1.06%, and the increase of tourism revenues had a positive effect on economic growth in the long term.

Primayesa et al. (2017) add the exchange rate, to study the relationship between economic growth, tourism activity, and exchange rate in Indonesia from the period 1984-2014. Although this study is more comprehensive than the earlier study of tourism and economic growth in Indonesia. However, the result shows no causal relationship between economic growth and tourism, nor is there a causal relationship between tourism and the exchange rate, also no cointegration of variables in the long-term, these results are based on the cointegration test and causality test. The study variables include the gross domestic product as a dependent variable, tourism receipts, and exchange rate as independent variables.

Kouchi et al. (2018) study the Hajj duty from the economic perspective, due to those previous studies have given less attention to the economic aspect of the Hajj pilgrimage. Therefore, this research is to study the causal relationship between the growing number of pilgrims from different countries and the economic growth of Saudi Arabia from 1975 to 2007. The study variables include the non-oil GDP growth as the dependent variable, an increase in the number of pilgrims, and the growth of investment in the Hajj sector as independent variables. Based on the ARDL, and the Granger causality test, the results show that non-existence of long-term causality among the variables, the existence of only one bidirectional short-term causality between the increasing number of pilgrims and economic growth in Saudi Arabia, Non-oil GDP of Saudi Arabia increases by 0.84 Saudi Arabian Riyal over the long-term in response to a one-digit rise in the number of pilgrims.

The study for India, by Dash et al. (2018) investigates the effect of tourism on the economic growth of India from 1973 to 2013. The study variables include the real GDP per capita as the dependent variable, gross fixed capital formation as a percent of real GDP as a proxy for investment in physical capital, the real effective exchange rate, and secondary and tertiary school enrolment used as a measure of investment in human capital, and tourist receipts per capita as independent variables. The results show that tourists have a positive impact on the economic growth of India in both the short-run and long run, physical and human capital has positive effects on economic growth, while depreciation of the exchange rate will promote economic growth only in the short run but not in the long run. The study supports the tourism-led growth hypothesis so for India.

The study by Wu et al. (2018) examines the relationship between international tourism receipts and economic growth in 11 Provinces of eastern China. The study variables include the real gross domestic product as a dependent variable and the indicator of the withdrawal of international tourism receipts as an independent variable. The study found that only one of 11 Province suggests that international tourism receipts stimulate economic growth, Economic growth could increase tourism demand in five Provinces, Neutrality theory appears in 4 Provinces, indicating that neither tourism receipts nor economic growth is sensitive to the other. One Province shows that there is no direct relationship between tourism and economic growth, no reciprocal hypothesis was found in this work. However, the study did not show a positive relationship in all provinces, the reasons are as reasons stated in the study, that restrictions and travel facilities may vary from province to province in China.

The aim of the study by Manzoor et al. (2019) is to examine the relationship between tourism to employment and economic development in Pakistan from 1990 to 2015. The study variables include the annual growth of tourism as an independent variable and both employment and GDP as dependent variables. Based on the Regression technique and Johansen cointegration, the results of the study showed that there is a positive and significant impact of tourism on Pakistan's economic growth as well as employment sector and there is also a long-run relationship between tourism, economic growth, and the employment.

Songling et al. (2019) study is conducted to check the vital relationship between the tourism industry and economic growth in Beijing, China from 1994 to 2015. The proposed study used the vector autoregression (VAR) model, the error correction model (ECM), and the Granger causality. The study variables include the gross domestic product as the dependent variable and the tourism revenue as the independent variable. The results show that there exists a long-run cointegration relation between the tourism industry and economic growth, and there is a one-way causal relationship between the tourism industry and economic growth in Beijing, China. These results support the concept that tourism causes growth.

A unique study using the Koyck geometrical distributed lag model, by Saleh et al. (2019) explores the dynamic relationship between tourism growth and economic growth in Jordan from the period 1990-2016. The results show that the tourism sector influences the economic growth in Jordan through the economies of scale of the production function. Tourism receipt contributes 16% to real GDP Change per two years. There is a long-term equilibrium relationship between variables and the unidirectional causality relationship from the balance of tourism and fixed assets in tourism to economic growth. These results are based on the Koyck geometrical lag model, cointegration analysis, and causality analysis. Real GDP as a dependent variable, as independent variables fixed assets in tourism and (tourism balance) is the difference between receipts and tourism expenditures.

Based on Literature, three results exist regarding the relationship between tourism and economic growth:

First, is tourism-driven economic growth. The growth in the economy is caused mainly by growth in the tourism industry. as studies by Balaguer and Cantavella-Jordá (2002), Gunduz and Hatemi (2006), Salmani et al. (2012), Hoshmand and Hazari (2012), Leana et al. (2014) for Singapore, Dash et al. (2018), Manzoor et al. (2019), Kreishan, (2015), Saleh et al. (2019).

The second is economic growth-based tourism. That economic growth leads to the development of tourism by providing conditions for tourism facilities and infrastructure development, as studies by Mulok et al. (2012), Milanović and Stamenković (2012), Leana et al. (2014) for Malaysia, Alhawaish (2016), Songling et al. (2019).

Third, The two-way relationship between tourism and economic growth. The interaction between economic growth and tourism development, where the progress in each of the two sectors will lead to development in the other, as studied by Habibi (2015), Kouchi et al. (2018), and Ageli (2013).

