Article

Does tourism expansion and expenditure impact economic growth in Oman-New evidence from granger causality analysis

Syed Ahsan Jamil

Department of Finance and Economics, Dhofar University, Salalah 211, Sultanate of Oman; syed_jamil@du.edu.om

Abstract: The purpose of this study is to examine the impact of tourist spending and the growth of Oman's tourism industry on the country's GDP from 1996 to 2018. The study uses the error correction model and other tests for assessing the link among variables, such as the cointegration test and the Granger causality test, to accomplish its aims. Findings from the error correlation model and cointegration test show that there is a link between the variables in Oman over the long and short term. There is a positive and statistically significant relationship between tourist expenditures and economic growth, as well as a negative and statistically significant relationship between tourism expansion and economic growth. We now use ARDL regression estimators to assess the robustness of the empirical results. There is no evidence of a direct relationship between increased tourism and GDP growth, according to the study's results. According to the research, sustainable tourism development is an achievable economic growth driver, and Oman should prioritize economic policies that support this trend.

Keywords: tourism growth; tourism expenditure; economic growth; causality analysis; Oman

1. Introduction

Tourism is one of the key areas of global economy which is expanding fast. According to the World Travel and Tourism Council 2020 study, the tourism industry supported 330 million jobs worldwide in 2019 roughly 10% of all employment and contributed 10.3% (or US$8.9 trillion) to the global Gross Domestic Product (GDP) globally (WTTC, 2020). The research also confirms that in 2019, the worldwide tourism industry grew at a faster rate than the global economy as a whole, growing at a rate of 3.5% vs 2.5% for the latter. In addition to its contribution to the creation of jobs and income, the tourism industry plays a major role in many countries' efforts to improve human development overall, balance of payments, reduce poverty, generate foreign exchange, create a market for locally produced goods, support the hospitality sector, and stimulate the growth of the transport sector (Sarpong et al., 2020).

The great significance of tourism sector, either in the form of tourist receipts or expenditures, has stimulated the concern of an increasing number of academicians, economists and policymakers to examine its effects on the overall economic activity of a country (or group of countries). Tourism is a diversified sector that affects the growth and development of the nation. As tourism has arisen as a key sector in international trade and has strong and significant impacts on the economy of a country, it can be regarded as an engine of growth. Tourism activities can also promote economic gains through various such channels as tax revenues, employment, and new sources of income and production (Archer, 1995; Holjevac, 2003; Sinclair, 1998; West, 1953). For the last several years, tourism industries have been an important driving force behind the global economy (Shakouri et al., 2017).

Tourism plays a significant role in boosting a nation's economy. For most of the countries, tourism is assumed to be the key tool for domestic economic expansion as it expedites new economic activities. Tourism receipts (as alternative form of exports and services) has a progressive impact on the balance of payment through foreign exchange earnings, employment opportunities, and gross income and production (Mishkin and Eakins, 2003). McKinnon (1964) argued that foreign exchange earnings through international tourism receipts could be utilized for the importation of the capital good which in turn stimulate the overall growth of the domestic economy. On the other hand, tourism activity may harm the environment via increased traffic congestion, pollution, and landscape damage. Further, local goods can become expensive due to tourists who pay more.

Oman is an attractive tourist destination in the Middle East region on the south-eastern corner of the Arabian Peninsula. Tourism development has become an important goal of the Omani development projects; hence, tourism will become a major industry in Oman over the coming years. Oman's GDP is growing at a rate of 3.5%, with the tourism sector contributing significantly to this growth. Oman's tourism sector (as a share of total GDP) grew by 2.6% in 2017 and 2.9% in 2018, respectively. It is predicted to contribute 6% to the GDP by 2040 (Martin, 2019).

It is anticipated that the tourist sector would continue to grow, improving household income and generating more government revenue through taxes and foreign exchange (through increasing employment income: salaries, wages, interest, etc.). As per WTTC 2020 research, the creation of jobs and the economic impact on suppliers along the entire supply chain will make the travel and tourism industry a major driver of the global economic recovery following COVID-19.

Numerous studies have been motivated to evaluate the true nature of the relationship between tourism and income due to the sector's relevance in economic growth. To achieve this, some have used a variety of econometric variables and models to evaluate the link in a certain nation (Ribeiro and Wang, 2019; Suryandaru, 2020) or group of nations (Bilen et al., 2017; Shahzad et al., 2017). While some scholars (Suryandaru, 2020) have defined a bivariate model to evaluate the links between tourism and income, other researchers (Lawal et al., 2018) have specified multivariate models. The findings are usually conflicting: some support a one-way causative relationship (Lin et al., 2019; Suryandaru, 2020;); some support bi-causality (Lawal et al., 2018); still others show no causal relationship at all between the rise of tourism and the economy (Tugcu, 2014).

