

Tourism investment as a strategic alternative to oil: the case of Saudi Arabia

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Abstract:

The tourism industry is one of the most important strategic sectors in achieving sustainable economic growth and development for contemporary societies regarding its contribution to the gross domestic product (GDP). The strategic orientation of countries like Saudi Arabia towards diversifying their sources of income and avoiding a reliance upon a single resource such as oil. This article aims to measure the impact of tourism on the Saudi economy using Johansson's co-integration test and the Granger Causality test.

Key words: Tourism, Tourism Investment, Co-integration, Granger Causality test.

Jel Classification Codes : O10, O47.

1. INTRODUCTION

Most oil-producing countries, including the Kingdom of Saudi Arabia, suffer from the problem of depleting natural resources such as oil and gas. Therefore, the authorities must take firm measures to confront this depletion.

Like other oil-rich countries, Saudi Arabia is highly dependent upon oil revenues. Therefore, it relies upon foreign markets whose movements can be challenging to predict. In contrast, internal economic influences in the country, such as its tourism industry's condition, rely primarily upon local markets and can therefore be more easily controlled. Saudi Arabia is also home to the Two Holy Mosques, which stimulate income from religious tourism – an inexhaustible resource.

However, oil exports dominate a high percentage of the Saudi economy, despite the state's repeated attempts to diversify its sources of income, and

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these exports are subject to external impacts that threaten the continuation of oil production. Recently, for example, there has been a reduction in oil exports due to the recession in the global economy caused by the coronavirus pandemic.

The tourism option is considered a suitable alternative to such income sources as it depends on religious elements (Hajj and Umrah). It also depends largely on both local tourists and tourists from the Gulf due to the large size of Saudi Arabia and the diversity of its weather. In contrast, the oil industry depends on capital intensity and not human capital, which results in employment instability. In contrast, investment in tourism increases employment opportunities as it does not depend on capital intensity.

In light of these considerations, this article's primary purpose is to consider alternative strategies for oil, especially the role of tourism as a non-oil sector strategy in the economic growth of Saudi Arabia.

Finally, to discuss all aspects of tourism investment, the article has been organized into four main sections: the model specification, the study method, the empirical findings and the conclusion.

Theoretical framework

There are many studies on GDP and tourism in the economic literature, and existing work often explores whether tourism drives economic growth or vice versa. Tourism undoubtedly affects the strengthening of the economy by attracting domestic and foreign investment and foreign currencies. On the other hand, tourism investment supports the labour market and provides many jobs, thus increasing per capita income.

Numerous researchers have focused on the relationship between tourism and economic growth. Several studies Tsung-Pao Wu et al. (2020) (11 Asian regions); Alina-Petronela Haller et al. (2020) (28-member states); Karim et al. (2021) (Algeria); Faiza Manzoor et al. (2019) (Pakistan); Nikolaos Antonakakis et al. (2015) (10 European countries); and Ding Du et al. (2014) (109 countries) discussed that tourism has a strong positive influence on economic prosperity.

Tsung-Pao Wu (2020) undertook an empirical investigation of the causal relationship between tourism and economic growth over 21 years (1995 to 2016) in 11 Asian regions. The results show strong evidence of a link between tourism and actual gross domestic product variables. The study recommended that the government increase and promote tourism demand and provide and nurture the expansion of the tourism supply. In contrast, Alina-Petronela Haller (2020), who analysed the relationship between tourism and economic

growth in the EU-28 from 2012 to 2018, argues a positive and direct relationship between tourism and economic growth.

Manzoor (2019) demonstrated the impact of tourism on Pakistan's economic growth from 1990 to 2015 using the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root test. The Johansen cointegration test was applied to see the relationship between tourism and economic growth in the long term. The results show the strong effect of tourism on economic growth in Pakistan.

Antonakakis (2015) examined the relationship between tourism and economic growth in 10 European countries from 1995 to 2012. The results showed that the tourism-economic growth relationship is unstable over time and depends on economic events such as the economic recession in 2007 and the debt crisis in the Eurozone in 2010. These economic events are evident in four countries: Cyprus, Greece, Portugal and Spain.