Only a few studies find that no relationship exists between tourism and economic growth, as a study by Primayesa et al. (2017). Maybe no causality between tourism and economic growth, due to any marketing strategies or economic plans failing to bring instant impact to the growth, and the growth may be negatively affected by external shocks such as influenza H1N1, SARS, flooding, etc. that restrictions and travel facilities influence of.

### 3. Methodology and Data

#### 3.1. Type of study

This research followed a quantitative approach to test the impact of the Hajj season as part tourism sector in Saudi Arabia on economic growth.

#### 3.2. The Model

This study uses the number of pilgrims to measure the size of the Hajj season as part of tourism same measure number of tourists in studies by Gunduz and Hatemi (2006), Mulok et al. (2012), Leana et al. (2014), and Kreishan, (2015), because of multiple linear problems arises when using tourism revenues. As well as the Real Effective Exchange rates as in studies by Balaguer and Cantavella-Jordá (2002), Gunduz and Hatemi (2006), Salmani et al. (2012), Leana et al. (2014), Primayesa et al. (2017), Dash et al. (2018), where Hajj season as part tourism is assumed an important factor of economic growth in Saudi Arabia, besides the demand for the Saudi riyal externally during that period.

The variables of the study are the Real Non-Oil Gross Domestic Product (RNGDP) in Saudi Riyals represents an indicator of economic growth as the dependent variable. The independent variables include the number of pilgrims from the inside (TOURI) and the number of pilgrims from the outside (TOURO) as represent indicators of Hajj season, and the Real Effective Exchange rates of Saudi Riyal (REEX) consider important variables for affecting international tourism and its relationship with real income. The model used in this study can be specified in the Multiple Linear Regression equation, a statistical technique that uses several explanatory variables to goal to model the linear relationship between the independent variables and dependent variable, and predict the outcome of a dependent variable:

$$\text{RNGDP}_t = \alpha_0 + \beta_1 \text{TOURI}_t + \beta_2 \text{TOURO}_t + \beta_3 \text{REEX} + \varepsilon_t$$

Where:

RNGDP = Real Non-Oil Gross Domestic Product,

TOURI = the number of pilgrims from the inside,

TOURO = the number of pilgrims from the outside,

REEX = Real Effective Riyal Exchange rates,

$\beta$  = coefficients to be estimated,

$\varepsilon$  = disturbance error, and

t = time.

### 3.3. Hypotheses

H0: The number of pilgrims from the inside has no impact on real non-oil GDP in Saudi Arabia.

H1: The number of pilgrims from the inside has a positive impact on real non-oil GDP in Saudi Arabia.

H0: The number of pilgrims from the outside has no impact on real non-oil GDP in Saudi Arabia.

H2: The number of pilgrims from the outside has a positive impact on real non-oil GDP in Saudi Arabia.

H0: The real effective riyal exchange rates have no impact on real non-oil GDP in Saudi Arabia.

H3: The real effective riyal exchange rates have a positive impact on real non-oil GDP in Saudi Arabia.

### 3.4. Data collection method

Data collection methods are through the data availability by use internet. The sources are Real Non-Oil Gross Domestic Product and Real Effective Riyal Exchange rates from the SAMA database, whereas the data for the number of pilgrims from the inside and outside was obtained from the General Statistics Authority.

### 3.5. The sampling designs

The sample is Real Non-Oil Gross Domestic Product, the number of pilgrims from the inside and outside, and the Real Effective Riyal Exchange rates of Saudi Arabia during the period 1980-2018.

### 3.6. Statistical analysis technique.

Statistical analysis techniques are the Unit root test, the cointegration approaches to test the existence or absence of a long-run relationship between variables, and test the direction of causality. To the test cointegration technique, use the Autoregressive Distributed Lag (ARDL), Which was developed by Pesaran et al. ARDL was used as in the study by Kreishan, (2015) because does not impose a restrictive assumption that all the variables under study must be integrated of the same order. To test the direction of causality, use the Granger causality, provided by Professor Clive Granger was developed in the 1960s. It is a statistical hypothesis test for determining whether one-time series is useful in forecasting another. For the analysis, the transform of the variables is to logarithm because it reduces the fluctuations of the variables and the analysis becomes to induce stationarity.

$$\text{IRNGDP}_t = \alpha_0 + \beta_1 \text{LTOURI}_t + \beta_2 \text{LTOURO}_t + \beta_3 \text{LREEX} + \varepsilon_t$$

## 4. Analysis & Interpretation Results

### 4.1 Descriptive Analysis

A complement of standard descriptive statistics is displayed, which explains the variables used in this model to analyze the relationship between the Hajj season as part of tourism and economic growth. All the statistics are calculated using the EViews.

Table 1: Descriptive Analysis

	LRNGDP	LTOURI	LTOURO	LREEX
Mean	13.37146	13.52655	14.00322	4.864722
Median	13.20375	13.45851	14.05260	4.788341

<b>Maximum</b>	14.20649	14.21950	14.41884	5.510206
<b>Minimum</b>	12.77019	13.19475	13.48715	4.546799
<b>Std. Dev.</b>	0.474791	0.260490	0.283693	0.292733
<b>Skewness</b>	0.587271	1.029704	-0.122408	1.283236
<b>Kurtosis</b>	1.847109	3.274798	1.727956	3.425178
<b>Jarque-Bera</b>	4.401653	7.014592	2.726799	10.99728
<b>Probability</b>	0.110712	0.029978	0.255790	0.004092
<b>Sum</b>	521.4869	527.5356	546.1255	189.7242
<b>Sum Sq. Dev.</b>	8.566194	2.578500	3.058316	3.256327
<b>Observations</b>	39	39	39	39

Note: LRNGDP: Non-Oil GDP; LTOURI: pilgrims from inside; LTOURO: pilgrims from outside; LREEX: real effective riyal exchange rates.