By attracting international tourists, tourism have the potential to generate foreign exchange earnings leading to development of improved infrastructure and facilities and generation of employment opportunities with the country. This helps in the sustainable economic progress of the country as tourism add to sales, earnings, employment, tariff revenue, and income, resulting in improved quality of life for the country citizens. The immediate gainers are sectors of hospitality which include restaurants and hotels, transportation, fun and pleasure, and retail trade. Tourism industry has the same potential to continually generate higher income as natural resources export sector in any given economy. The natural resources sector consisting of oil, gas and mineral leads to depletion in their reserves over a period of time whereas tourism industry, if managed well, has the potential of becoming a renewable and

sustainable industry (Tuncay, 2020).

Thus, this study's aims to gather credible empirical evidence about the true nature of Oman's tourist expansion and the relationship between tourism-related spending and economic growth. The need for the study stems from the assumption that Oman's tourism-led growth theory is devoid of sufficient, reliable, and current empirical data. As a result, the research's conclusions will significantly close the gap in Omani literature on the relationship between tourism and income and provide a strong foundation for the creation of policies pertaining to tourism and economic growth both in Omani policy and in other comparable nations. Furthermore, to the best of the authors' knowledge, Oman's tourism-income link has never before been evaluated using the Granger causality test approach. ARDL regression estimators is applied hereafter for checking the robustness of the empirical results. Thus, this new research adds something special to the body of literature already in existence.

The organisation of the research papers is as follows: The second section presents a review of literature on tourism-growth and economic-growth linkages. The third section deals with the discussion on the data and methodology followed in the present study. The fourth section presents discussion of the results obtained. The final section presents the concluding remarks and policy recommendations and delineates some aspects for further research.

2. Review of literature

One of the seminal studies of Balaguer and Cantavella-Jordá's (2002) provide a theoretical and empirical link between tourism and economic growth and this work is acknowledged as formalising the Tourism Led Growth Hypothesis (TLGH). Following the publication of this study, over 200 studies on the TLGH as well as a number of reviews of the literature have been published. These publications include Ahmad et al. (2020), Li et al. (2018), Nunkoo et al. (2020), Fonseca and Sánchez-Rivero (2020a, 2020b), Chingarande and Saayman (2018), Comerio and Strozzi (2019). Despite a thorough investigation of the connection between tourism and economic growth, the majority of these review papers demonstrate that the findings are still unclear. Several research (Balsalobre-Lorente and Leitao, 2020; Mitra, 2019) showed support for the theory of Tourism Led Growth Hypothesis (TLGH), however other studies (Brida et al., 2011; Ozturk and Acaravci, 2009) found no indication of a substantial association between tourism and economic growth.

A closer scrutiny of theses researches findings reveal that the discrepancies are the results of the usage of various econometric techniques, the variables selected to gauge income and tourism, as well as country-specific elements like the importance of tourism to the nation's overall economy or degree of economic development. Thus, for instance, research by Cárdenas-García et al. (2015) and Enilov and Wang (2021) demonstrated that the relationship between tourism and economic development depends on a nation's developmental stage. On the other hand, research by Pablo-Romero and Molina (2013) and Shahzad et al. (2017) opined that another important component defining the relationship between tourism and economic growth is directly dependent on the degree to which the countries under study have specialised in tourism.

A study by Samina et al. (2007) opined that there exist is a strong linkage between

tourism receipts, economic growth and economic expansion which has been crucial for the development of Pakistan tourism sector. Fayissa et al. (2007) observed that tourism receipts could play a significant role in the current levels of GDP and economic growth as well as investments in physical and human capital. Their findings revealed that African nations could augment their short-run economic development by tactically reinforcing their tourism sector. Akan et al. (2008) explored the cause and effect relationship between tourism and economic development for the 1985–2007 period using the Granger causality test, the Philips-Perron test, and a vector auto regression (VAR) model. They found that tourism was positively affected by economic expansion indicating a long-lasting stable correlation between tourism growth and economic progress. Nissan et al. (2011) aimed to determine if tourism activity led to economic development and identified the key indicators that influence tourism activity showing a causal relation between income and tourism growth. They acknowledged that tourism not only delivers essential funds to finance manufacturing activities but also encourages the local firms' efficiency and generates new employment opportunities that help elevate the nation's wellbeing.

Kreishan (2011) empirically investigated the tourism led growth hypothesis (TLGH) from the period from 1990 to 2014 in Bahrain by using the autoregressive distributed lag (ARDL) model. He concluded a significant and positive relationship between tourism development and economic growth in Bahrain. The study further indicated that there is one-way Granger causality flowing from tourism development to economic expansion. Kreishan emphasized that Bahrain may improve its economic development by tactically reinforcing tourism development.

Ribeiro and Wang (2019) used annual time series data on GDP, tourism revenues, foreign direct investment, and real exchange rate for the period 1997–2018 to examine the relationship between economic growth and receipts from tourism in the case of Sao Tome. The Granger causality test produced data supporting unidirectional causality from tourism receipts to economic growth, while the Johansen cointegration test verified cointegration among the variables.