A study by Karim et al. (2021) demonstrated that in oil-producing countries such as Algeria, tourism is a critical strategic economic growth and development sector. The study used the methodology based on description and analysis, to study the relationship between tourism on the one hand and economic growth on the other. The results showed that the potential for the tourism programmes in Algeria was great and there is an improvement in some points of development and tourism investment, but there is a discrepancy in the volume of flows that reflects the different reasons for the influx of tourists to Algeria.

Another study related to Saudi Arabia shares these results. The Al-Hajhuj study (2010) analysed the impact of the tourism sector on economic growth in Saudi Arabia from 1960 to 2005 using a standard model that included some economic variables in determining the level of impact. The results showed a positive impact from tourism during 1960-1982, but tourism had no effect during the period 1983-2005. This relationship was confirmed by another study by Jamel (2020) from 1990 to 2018, which showed a positive relationship between tourism and economic growth in the Kingdom, with the Granger causality test showing that there is a two-way relationship between tourism and economic growth. This positive impact of tourism on Saudi economic growth was clarified by another study by Al-Obeid (2019), whose results showed that international tourism had a strong and positive impact on economic growth during the study period.

A recent study of Saudi Arabia by Naseem (2021) from 2003 to 2019 confirmed that economic growth has a positive relationship with tourism

revenues, demonstrating that tourism enhances economic growth in Saudi Arabia.

Past studies dealing with the role of the tourism industry on the economy found that its impact is strong in oil-poor countries; in oil-producing countries, the main reason for the apparent impact of tourism on GDP could perhaps in fact be the impact of the huge oil revenues, which undoubtedly impact the GDP. Hence, studies of the influence should be directed towards the effect of the non-oil aspects of the GDP.

The study of this subject proceeds from the principle that tourism as a variable can be an alternative to the oil-dependent economy, but the curse of resources may affect this principle.

Model Specification

This article uses some key variables: tourism, total GDP, GDP in the oil sector and GDP in the non-oil sector. In general, the relationship between tourism on economic growth can be shown as follows:

$$Y = F [T] \quad (1)$$

Where Y is real GDP and T is tourism. To achieve the objectives of the research and to know the impact of the tourism variable on the Saudi economy, three different growth models were estimated: 1) The first model that reflects the relationship between tourism and economic growth; 2) The relationship between tourism and oil economic growth; and 3) The relationship between tourism and non-oil economic growth. Hence, in order to achieve the objectives of the study equation, (1) is expanded as follows:

TOTAL (OIL AND NON-OIL SECTORS): GDP-T

$$\ln Y_1 = \alpha + \beta_1 \ln T + \varepsilon \quad (2)$$

OIL SECTOR MODEL: GDP-O

$$\ln Y_2 = \alpha + \beta_2 \ln T + \varepsilon \quad (3)$$

NON-OIL SECTOR MODEL: GDP-N

$$\ln Y_3 = \alpha + \beta_3 \ln T + \varepsilon \quad (4)$$

Where Y_1 is real GDP for the whole economy, Y_2 is real GDP in the oil sector, Y_3 is real GDP in the non-oil sector. The T variable, as mentioned, is tourism.

A time-series econometric approach has been used to determine short–and long–term relationships between GDP (gross, oil and non-oil) and tourism.

The study begins with the concept of time-series stability, followed by the main stability tests of Phillips and Byron (PP). In order to ascertain the relationship between economic growth and the tourism variable in the long run, co-integration tests based on the Johansen test (Johansen and Joselius, 1990) were used, and the causal relationship between the dependent and independent variables was established to determine the direction of this relationship, using Granger Causality Test.

Empirical analysis and results

The data was obtained from the Saudi Central Bank (SAMA) and the General Authority for Statistics (GAS), where the variables were calculated in real terms using the GDP deflator (1999 = 100). All data were also converted to their natural logarithms.