The summary statistics in table1 indicate the average real non-oil GDP: 13.37146, an average number of pilgrims from the inside: 13.52655, the average number of pilgrims from the outside:14.00322, and the average Real Effective Riyal Exchange rates: 4.864722.

The standard deviation of real non-oil GDP: is 0.474791, the standard deviation of the number of pilgrims from the inside: is 0.260490, the standard deviation of the number of pilgrims from the outside: is 0.283693, and the standard deviation of Real Effective Riyal Exchange rates: 0.292733. The Jarque–Bera (J–B) normality test results indicate that real non-oil gross domestic products and the number of pilgrims from the outside approximate a normal distribution because the Probability > 0.05, but the number of pilgrims from the inside and Real Effective Riyal Exchange rates are abnormal distribution, the Probability < 0.05.

## 4.2 Correlation

This section focuses on correlation analysis to test relationships between variables. The correlation coefficient  $r$  measures the strength and direction of a linear relationship between two variables on a scatterplot. The value of  $r$  is always between 1 and  $-1$ , which means that a correlation coefficient is a way to put a value to the relationship. As the significance correlation coefficient indicates that 95 times out of 100, we can be sure that there is a true or significant correlation between the two variables, and there is only a 5% chance that the relationship does not truly exist. There is a negative correlation between RNGDP and the number of pilgrims from the inside by 0.212063, a strong positive correlation between RNGDP and the number of pilgrims from the outside by 0.835472, and a negative correlation between RNGDP and Real Effective Riyal Exchange rates by 0.654993. Also, there is a negative correlation between the number of pilgrims from the inside and the number of pilgrims from the outside by 0.138936, and a positive correlation between the number of pilgrims from the inside and Real Effective Riyal Exchange rates by 0.237459. As well as there is strong negative correlation between the number of pilgrims from the outside and Real Effective Riyal Exchange rates by 0.709164.

**Table 2: Correlation Analysis.**

	LRNGDP	LTOURI	LTOURO	LREEX
<b>LRNGDP</b>	1.000000			
	-----			
<b>LTOURI</b>	-0.212063	1.000000		
	0.1950	-----		
<b>LTOURO</b>	0.835472	-0.138936	1.000000	
	0.0000	0.3989	-----	
<b>LREEX</b>	-0.654993	0.237459	-0.709164	1.000000
	0.0000	0.1455	0.0000	-----

\*\*Correlation is significant at the 0.05 level.

Since our correlation of  $r = -0.212063$  between LRNGDP and LTOURI, the test is statistically significant, but the  $p\text{-value} = 0.1950 > 0.05$ , therefore, cannot reject the null hypothesis, the correlation coefficient is not significantly different from zero.

The correlation of  $r = 0.835472$  between LRNGDP and LTOURO, that the test is statistically significant. The  $p\text{-value} = 0.00 < 0.5$ , therefore, reject the null hypothesis, that our correlation is significantly different from zero.

The correlation of  $r = -0.654993$  between LRNGDP and LREEX, that the test is statistically significant. The  $p\text{-value} = 0.00 < 0.5$ , therefore, rejects the null hypothesis, and that our correlation is significantly different from zero.

The correlation of  $r = -0.138936$  between LTOURI and LTOURO, that the test is statistically significant. But the  $p\text{-value} = 0.3989 > 0.05$ , therefore, cannot reject the null hypothesis, the correlation coefficient is not significantly different from zero.

The correlation of  $r = 0.237459$  between LTOURI and LREEX, that the test is statistically significant. But the  $p\text{-value} = 0.1455 > 0.05$ , therefore, cannot reject the null hypothesis, the correlation coefficient is not significantly different from zero.

And the correlation of  $r = -0.709164$  between LTOURO and LREEX, concludes that the test is statistically significant. The  $p\text{-value} = 0.00 < 0.5$ , therefore, rejects the null hypothesis, and that our correlation is significantly different from zero.

Consequently, we conclude three important relationships in this analysis, namely, the relationship of the number of pilgrims from the outside to the real effective riyal exchange rates in a negative relationship, the higher the real effective riyal exchange rates will the fewer the number of pilgrims from the outside and thus will negatively affect the real non-oil GDP which it's clear that it is linked to a Positive relationship with the number of pilgrims from the outside, and it is linked to a negative relationship with the real effective riyal exchange rates.

### 4.3 Regression Analysis Technique

This part focuses on the regression analysis between the dependent variable (real non-oil GDP) and the independent variables (pilgrims from inside, pilgrims from outside, and real effective riyal exchange rates).

**Table 3: Regression analysis of Hajj season and non-oil GDP.**

Dependent Variable: LRNGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.370882	4.279486	-0.320338	0.7506
LTOURI	-0.151942	0.170240	-0.892518	0.3782
LTOURO	1.257277	0.215370	5.837748	0.0000
LREEX	-0.166160	0.212781	-0.780897	0.4401
<b>R-squared</b>		0.712419	<b>Durbin-Watson</b>	0.287193
<b>F-statistic</b>		28.90160	<b>Prop(F-statistic)</b>	0.000000

Source: prepared by the researcher using the program EViews.