Adnan (2013) studied the long-run relationship between tourism receipts and economic growth. Additionally, he explained that excluding the years 2006–2008, tourism receipts led to an increase in economic progress in Pakistan. Wang (2015) found a strong connection between the GDP and tourist income in Guihoz, China. Bayramoglu and Ari (2015) identified a positive one-way causality running from the foreign tourist expenditures to the economic growth at a 1% level of significance in Greece. Tang (2015) found that tourism has a positive impact on Malaysian economic development both in the long-run and short-run. He indicated that tourism development causes economic growth. Ahad (2016) found bidirectional association between tourism expenditure and economic progress in Pakistan. Ohlan (2017) also found long-run one-way causality running from tourism development to economic growth. Tabash (2017) similarly found a long-term connection between tourism receipts and economic growth. He further suggested that the Palestinian government should develop vibrant strategies to stimulate tourism, which will lead to job creation, poverty alleviation, and economic progress.

Phiri (2016) stressed that tourism should be gradually recognized as an essential element of economic growth and development. He empirically found tourism-led

development where tourism receipts acted as a tool to expand tourism sector. The nonlinear framework demonstrates a two-pronged approach between tourism receipts and economic growth. While the linear framework supports the economic development-based tourism assumption for tourist arrivals, the nonlinear framework shows no connection between the arrival of tourists and economic growth.

Blanka and Zyonimir (2016) opined that tourism leads to development when tourist receipts are used to assess the development of tourism which is amply reflected in the economic development in the Mediterranean region. Thus, to improve the state of tourism development, it is recommended to leave it to the policymakers who will boost economic growth. Similarly, Chris (2015) and Leit-Ao and Shahbaz (2016) found that both tourist arrivals and tourism receipts are strongly linked to economic expansion. Dogru and Bulut (2018) found both-ways causality between tourism receipts and economic development. They further suggested that economic development and tourism development are interdependent and that growth in tourism promotes economic progress. Usmani et al. (2020) inspected the outcome of tourist arrivals and tourist expenditure on the economic progress in the BRICs nation. They established while tourist arrivals don't have any significant impact, tourist expenditure has a strong influence on economic progress of a country. Moreover, they found bi-directional causality existing between tourist expenditure and economic progress.

Khan et al. (2020) highlighted the importance of tourism development in the overall development of emerging economies. Their findings revealed that a 1% rise in tourism will considerably boost the GPD growth by 0.051%, foreign direct investment by 2.647%, energy development by 0.134%, and agriculture expansion by 0.26%. On the other hand, tourism development will decrease poverty by 0.51% in the long-run. Therefore, policymakers must keep in mind that through community involvement, tourism can be expanded by the strategy of the application of combined guidelines in emerging economies.

In conclusion, it is amply evident that many research scholars have examined the link between tourism growth and its impact on economic growth. However, the impact of tourism growth and expenditure on tourism receipts is yet to be studied and remain a gap. Moreover, limited studies were conducted to analyze the causal relationship between tourism growth and tourism expenditure on economic growth by employing the Granger Causality test. To fill this gap, this research investigates the direction of the causality between economic growth and demand for tourism while analysing the effect of tourism growth and tourism expenditure for the country Oman. In particular, the aim is to empirically explore a response to the hypothesis of:

1) Tried to investigate whether tourism growth leads to economic growth in the country of Oman.
2) Tried to investigate whether tourism expenditure leads to economic growth in the country of Oman.
3) Tried to investigate whether economic growth leads to both tourism growth and tourism expenditure in the country of Oman.

3. Data collection and methodology

3.1. Data sources

The present study is based on annual time series data set for the time period 1996 to 2018. This time period is chosen to ensure that sufficient observations are available in order to capture the short run as well as long-run correlation between receipts, tourism expenditure and economic growth. The dataset consists of observation for GDP (current US\$) as a proxy for economic growth, tourism receipts (current US\$), and tourism expenditure (current US\$). All data set are taken from World Development Indicators for 2019. Tourism receipt and tourism expenditure variables represent a proxy of tourism growth measure. **Table 1** gives a description of the variables under consideration.

Table 1. Description of the dataset.

Variable	Description	Source
LN_GDP	Natural logarithm of GDP	World Bank (2019)
LN_TR	Natural logarithm of tourist receipts	World Bank (2019)
LN_TE	Natural logarithm of tourist expenditures	World Bank (2019)

Source: Author compilation.

3.2. Empirical model specification

The objective of the present research is to investigate whether changes in tourism receipts and expenditures can explain the variations in economic growth in Oman. The following economic model can be formulated to express long run relationship between economic growth (dependent variable) and tourism growth (a represented by tourism receipts and tourism expenditures):

$$Economic\ growth = f\ (tourism\ growth, tourism\ expenditure)$$

The above can be reformulated into a log-linear econometric model of long-run equilibrium relationship as:

$$lng_t = \beta_o + \beta_1 lnTE_t + \beta_2 lnTR_t + \varepsilon_t \tag{1}$$

where, β_0 is constant term, β_1 is coefficient of the tourism expenditure variable, β_2 is coefficient of the tourism receipt variable, t is the time trend and ε_t is the regression error term assumed to be normal, identically and independently distributed. Next we test the null hypothesis that the variables (economic growth, tourism expenditures and receipts) have unit root by using augmented Dickey-Fuller test using 'automatic selection' lag criteria. If the null hypothesis is not rejected, then we procced to test the hypothesis that the difference variables have a unit root. After we have accepted that the variables are I(1), the long run equilibrium relationship (Equation (1)) is estimated.