Table 1 indicates that all variables are stationary at the first difference I (1). This means that it is possible to achieve co-integration relationships between tourism and economic growth, as the appropriate gap in the Phillips-Perron Test (PP) was identified based on the Newey-West criterion.

Table 1: Tests for unit root (PP)

Variable Definition	Symbols	Level	First Difference
Economic growth (GDP)	GDP-T	-0.90	-6.43**
Economic growth in oil sector	GDP-O	-0.73	-4.27**
Economic growth in non-oil sector	GDP-N	-0.04	-3.11**
Tourism	T	-0.90	-8.35**

**Significance at 10% and ** significance at 5%. The lag length is based on the Schwarz Info Criterion (SIC). Critical values (with linear trend): at 5% and 10% are 3.54 and 3.20 respectively.*

On the other hand, Table 2 shows the existence of a cointegration relationship between the economic variables (total GDP, oil, non-oil and tourism variables) according to Johansson's test. It also shows that there is one cointegration vector between economic growth (GDP) and the tourism variable in all models, based on the lag length determined by the AIC, since Johansen's approach is sensitive to the lag length. Therefore, the optimum length of the lag must be chosen.

Table 2: Johansen Co-integration Test Results

H_0	H_1	$Models$	0.05 Critical Value	$P.$
Model (I) GDPT&T				
Trace statistics: λ-Trace				
$r=0$	$r > 0$	23.68825	18.39771	0.0083
$r \leq 1$	$r > 1$	9.540389	3.841466	0.0020
Eigen statistics: λ-max				
$r=0$	$r > 0$	14.14786	17.14769	0.1298
$r \leq 1$	$r > 1$	9.540389	3.841466	0.0020
Model (II) GDPO&T				
Trace statistics: λ-Trace				
$r=0$	$r > 0$	21.42647	20.26184	0.0344
$r \leq 1$	$r > 1$	8.906314	9.164546	0.0560
Eigen statistics: λ-max				
$r=0$	$r > 0$	12.52015	15.89210	0.1578
$r \leq 1$	$r > 1$	8.906314	9.164546	0.0560
Model (III) GDPN&T				
Trace statistics: λ-Trace				
$r=0$	$r > 0$	37.67206	18.39771	0.0000
$r \leq 1$	$r > 1$	0.001680	3.841466	0.9650
Eigen statistics: λ-max				
$r=0$	$r > 0$	37.67038	17.14769	0.0000
$r \leq 1$	$r > 1$	0.001680	3.841466	0.9650

* Rejection of the null hypothesis of no co-integration at 0.05 level.

Notes: * denote significant at the 5% level. t-Statistics in parenthesis.

Table 3: Path coefficient in Saudi Arabia (Counteraction equation)

	Model I			
	<i>Hypothesis</i>	<i>Coefficients</i>	<i>t.</i>	<i>SE (S1)</i>
1	<i>T GDPT</i>	0.027899	0.383	0.07281
	Model II			
	<i>Hypothesis</i>	<i>Coefficients</i>	<i>t.</i>	<i>SE (S1)</i>
2	<i>T GDPO</i>	0.087092	1.280	0.06804
	Model III			
	<i>Hypothesis</i>	<i>Coefficients</i>	<i>t.</i>	<i>SE (S1)</i>
3				

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<i>T</i> <i>GDPN</i>	0.069249	4.698	0.01474
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Notes: S.E. is estimated standard error and t-statistic in parenthesis. 1, 2, 3 are the whole economy, oil sector and Non-oil sector respectively.

Table 3 shows the causality test according to Granger, where the F test for causality was used to determine the direction of causation among the study variables, whether they were in one direction, two directions, or both were independent of each other. It was found that there is a causal trend from the economic growth of the whole economy (GDPT) to tourism. However, we cannot rely on it because of the insignificance of the relationship between these two variables, according to Johansson's test (see Table 2). On the other hand, the results show that there is one causal trend from the non-oil sector (GDPN) to the tourism variable.