The estimation equation is as follows:

$$\text{LRNGDP} = -1.370882 - 0.151942 \text{ LTOURI} + 1.257277 \text{ LTOURO} - 0.166160 \text{ LREEX}$$

$$(-.320338) \quad (-0.892518) \quad (5.837748) \quad (-0.780897)$$

Table 3 shows that the dependent variable was non-oil GDP. Pilgrims from inside, pilgrims from outside, and real effective riyal exchange rates represent the independent variables. According to the analysis, the  $p\text{-value} (0.00)$  was less than 0.05

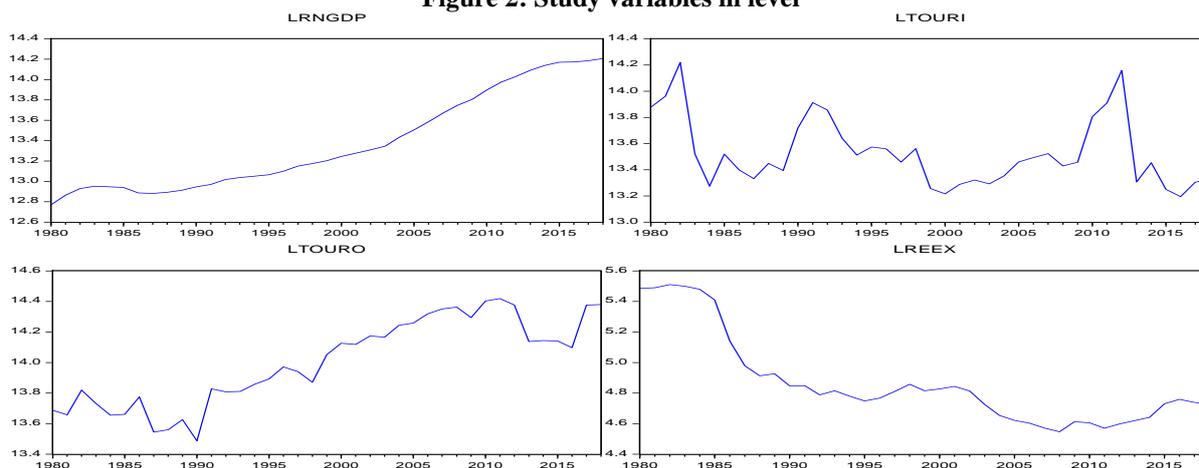
only in the number of pilgrims from outside. Also, the beta coefficient is positive, therefore that pilgrims from outside are a significant predictor of non-oil GDP by a positive relationship. The R2 value explains that 71% of the changes that occur in the real non-oil GDP are caused by the Hajj season in Saudi Arabia. Prop(F-statistic) is 0.000, which means the model is valid for analysis. consequently, we accepted the alternative hypothesis and rejected the null hypothesis. Durbin-Watson 0.287193 < 2 refers to positive autocorrelation.

#### 4.4 Unit Root Test.

Test unit root in all the variables underlying the above model to determine their order of integration. For this purpose, applies the Augmented Dickey-Fuller (1979) and Phillips-perron (1988) test to examine a unit root in variables (real non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective riyal exchange rates). Check for test unit root with the trend and intercept, then with intercept, then without trend and intercept, since not all variables follow a trend and intercept based on variables in level from figure 2 and test the equation. This follows three equations:

- No constant, no trend:  $\Delta y_t = \gamma y_{t-1} + v_t$
- Constant, no trend:  $\Delta y_t = \alpha + \gamma y_{t-1} + v_t$
- Constant and trend:  $\Delta y_t = \alpha + \gamma y_{t-1} + \lambda t + v_t$

**Figure 2: Study variables in level**



Source: prepared by the researcher using the program EViews.

**Table 4: Augmented Dickey-Fuller (1979) unit root test**

Variables	Level			First Difference		
	SIC lag	t-Statistic	critical value at 5%	SIC lag	t-Statistic	critical value at 5%
LRNGDP	1	-3.099814***	-3.536601	0	-2.076354*	-1.950117
LTOURI	0	-3.197215**	-2.941145	-	-	-
LTOURO	0	-2.715871***	-3.533083	0	-7.561632*	-1.950117
LREEX	0	-2.461517**	-2.091953	0	-3.313165*	-1.950117

\*model without constant and trend, \*\*model without trend, \*\*\*model with constant and trend

**Table 5: Phillips-perron (1988) unit root test**

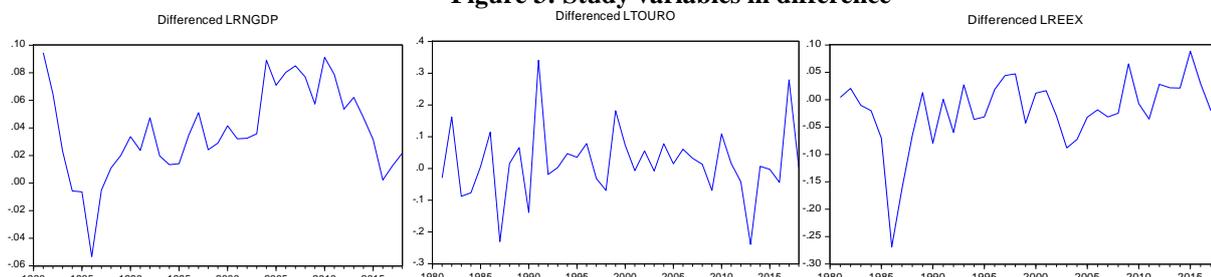
Variables	Level		First Difference	
	t-Statistic	critical value at 5%	t-Statistic	critical value at 5%
LRNGDP	4.235810*	-1.949856	-2.124360*	-1.950117