The short run error correction model can be expressed as follows:

$$\Delta lnGDP_t = a + \sum_{i=1}^{k-1}\beta_i \Delta lnGDP_{t-i} + \sum_{j=1}^{k-1}\emptyset_j \Delta lnTE_{t-j} + \sum_{m=1}^{k-1}\theta_m \Delta lnTR_{t-m} + \lambda_1 ECT_{t-1} + u_{1t}$$

$$\Delta lnTE_t = \sigma + \sum_{i=1}^{k-1}\beta_i \Delta lnGDP_{t-i} + \sum_{j=1}^{k-1}\emptyset_j \Delta lnTE_{t-j} + \sum_{m=1}^{k-1}\theta_m \Delta lnTR_{t-m} + \lambda_2 ECT_{t-1} + u_{2t}$$

$$\Delta lnTR_t = \partial + \sum_{i=1}^{k-1}\beta_i \Delta lnGDP_{t-i} + \sum_{j=1}^{k-1}\emptyset_j \Delta lnTE_{t-j} + \sum_{m=1}^{k-1}\theta_m \Delta lnTR_{t-m} + \lambda_3 ECT_{t-1} + u_{3t}$$

where:

- lng = log value of economic growth measured in terms of GDP;
- lne = log value of tourism expenditure;

- *lnr* = log value of tourism growth measured in terms of international tourism receipt;
- *k-1* = the optimal lag length;
- $\beta_i, \emptyset_j, \theta_m$ = short-run dynamic coefficients of the model;
- λ_i = speed of adjustment parameter with a negative sign;
- *ECT$_{t-1}$* = the error correction term is the lagged value of the residuals obtained from the cointegration regression of the dependent variable on the regressors (Equation (1)). It contains long-run information derived from the long-run cointegrating relationship;
- $\mathfrak{u}_{it}$ = residuals in the equations.

There may exist a bi-directional relationship between the two variables. Granger (1969) causality test provides a formal testing procedure to determine which of the one variable causes the other variable to change. Granger causality implies only that consistent and predictable changes in one time series variable precede changes in other time series variable. In other words, Granger causality tells us which variable precedes or leads the other. For example, changes in tourism receipts may or may not influence GDP. Also, the changes in GDP may or may not influence tourism receipt changes. The Granger causality test involves the following Equations (2) and (3):

$$lnGDP_t = \alpha_o + \sum_{i=1}^{p} \beta_i lnGDP_{t-i} + \sum_{i=1}^{p} \gamma_i lnTR_{t-i} + \varepsilon_t \tag{2}$$

$$lnTR_t = \alpha_o + \sum_{i=1}^{p} \beta_i lnTR_{t-i} + \sum_{i=1}^{p} \gamma_i lnGDP_{t-i} + \varepsilon_t \tag{3}$$

Granger causality tests the joint significance of lagged explanatory variables using conventional F-statistic. If the sum of the coefficients on lagged tourism receipts is statistically significant, and the sum of the coefficients on lagged GDP is not statistically significant, we conclude unidirectional causality is running from tourism receipts to GDP. However, if the sum of the coefficients on lagged GDP is also statistically significant, we conclude a bidirectional causality between tourism receipts and economic growth. However, Granger causality does not prove economic causality. If one time series variable Granger causes another, it does not imply that the first time series variable causes the other time series variable to change. In other words, Granger causality does not tell whether a variable has a positive or negative impact on another variable.

4. Results and discussion

In this section, we will investigate the interaction between tourism receipt, tourism expenditure changes and economic growth over the 1996–2018 time period. **Figure 1** is the graphical presentation of the log form data. The figure reveals that all the three variables under investigation registered upward trend over the sample period. In other words, the variables move clearly in the similar way over time. Therefore, it is interesting to examine the hypothesis that the variables are cointegrated. We procced as follows. The results of descriptive statistical analysis are shown in **Table 2**. The relative mean values for LN_GDP, LN_TR, and LN_TE are 24.347, 20.798, and

20.579. Likewise, the LN_GDP, LN_TR, and LN_TE have maximum and minimum values of 25.119, 21.889, 21.814, and 23.369, 19.665, and 19.073, respectively. The variables used in this analysis are listed in **Table 2** along with an explanation. The results of this estimate demonstrate that the distribution of data is normally distributed.
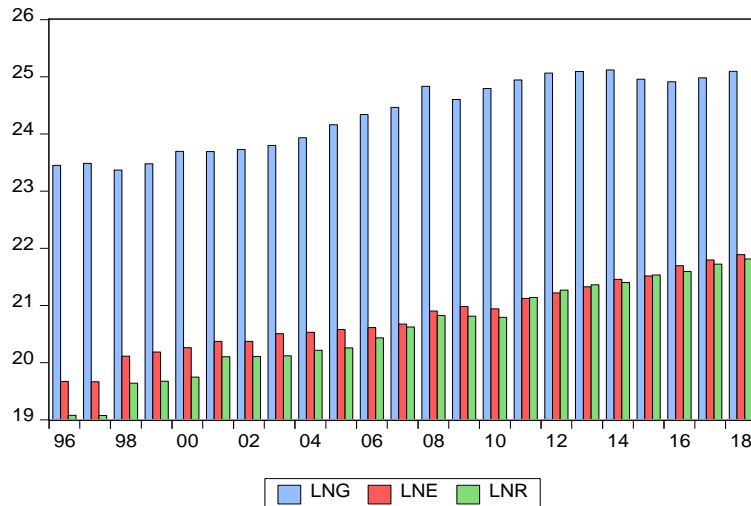

Figure 1. Plot GDP, Tourism receipts and Tourism expenditures (in log form).