Table 4: Granger Causality Test Results

Model (I)						
Variables	Causality Direction		Obs	F-Statistic	P.	
GDPT&T	T	$\nrightarrow$	GDPT	14	0.17118	0.8453
	GDPT	$\rightarrow$	T	14	5.66107	0.0256
Model (II)						
GDPO&T	T	$\nrightarrow$	GDPO	14	0.92266	0.4320
	GDPO	$\nrightarrow$	T	14	1.10989	0.3708
Model (III)						
GDPN&T	T	$\rightarrow$	GDPN	14	0.00216	0.9637
	GDPN	$\rightarrow$	T	14	5.80193	0.0330

*Note: the number inside the parentheses is the P-value. *** and ** represent that the null is rejected under 1% and 5% significant level respectively*

Table 5: Vector Autoregression Estimates Test Results

Model (I)		
	LGDP	LT
LGDP (-1)	1.069361	2.163292
	(0.22045)	(0.68215)
	[4.85088]	[3.17130]
LT (-1)	-0.029383	-0.076006
	(0.10200)	(0.31562)
	[-0.28808]	[-0.24082]
C	-0.684606	-20.98172
	(2.26816)	(7.01856)
	[-0.30183]	[-2.98946]

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R-squared	0.960268	0.908968
Adj. R-squared	0.953646	0.893796
F-statistic	145.0104	59.91115
Log likelihood	27.84517	10.90136
Akaike AIC	-3.312689	-1.053515
Schwarz SC	-3.171079	-0.911905
Model (II)		
	LGDPD	LT
LGDPD (-1)	0.444339	0.800979
	(0.33373)	(0.84512)
	[1.33143]	[0.94777]
LT (-1)	0.097824	0.736688
	(0.07680)	(0.19448)
	[1.27380]	[3.78807]
C	6.732542	-8.449705
	(4.01345)	(10.1634)
	[1.67750]	[-0.83139]
R-squared	0.613240	0.844328
Adj. R-squared	0.548780	0.818383
F-statistic	9.513481	32.54255
Log likelihood	20.81441	6.877275
Akaike AIC	-2.375255	-0.516970
Schwarz SC	-2.233645	-0.375360
Model (III)		
	LGDPN	LT
LGDPN (-1)	0.998890	0.966873
	(0.06523)	(0.40141)
	[15.3132]	[2.40872]
LT (-1)	0.002287	0.195538
	(0.04918)	(0.30262)
	[0.04650]	[0.64615]
C	0.055318	-5.572403
	(0.47478)	(2.92165)
	[0.11651]	[-1.90728]
R-squared	0.995078	0.887209
Adj. R-squared	0.994257	0.868410
F-statistic	1212.933	47.19563
Log likelihood	36.54955	9.293876
Akaike AIC	-4.473274	-0.839183
Schwarz SC	-4.331664	-0.697573

Table 6: VAR Lag Order Selection Criteria

Model (I)			
Lag	AIC	SC	H-Q
0	-1.877936	-1.783529	-1.878942
1	-4.608815*	-4.325595*	-4.611832*
Model (II)			
0	-1.811550	-1.717143	-1.812555
1	-3.215314*	-2.932094*	-3.218331*
Model (III)			
0	-0.653613	-0.559207	-0.654619
1	-5.5677.7*	-5.284487*	-5.570724*

Conclusion

The main objective of this paper is to define an alternative strategy for oil in the Kingdom of Saudi Arabia and to use an inexhaustible variable such as tourism as a strategic alternative that can be trusted in the event of future change. The unit root test of dormancy showed that the data used were integrated into the first degree (1), which gave an initial indication for conducting the cointegration test, as the Johansson test results showed the existence of a co-integration relationship between the economic variables under study. The causality test was also used to determine the direction of the relationship between the selected variables.

The main contribution of this study is the use of a non-oil variable (tourism in its general form) as a strategy for sustainable growth in Saudi Arabia and oil countries whose economies are similar to those of the Gulf countries.

The study revealed that tourism has a weak impact on oil and total GDP and a clear impact on non-oil GDP. This means that tourism represents a valid alternative to oil if it is focused upon.

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