<b>LTOURI</b>	-3.129778**	-2.941145	-	-
<b>LTOURO</b>	-2.738764***	-3.533083	-7.621557*	-1.950117
<b>LREEX</b>	-2.279488**	-2.941145	-3.314075*	-1.950117

\*model without constant and trend, \*\*model without trend, \*\*\*model with constant and trend

In table 4 and table 5, the results for unit root by ADF and PP both indicated the non-oil GDP, pilgrims from outside, and real effective rial exchange rate are not stationary at their level and stationary at first difference. But the pilgrims from inside are stationary on their level. Figure3, shows the non-oil GDP, pilgrims from outside, and real effective rial exchange rate in difference. Therefore, to estimate the model, and a long-run equilibrium relationship, use the cointegration test ARDL because does not impose a restrictive assumption that all the variables under study must be integrated of the same order.

**Figure 3: Study variables in difference**



Source: prepared by the researcher using the program EViews.

#### 4.5 Auto Regressive Distributed Lag (ARDL) test.

The study uses annual data, and hence a lag length of 2 for annual data in the ARDL test to check for the existence of cointegration, estimate and investigate the relationship between the non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective rial exchange rates.

**Table 6: Autoregressive Distributed Lag Estimates**

Dependent Variable: LRNGDP					
Dynamic regressors (2 lags, automatic): LTOURI LTOURO LREEX					
Selected Model: ARDL (2, 0, 1, 0)					
Variable	Coefficient	Std. Error	t-Statistic	Prob.*	
LRNGDP(-1)	1.428043	0.142370	10.03053	0.0000	
LRNGDP(-2)	-0.454632	0.139952	-3.248493	0.0029	
LTOURI	0.017159	0.014688	1.168269	0.2519	
LTOURO	0.013822	0.028772	0.480376	0.6344	
LTOURO(-1)	0.040227	0.030948	1.299845	0.2036	
LREEX	-0.039271	0.016267	-2.414162	0.0221	
C	-0.909777	0.450555	-0.942879	0.3533	
<b>R-squared</b>	<b>0.998821</b>	<b>F-statistic</b>	<b>4236.959</b>	<b>Prob(F-statistic)</b>	<b>0.00000</b>

Source: prepared by the researcher using the program EViews.

That follows the ARDL equation:

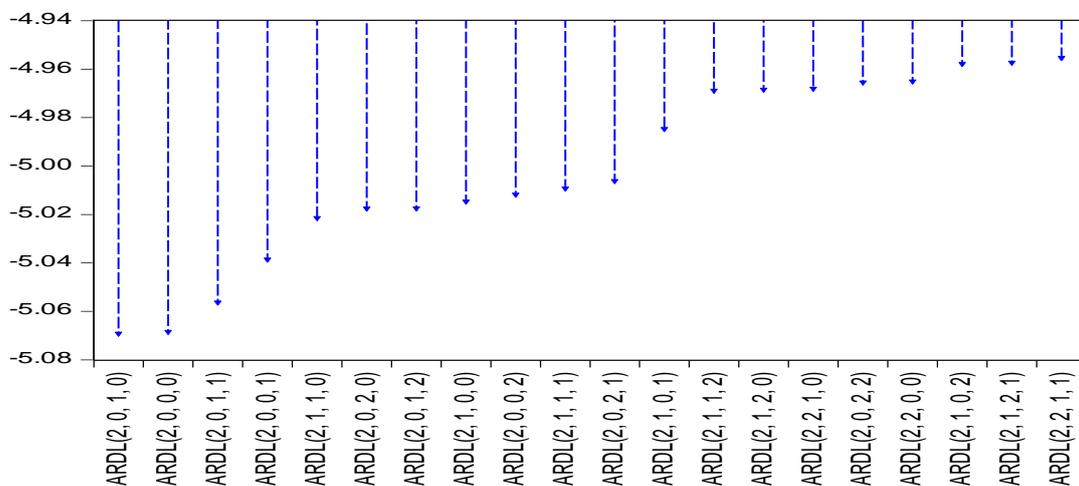
$$\Delta Y_t = \beta_0 + \sum_{i=1}^n \beta_i \Delta y_{t-i} + \sum_{i=0}^n \delta_i \Delta x_{t-i} + \varphi_1 y_{t-1} + \varphi_2 x_{t-1} + \mu_t$$

Table 6, refers to the estimation of the ARDL model at time lag based on the Akaike standard (2, 0, 1, 0) of non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective rial exchange rate respectively. Shows also that the estimating parameters of the self-regression model for distributed gaps are significant only at real effective rial exchange rates

negatively at a 5% level of significance and insignificant at pilgrims from inside, and pilgrims from outside. Statistical tests indicate the relative quality of the estimated model through the value of the coefficient (R-squared = 0.99), the relatively high and shows that the estimated model explains 99% of the changes in real non-oil GDP. The results also indicate that the relationship between the dependent variable and the interpreted variables is not fake, as the value of the test (F-statistic) is 4236.959 at the level of statistical significance is Prob(F-statistic) is 0.000.