Table 2. Descriptive statistics.

	LN_GDP	LN-TR	LN_TE
Mean	24.347	20.798	20.579
Median	24.463	20.674	20.623
Maximum	25.119	21.889	21.814
Minimum	23.369	19.665	19.073
Std. Dev.	2.029	0.351	1.613
Skewness	−1.021	0.496	−0.075
Kurtosis	1.907	1.782	2.680
Jarque–Bera	2.593	0.671	1.076
Probability	0.2734	0.7151	0.5839

Source: Author computation.

Before applying the test of cointegration among the variables, the first step is to examine the stationarity properties of the data. For this purpose, we employ the Augmented Dickey-Fuller unit root test. Unit root tests on the first differences of all the variables will suffice to understand the nature of the data series. The results of the ADF test at levels and first differences are presented in **Table 3**.

Table 3. Augmented dickey-fuller test.

Variables	I(0)		I(1)		Decision
	t-statistic	Prob.	*t*-statistic	Prob.	
LN_GDP	−0.79728	0.8001	−4.735639	0.0013*	I(1)
LN_TR	0.864037	0.9926	−6.173383	0.0001*	I(1)
LN_TE	−0.952842	0.7490	−3.16387	0.0397*	I(1)

* indicate the 5% level of significance, respectively. Source: Author computation.

Table 3 shows that all the variable contain unit root at levels because the p-values of ADF test is greater than any conventional level of significance. Accordingly, we proceed to check the unit root of each variable at first difference. We found that the variables attain stationary at first difference because the p-values associated with the ADF test significant at 5% significance level. Now we will proceed to examine the cointegration among the variables using Johanson cointegration test. The trace statistics and maximum eigenvalue confirms that there is existence of at most one cointegrating vector between economic growth, tourism receipts and tourism expenditures.

The lower part of **Table 4** represents the Johansen co-integration test results which indicate that tourism receipt (*lnTR*) has a positive impact on economic growth (*lnGDP*) in the long run, while tourism expenditure (*lnTE*) harms economic growth (*lnGDP*) on average, ceteris paribus. The coefficients are statistically significant. Hence, in the model the null assumption of no cointegration is rejected against the alternative of a cointegration relationship. The cointegration test result indicates one cointegrating equation at the 0.05 level, and provides for the existence of both short-run and long-run relationships between tourism receipts, economic growth, and tourism expenditure. The long run equilibrium relationship between the variables is expressed as follows:

$$lnGDP = -2.645333 \, (lnTE) + 2.881543(lnTR)$$

Table 4. Outcomes of Johansen co-integration test for economic growth as a dependent variable.

Unrestricted cointegration rank test (trace)					Unrestricted cointegration rank test (maximum eigenvalue)			
Hypothesised number of cointegrating equations	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**	Max-Eigen Statistics	0.05 Critical Value	Prob.**	Decision
None*	0.704	29.815	29.797	0.049	25.62	21.131	0.011	There is a long run relationship between the variables
At most 1	0.132	4.192	15.494	0.887	2.980	14.264	0.948	
At most 2	0.056	1.212	3.841	0.271	1.212	3.84	0.271	
LN-GDP		LN_TE			LN-TR			
		−2.645 (se = 0.465)			2.881 (se = 0.348)			

Notes: Trace test indicates 1 cointegrating equation at the 0.05 level. Maximum eigenvalue test indicates 1 cointegrating equation at the 0.05 level. * Denotes rejection of the hypothesis at the 0.05 level. Source: Author own calculations.

Based on the Johansen cointegration test reveals that the three variables are co-integrated, which obliges us to use the error correction model (ECM) which also helps permits to test and estimate short and long run relationship between variables. The long-run VEC model can be expressed as:

$$ECT_{t-1} = \left[Y_{t-1} - \eta_j \chi_{t-1} - \xi_m R_{t-1} \right]$$

$$ECT_{t-1} = 1.00lnGDP_{t-1} + 2.645333lnTE_{t-1} - 2.881543lnTR_{t-1} - 20.04098$$

The short-run equation model can be expressed as:

$$\Delta lnGDP_t = 0.110089 - 0.074709lnGDP_{t-1} - 0.455331lnTE_{t-1} + 0.110089lnTR_{t-1} - 0.153658ECT_{t-1}$$

The conclusion drawn from the above equations is that the previous year's deviation from long-run equilibrium is corrected at a speed of 15.37%. A percentage change in tourism expenditure is associated with, on an average, a 45.53% decrease in economic growth, ceteris paribus, in the short-run. In addition, a percentage change in

tourism receipts is associated with an 11.01% increase in economic growth on an average, ceteris paribus, in the short-run.

Additionally, the traditional Autoregressive Distributed Lag (ARDL) method, which was introduced by Pesaran and Shin (1995), is also used in the long-run regression analysis to verify the robustness of the regression outcomes across alternative estimate techniques. The ARDL analysis results are presented in **Table 5**. It is evident that while the corresponding coefficient estimates in **Tables 4** and **5** differ in magnitude, their similar signs validate the robustness of the regression analysis-related findings in this research.

Table 5. Robustness check from ARDL long run regression analysis.

Regressors	Coefficient	Std. Error	*t*-stat	*P* value
LN_GDP	0.0030	0.0013	−2.1924	0.043**
LN_TR	2.0203	0.0090	2.2370	0.039**
LN_TE	−2.0827	0.0022	−0.3199	0.003***
Cointeq	−0.0026	0.0205	−4.019	0.0001***

*** and ** denote the significance at 1% and 5% levels, respectively. Source: Author calculations.

Table 6 presents the Granger causality test results based on the unit root test results, which revealed that all the variables became stationary at the first difference. This also helps to solve the spurious correlation problem amongst the variables.

Table 6. Pairwise granger causality test.

Null Hypothesis	Observations	*F*-Statistic	Prob.*	Decision
LN_TE does not Granger Cause LN_GDP	22	0.74257	0.3996	Accept
LN_GDP does not Granger Cause LN_TE		1.72169	0.2051	Accept
LN_TR does not Granger Cause LN_GDP	22	1.53291	0.2308	Accept
LN_GDP does not Granger Cause LN_TR		3.41537	0.4802	Accept
LN_TR does not Granger Cause LN_TE	22	0.40950	0.5299	Accept
LN_TE does not Granger Cause LN_TR		0.21444	0.6486	Accept

Source: Author calculations.

It is evident from **Table 6** that we fail to reject the null hypothesis that changes in tourism expenditures and receipts do not cause economic growth and vice versa in Oman during the sample period.

5. Conclusion and suggestions for policy makers

The purpose of this study is to investigate the direction of causality for the variables under consideration—economic growth, tourist receipts, and tourism expenditures—and draw empirical conclusions about the relationship between these three variables. In order to establish the connection between the variables, the research employed descriptive statistics in addition to correlation tests. We determined the nonstationary and degree of the series using an augmented Dickey-Fuller (ADF) stationary test. The next steps included running the Granger causality test, an error correction model, and a Johansen cointegration analysis. Our results show that the

variables reach stationary at the first difference when we run the ADF unit root test. The Johansen co-integration study confirms the cointegration of the three variables in Oman, both in the long and short term. Assuming all else is equal, tourist spending hurts economic growth, whereas tourism revenue strongly affects it. In the next sections, we will use ARDL regression estimators to test if the empirical results are robust. The Granger causality test results show that the variables are not causally related. We found no evidence of a direct relationship between economic growth and tourist spending or revenues, and no evidence of a causal influence between economic growth and tourism expenditures.

Therefore, it is always crucial to pick appropriate factors with care before beginning a study and utilizing the findings to build policy. Oman can boost its GDP by enacting economic policies that support and promote the expansion of tourism, as there is no direct correlation between the two. Policy actions that subsidize the tourism industry will strengthen the Omani economy. All parties involved should make efforts to improve Oman's transportation and hospitality infrastructure. We should improve the country's tourist offerings to meet international standards and benchmarks and promote them in the target markets.

Additionally, the government should implement policies to lower living expenses, strengthen the currency, simplify visa procedures, and remove travel restrictions. The government of Oman plans to use the money it makes from tourists to stimulate the economy, increase wages for existing workers, and even create new opportunities in related fields. Oman's beautiful beaches, expansive coasts, islands, and verdant mountains, all part of the country's abundant natural richness, will attract tourists. This, in turn, will boost Oman's economy and improve the lives of its residents.

Conflict of interest: The author declares no conflict of interest.

References

Adnan Hye, Q. M., & Ali Khan, R. E. (2013). Tourism-Led Growth Hypothesis: A Case Study of Pakistan. Asia Pacific Journal of Tourism Research, 18(4), 303-313. https://doi.org/10.1080/10941665.2012.658412

Ahad, M. (2016). Does Tourism-led Growth Hypothesis exist in Pakistan? A fresh look from Combine Co-integration and Causality Approach with Structural Breaks. International Journal of Economics and Empirical Research, 4(2), 94-111.

Ahmad, N., Menegaki, A. N., & Al-Muharrami, S. (2020). Systematic literature review of tourism growth nexus: An overview of the literature and a content analysis of 100 most influential papers. Journal of Economic Surveys, 34(5), 1068-1110.

Akan, Y., Arslan, I., I¸Sık, U. C. (2008). The Impact of Tourism on Economic Growth: The Case of Turkey. J. Tour, 9, 47-69.