In this framework, the optimal model that gives the lowest value to the criterion Akaike is the form ARDL (2, 0, 1, 0), where the maximum number of slowdowns has been determined by two periods, and therefore this model has been chosen to estimate the equilibrium relationship in the long-term, as shown in Figure 4.

**Figure 4: The appropriate form for estimating a long-term equilibrium relationship.**  
 Akaike Information Criteria (top 20 models)



**Source: prepared by the researcher using the program EViews.**

Before adopting the ARDL model that was chosen by using Akaike for use in estimating, it is necessary to ensure the quality of the performance of this model, and this is done by conducting the following diagnostic tests:

- Breusch-Godfrey Serial Correlation LM Test.
- Heteroskedasticity test: Breusch-Pagan-Godfrey.
- Histogram-Normality test.

First, to test the problem for the presence of serial correlation applies the Breusch-Godfrey serial correlation LM test with a lag length of 2. If the serial correlation is present, would mean that incorrect conclusions would be drawn from other tests.

**Table 7: Breusch-Godfrey Serial Correlation LM Test.**

<b>F-statistic</b>	1.771247	<b>Prob. F (3,16)</b>	0.1887
<b>Obs*R-squared</b>	4.155419	<b>Prob. Chi-Square (3)</b>	0.1252

Source: prepared by the researcher using the program EViews.

Based on the results for Prob (Chi-Square) is 0.1252 > 0.05, the estimated model is free from the problem of serial correlation, therefore does not reject the null hypothesis that residuals are not self-correlating.

Second, to ensure that the residuals do not have a problem with the heterogeneity of contrast apply the Heteroskedasticity test: Breusch-Pagan-Godfrey.

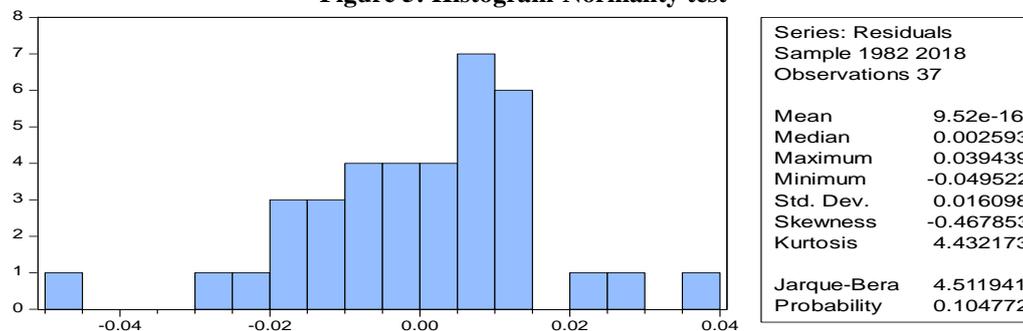
**Table 8: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

<b>F-statistic</b>	0.409005	<b>Prob. F(15,19)</b>	0.8671
<b>Obs*R-squared</b>	2.797779	<b>Prob. Chi-Square(15)</b>	0.8338
<b>Scaled explained SS</b>	3.156398	<b>Prob. Chi-Square(15)</b>	0.7890

Source: prepared by the researcher using the program EViews.

Based on the results of the test, Prob. Chi-Square > 0.05, therefore not reject the null hypothesis that in residuals there is no heteroscedasticity.

Third, to demonstrate that the residuals are not normally distributed, apply the Histogram-Normality test.

**Figure 5: Histogram-Normality test**


Source: prepared by the researcher using the program EViews.

Based on figure 3, the result for the Jarque-Bera Probability > 0.05, that residuals are not followed normally distributed. Thus, adopt the ARDL model that was chosen by using Akaike for use in estimating. To check for the existence of cointegration apply the Bounds test approach to Cointegration. The null hypothesis of no cointegration is rejected when the value of the F-statistic exceeds the upper critical bounds value and the lower bounds value.

**Table 9: Bounds Test to Cointegration**

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Significance	I(0)	I(1)
<b>F-statistic</b>	5.123835	10%	2.72	3.77
<b>K</b>	3	5%	3.23	4.35
		2.5%	3.69	4.89
		1%	4.29	5.61

Source: prepared by the researcher using the program EViews.

Based on the results for table 9, the F-statistic value = 5.123835 for the Bounds test, exceeds the upper critical bounds value and the lower bounds value in the table. Thus, there exists the Cointegration between study variables (real non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective rial exchange rates). Therefore, the presence of the Cointegration between study variables allows for the estimation of long-run estimates and short-run estimates by applying the Long Run form and the Error Correction form respectively.

**Table 10: Estimated Long Run Coefficients using the ARDL Approach**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>LTOURI</b>	0.645369	0.626315	1.030422	0.3110
<b>LTOURO</b>	2.032818	0.779581	2.607576	0.0141
<b>LREEX</b>	-1.477028	0.889672	-1.660193	0.1073

Source: prepared by the researcher using the program EViews.

Table 10, refers to estimates of the long run, which explain the effect of explanatory variables (pilgrims from inside, pilgrims from outside, and real effective riyal exchange rates) on the dependent variable (real non-oil GDP) in the long term. The coefficient of the pilgrims from outside only is positively statistically significant based on the Prob value  $0.0141 < 0.05$ , thus indicating that if the pilgrims from outside increase by 1 percent, real non-GDP will increase by 2.032818 percent in the long run. But the coefficient of the pilgrims from inside and real effective riyal exchange rates are statistically non-significant based on the Prob value  $> 0.05$ , indicating that the pilgrims from inside and real effective riyal exchange rates are no effect on the real non-oil GDP in the long-term.

The positive effect of the pilgrims from outside on real non-oil GDP is may due to that to what may be passed by pilgrims from outside from obtaining a visa and exchanging currency as well as flying, transition and thus shows the impact in the long term based on the test. As long-run results indicate that any disequilibrium in the system as a result of a shock can be corrected in the long run by the error correction term. Hence, the error correction term that estimated the short-run adjustments to equilibrium is generated as follows.

$$EC = LRNGDP - (0.6454 * LTOURI + 2.0328 * LTOURO - 1.4770 * LREEX)$$

**Table 11: Error Correction Representation for the Selected ARDL Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.424819	0.091441	-4.645842	0.0001
D(LRNGDP(-1))	0.454632	0.101950	4.459342	0.0001
D(LTOURO)	0.013822	0.025123	0.550150	0.5863
CointEq(-1)*	-0.026588	0.005600	-4.748144	0.0000
Adjusted R-squared	0.713675	Durbin-Watson	2.347232	

Source: prepared by the researcher using the program EViews.

The last step in ARDL analysis is to estimate the error correction model, which represents the relationship between the real non-oil GDP and the pilgrimage season variables in the short term, using the ARDL (2, 0, 1, 0), as shown in table 11, coefficient of CointEq(-1)\* and takes the negative sign as expected, (-0.026588) and is statistically significant, the error correction parameter, if negative and significant, indicates a long-term balanced relationship between the variables in the short-run, also, it refers to their error correction from short-term to long-term by the speed of up to -0.026588. But the coefficient of the pilgrims from outside is statistically non-significant based on the Prob value  $> 0.05$ , indicating that the pilgrims from outside are no effect on the real non-oil GDP in the short term.

The relationship in the long term is the one that depends on it studying the relationship between the real non-oil GDP and the independent variables to prove the research hypotheses because the short-term relationship may deviate or fluctuate, so the importance is to return to balance, that is, the relationship in the long term. Durbin-Watson value refers to 2.347232 revealing that there is no autocorrelation in the residuals.

#### 4.6 Granger Causality Test

The bounds test to cointegration analysis showed the existence of the Cointegration between study variables. Therefore, applies the causality test to check the long-run causal relationship between study variables (real non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective riyal exchange rates).

The Granger causality test is the most widely used model for causality. Chooses with a lag length of 1 to confirm the causal relationship between the variables.

The results of the Granger causality are shown in table12. Shows there is a unidirectional Granger causality flow from the pilgrims from outside to real non-oil GDP, this means that the changes in the number of pilgrims from abroad help explain the changes that occur in the real non-oil GDP.

Also, there is a unidirectional Granger causality flow from the real effective rial exchange rates to real non-oil GDP, this means that the changes in the real effective rial exchange rates help explain the changes that occur in the real non-oil GDP.

**Table 12: Granger Causality Test**

Null Hypothesis:	F-Statistic	Prob.
LTOURI does not Granger Cause LRNGDP	2.98624	0.0928
LRNGDP does not Granger Cause LTOURI	0.51394	0.4782
LTOURO does not Granger Cause LRNGDP	16.7960	0.0002*
LRNGDP does not Granger Cause LTOURO	1.75957	0.1933
LREEX does not Granger Cause LRNGDP	4.90231	0.0334*
LRNGDP does not Granger Cause LREEX	0.95724	0.3346
LTOURO does not Granger Cause LTOURI	0.54484	0.4654
LTOURI does not Granger Cause LTOURO	1.48273	0.2315
LREEX does not Granger Cause LTOURI	0.00345	0.9535
LTOURI does not Granger Cause LREEX	2.54660	0.1195
LREEX does not Granger Cause LTOURO	2.09018	0.1571
LTOURO does not Granger Cause LREEX	0.08289	0.7751

Source: prepared by the researcher using the program EViews.

## 5. Summary & Conclusion

The tourism sector is considered one of the fastest-growing sectors in the world. Tourism has also been promoted in many Asian countries as part of the solution to their economic problems. Tourism activities are mainly based on the process of continuous spending on the investment of natural, human and cultural resources that tourists taste and their demand for them is increasing. The tourism sector in Saudi Arabia has been one of the main themes of the Kingdom's Vision 2030. It was the main motive for visiting Saudi Arabia for religious reasons, where the genesis of Islam on its soil and its precious religious attractions give it a unique platform for marketing itself as a tourism destination. Saudi Arabia has long experience in organizing the biggest Muslim event which is Hajj. Through long decades extending to the pre-oil stage, the pilgrimage season was and still represents a source of income in Saudi Arabia. Although religious tourism continues throughout the year, the Hajj season attracts about 2.5 million Muslims, where depends the size of the Hajj revenues in each season on the most important factor which is the number of pilgrims from the inside and from outside, and also the demand for the Saudi rial externally during that period. Thus, the sacred places located in Saudi Arabia provide a particular opportunity for the tourism industry to develop in a sound direction and in a sustainable way. Also, the long experience of Saudi Arabia in organization and success in Hajj season enhances the credibility of tourism projects.

The purpose of this study is to investigate the relationship of cointegration and the causality relationship between the dependent variable (non-oil GDP) representing an indicator of economic growth and the independent variables (pilgrims from inside and pilgrims from outside) representing indicators of Hajj season. As well as (the real effective exchange rates of Saudi Riyal) consider an important variable for affecting international tourism and its relationship with real income over the period of 1980 to 2018.