Alam, M. S. (2022). Is trade, energy consumption and economic growth threat to environmental quality in Bahrain–evidence from VECM and ARDL bound test approach. International Journal of Emergency Services, 11(3), 396-408. https://doi.org/10.1108/ijes-12-2021-0084

Archer, B. (1995). Importance of tourism for the economy of Bermuda. Annals of Tourism Research, 22, 918-930.

Avelini Holjevac, I. (2003). A version of tourism and the hotel industry in the 21st century. International Journal of Hospitality Management, 22, 129-134.

Balaguer, J., & Cantavella-Jordá, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. Applied Economics, 34(7), 877-884. https://doi.org/10.1080/00036840110058923

Balsalobre-Lorente, D., & Leitão, N. C. (2020). The role of tourism, trade, renewable energy use and carbon dioxide emissions on economic growth: evidence of tourism-led growth hypothesis in EU-28. Environmental Science and Pollution Research, 27(36), 45883-45896. https://doi.org/10.1007/s11356-020-10375-1

Bayramoglu, T., & Ari, Y. O. (2015). The relationship between tourism and economic growth in Greece economy: A time series

analysis. Computational Method in Social Sciences, 3(1), 89-93.

Bilen, M., Yilanci, V., & Eryüzlü, H. (2017). Tourism development and economic growth: a panel Granger causality analysis in the frequency domain. Current Issues in Tourism, 20(1), 27-32. https://doi.org/10.1080/13683500.2015.1073231

Brida, J. G., Punzo, L. F., & Risso, W. A. (2009). Tourism as a Factor of Growth: The Case of Brazil. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1336487

Blanka, S., & Zyonimir, K. (2016). Tourism and economic growth in the Mediterranean region: Dynamic panel data approach. Acta Economica Et Turistica, Sciendo, 2(1), 65-84.

Cárdenas-García, P. J., Sánchez-Rivero, M., & Pulido-Fernández, J. I. (2015). Does Tourism Growth Influence Economic Development? Journal of Travel Research, 54(2), 206-221. https://doi.org/10.1177/0047287513514297

Chris, A. O. (2015). Prospect and problems of sustainable tourism in Nigeria. International Journal of Management Science, 6(11), 508-514.

Chingarande, A., & Saayman, A. (2018). Critical success factors for tourism-led growth. International Journal of Tourism Research, 20(6), 800-818. Portico. https://doi.org/10.1002/jtr.2233

Comerio, N., & Strozzi, F. (2019). Tourism and its economic impact: A literature review using bibliometric tools. Tourism Economics, 25(1), 109-131. https://doi.org/10.1177/1354816618793762

Dogru, T., & Bulut, U. (2018). Is tourism an engine for economic recovery? Theory and empirical evidence. Tourism Management, 67, 425-434. https://doi.org/10.1016/j.tourman.2017.06.014

Enilov, M., & Wang, Y. (2021). Tourism and economic growth: Multi-country evidence from mixed-frequency Granger causality tests. Tourism Economics, 28(5), 1216-1239. https://doi.org/10.1177/1354816621990155

Fayissa, B., Nsiah, C., & Tadasse, B. (2007). Impact of Tourism on Economic Growth and Development in Africa. Tourism Economics, 14(4), 807-818. https://doi.org/10.5367/000000008786440229

Fonseca, N., & Sánchez Rivero, M. (2020). Granger Causality between Tourism and Income: A Meta-regression Analysis. Journal of Travel Research, 59(4), 642-660. https://doi.org/10.1177/0047287519851189

Fonseca, N., & Sánchez-Rivero, M. (2020). Significance bias in the tourism-led growth literature. Tourism Economics, 26(1), 137-154. https://doi.org/10.1177/1354816619833564

Khan, A., Bibi, S., Lorenzo, A., et al. (2020). Tourism and Development in Developing Economies: A Policy Implication Perspective. Sustainability, 12(4), 1618. https://doi.org/10.3390/su12041618

Kreishan, F. M. (2015). Empirical Study on Tourism and Economic Growth of Bahrain: An ARDL Bounds Testing Approach. International Journal of Economics and Finance, 7(11), 1. https://doi.org/10.5539/ijef.v7n11p1

Lawal, A. I., Asaleye, A. J., Iseolorunkanmi, J., & Popoola, O. (2018). Economic growth, agricultural output and tourism development in Nigeria: An application of the ARDL bound testing approach. Journal of Environmental Management and Tourism, 9(4).

Lin, V. S., Yang, Y., & Li, G. (2019). Where Can Tourism-Led Growth and Economy-Driven Tourism Growth Occur? Journal of Travel Research, 58(5), 760-773. https://doi.org/10.1177/0047287518773919

Li, K. X., Jin, M., & Shi, W. (2018). Tourism as an important impetus to promoting economic growth: A critical review. Tourism Management Perspectives, 26, 135-142. https://doi.org/10.1016/j.tmp.2017.10.002

Leit-Ao, N. C., & Shahbaz, M., (2016). Economic growth, tourism arrivals and climate change. Bulletin of Energy Economics (BEE). The Economics and Social Development Organization, 4(1), 35–43.