Conclude of the descriptive analysis, is that real non-oil gross domestic products and the number of pilgrims from outside approximate a normal distribution. In Correlation analysis there are three important relationships, the number of pilgrims from outside and the real effective rial exchange rates in a negative relationship, the real effective rial exchange rates and the real non-oil GDP in a negative relationship, and a positive relationship between the number of pilgrims from outside and the real non-oil GDP. Regression analysis shows that pilgrims from outside are a significant predictor of non-oil GDP by positive relationship.

The non-oil GDP, pilgrims from outside, and real effective riyal exchange rate are not stationary in their level and stationary at first difference. But the pilgrims from inside are stationary in their level based on Augmented Dickey-Fuller and Phillips-perron unit roots. Therefore, Used the ARDL cointegration test, due to the variables under study don't integrate in the same order.

The estimation of the ARDL model at time lag is based on the Akaike standard (2, 0, 1, 0) of non-oil GDP, pilgrims from inside, pilgrims from outside, and real effective riyal exchange rate respectively. Self-regression model for distributed gaps indicate that the estimating parameters are significant only at real effective riyal exchange rates negatively, the estimated model quality, and also the relationship between the dependent variable and the interpreted variables are not fake. Diagnostic tests refer to residuals that are not self-correlating, have no heteroscedasticity, and no normally distributed.

In the bounds test, the F-statistic value exceeds the upper critical bounds value and the lower bounds value. Therefore, refers to the existence of the cointegration between the variables. In the long-term, only the pilgrims from outside are statistically significant indicating that if the pilgrims from outside increase by 1 percent, real non-oil GDP will increase by 2.032818 percent. But in the short-term, the pilgrims from outside are no effect on the real non-oil GDP. The relationship in the long term is the one that depends on it studying the relationship between the real non-oil GDP and the independent variables to prove the research hypotheses because the short-term relationship may deviate or fluctuate, so the importance is to return to balance, that is, the relationship in the long term. However, the Granger causality test reveals the evidence for the existence of unidirectional causality that runs from the pilgrims from outside to real non-oil GDP, and unidirectional causality that runs from the real effective riyal exchange rates to real non-oil GDP.

This study supports the consensus that the Hajj season acts as an engine of economic growth for Saudi Arabia during the estimation period, depending on the analysis result of the pilgrims from outside and the Real Effective Riyal Exchange rates. While the revenues of Hajj based on the pilgrims from inside may have only an effect on the private sector and not in the state treasury and do not represent great of the GDP as economists pointed out. Also, this study supports the Saudi Vision 2030, which set a clear goal to raise the capacity of the guests of Rahman, where the number of guests of Rahman will increase to eight million annually and even reach 30 million Pilgrims and Umrah pilgrims by 2030. It is expected that revenues will exceed 50 billion riyals from the Hajj season by 2030. It is compatible with the study result, that the pilgrims from outside are a significant predictor of non-oil GDP by positive relationship.

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## "أثر الأنشطة السياحية على النمو الاقتصادي في المملكة العربية السعودية"

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### الملخص:

توفر الأماكن المقدسة الموجودة في المملكة العربية السعودية فرصة خاصة لصناعة السياحة للتطور في اتجاه سليم وبطريقة مستدامة. تتناول هذه الورقة تأثير موسم الحج كجزء من قطاع السياحة في المملكة العربية السعودية على النمو الاقتصادي. استناداً إلى اختبار ARDL واختبار السببية Granger من 1980 إلى 2018. وتشمل متغيرات الدراسة الناتج المحلي الإجمالي الحقيقي غير النفطي كمؤشر للنمو الاقتصادي، وعدد الحجاج من الداخل وعدد الحجاج من الخارج كمؤشرات لموسم الحج، وتعتبر أسعار الصرف الحقيقية الفعلية للريال السعودي متغيرات مهمة تؤثر على السياحة الدولية وعلاقتها بالدخل الحقيقي. أظهرت النتائج وجود التكامل المشترك بين المتغيرات. ويعتبر متغير الحجاج من الخارج مؤشراً إيجابياً هاماً للناتج المحلي الإجمالي غير النفطي. علاوة على ذلك، هناك تدفق سببي أحادي الاتجاه من الحجاج من الخارج إلى الناتج المحلي الإجمالي الحقيقي غير النفطي، وسببية أحادية الاتجاه تمتد من أسعار صرف الريال الفعلية الحقيقية إلى الناتج المحلي الإجمالي الحقيقي غير النفطي. تدعم هذه الدراسة الإجماع على أن موسم الحج يعمل كمحرك للنمو الاقتصادي للمملكة العربية السعودية خلال فترة التقدير، اعتماداً على نتيجة تحليل الحجاج من الخارج وأسعار صرف الريال الحقيقية الفعلية. في حين أن إيرادات الحج القائمة على الحجاج من الداخل قد يكون لها تأثير فقط على القطاع الخاص وليس في خزانة الدولة ولا تمثل الكثير من الناتج المحلي الإجمالي كما أشار الاقتصاديون. كما تدعم هذه الدراسة رؤية المملكة 2030 التي وضعت هدفاً واضحاً لرفع الطاقة الاستيعابية لضيوف الرحمن والتي ستصل إلى 30 مليون حاج ومعتزم بحلول 2030.

**الكلمات المفتاحية:** الأنشطة السياحية، النمو الاقتصادي، موسم الحج، الناتج المحلي الإجمالي، الحجاج.