Martin, H. (2019). Tourism: The Sultanate's next chapter. Available online: https://timesofoman.com/article/785210 (accessed on 11 August 2023).

McKinnon, R. I. (1964). Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation. The Economic Journal, 74(294), 388. https://doi.org/10.2307/2228486

Mishkin, F. S., & Eakins, S. G. (2003). Financial markets and institutions, 4th ed. Wiley.

Mitra, S. K. (2019). Is tourism-led growth hypothesis still valid? International Journal of Tourism Research, 21(5), 615–624. Portico. https://doi.org/10.1002/jtr.2285

Nissan, E., Galindo, M.-A., & Méndez, M. T. (2011). Relationship between tourism and economic growth. The Service Industries Journal, 31(10), 1567-1572. https://doi.org/10.1080/02642069.2010.485636

Nunkoo, R., Seetanah, B., Jaffur, Z. R. K., et al. (2019). Tourism and Economic Growth: A Meta-regression Analysis. Journal of Travel Research, 59(3), 404-423. https://doi.org/10.1177/0047287519844833

Ohlan, R. (2017). The relationship between tourism, financial development and economic growth in India. Future Business

Journal, 3(1), 9-22. https://doi.org/10.1016/j.fbj.2017.01.003

Ozturk, I., & Acaravci, A. (2009). On the causality between tourism growth and economic growth: Empirical evidence from Turkey. Transylvanian Review of Administrative Sciences, 5(25), 73-81.

Pablo-Romero, M. D. P., & Molina, J. A. (2013). Tourism and economic growth: A review of empirical literature. Tourism Management Perspectives, 8, 28-41.

Phiri, A. (2016). Tourism and economic growth in South Africa: Evidence from linear and nonlinear cointegration frameworks. Managing Global Transitions, 14(1), 31-53.

Ribeiro, E. da C., & Wang, B. (2020). Tourism led growth hypothesis: has the tourism industry an impact on the economic growth of Sao tome and Principe? International Journal of Economics and Financial Issues, 10(1), 180-185. https://doi.org/10.32479/ijefi.9105

Samina, K., Kakar, M. K., Waliullah. (2007). Role of tourism in Economic Growth: Empirical Evidence from Pakistan Economy. The Pakistan Development Review, 46(4), 985-995.

Sarpong, S. Y., Bein, M. A., Gyamfi, B. A., & Sarkodie, S. A. (2020). The impact of tourism arrivals, tourism receipts and renewable energy consumption on quality of life: A panel study of Southern African region. Heliyon, 6(11).

Shakouri, B., Yazdi, S. K., Nategian, N., Shikhrezaei, N. (2017). The relation between international tourism and economic growth. Journal of Tourism & Hospitality, 6(4), 1-7.

Shahzad, S. J. H., Shahbaz, M., Ferrer, R., et al. (2017). Tourism-led growth hypothesis in the top ten tourist destinations: New evidence using the quantile-on-quantile approach. Tourism Management, 60, 223-232. https://doi.org/10.1016/j.tourman.2016.12.006

Sinclair, M. T. (1998). Tourism and economic development: A survey. Journal of Development Studies, 34(5), 1-51. https://doi.org/10.1080/00220389808422535

Suryandaru, R. (2020). Measuring tourism-led growth hypothesis in Indonesia. International Journal of Culture, Tourism and Hospitality Research, 14(2), 295–300. https://doi.org/10.1108/ijcthr-03-2019-0055

Tabash, I. M. (2017). The role of tourism sector in economic growth: An empirical evidence from Palestine. International Journal of Economics and Financial Issues, 7(2), 103-108.

Tang, C. F., & Tan, E. C. (2015). Does tourism effectively stimulate Malaysia's economic growth? Tourism Management, 46, 158-163. https://doi.org/10.1016/j.tourman.2014.06.020

Sinclair, M. T. (1998). Tourism and economic development: A survey. Journal of Development Studies, 34(5), 1-51. https://doi.org/10.1080/00220389808422535

Tuncay, N., & Özcan, C. C. (2020). The effect of Dutch disease in the tourism sector: the case of Mediterranean countries. Tourism and Hospitality Management, 26(1), 97-114. https://doi.org/10.20867/thm.26.1.6

Tugcu, C. T. (2014). Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean Region. Tourism Management, 42, 207-212. https://doi.org/10.1016/j.tourman.2013.12.007

Usmani, G., Akram, V., & Praveen, B. (2020). Tourist arrivals, international tourist expenditure, and economic growth in BRIC countries. Journal of Public Affairs, 21(2). https://doi.org/10.1002/pa.2202

Wang, W., & Ma, H. (2015). On Econometric Analysis of the Relationship between GDP and Tourism Income in Guizhou, China. International Journal of Business Administration, 6(4). https://doi.org/10.5430/ijba.v6n4p41

West, G. R. (1993). Economic significance of tourism in Queensland. Annals of Tourism Research, 20(3), 490-504.

WTTC. (2020). Travel & Tourism Global Economic Impact & Trends. World Travel & Tourism Council.