Journal of Quantitative EconomicsStudies | Volume 08, Number 01 (2022), PP459-470 | PISSN: 1033-2437*EISSN: 2602-5183

The long-term Impact of Tourism on Economic Growth in Algeria Econometric Study over the period 1995-2015

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Received: 13/11/2021; **Accepted**: 07/02/2022; **Publishing**: 18/06/2022

Summary: This paper examines the impact of tourism on economic growth and development in Algeria by using the causality analysis among real gross domestic product, real international tourism earning, human capital and gross fixed capital formation. A multivariate autoregressive VAR model is applied for the examined period 1995-2015. The results of cointegration analysis suggested that there is one cointegrated vector among the four variables, Economic Growth (RGDP), Tourism Earning (RITR), Human Capital (SCH) and Gross Fixed Capital Formation (GCH). Granger causality testes based on error correction models (VECM), have indicated that there is a "one-way causality" relation between international tourism earnings and economic growth.

Keywords: Economic Growth;Tourism earning;Human Capital;Gross Fixed Capital Formation;VECM model; Granger Causality; Algeria
Jel Classification Codes:O40;Z3;J24; G39; C32.

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I-Introduction:

Tourism plays a crucial role in the development and growth of all countries, especially developing countries. Tourism has always been recognized as an income-generating industry that contributes positively to a country's GDP, the quality of life of its citizens, and job creation. Many researchersand most international organizations have argued that tourism contributes to economic development in many regions of the world and is an effective tool for poverty reduction, according to statistics from the World Travel and Tourism Council (WTTC) for the year 2003, tourism provides about 200 million jobs worldwide and represents 10% of global GDP, which varies from one country to another according to the percentage of spending on the tourism sector.

The volume of transactions in the tourism industry exceeds that of other cash-cow sectors such as oil and automobiles in many cases. Tourism has become an important component of international trade and is proving to be an important tool in diversifying a country's sources of revenue rather than relying solely on one source or product, such as oil. This paper aims to investigate the contribution of tourism development to economic growth (GDP) using Granger causality analysis. Numerous research papers have examined the relationship between tourism and economic growth. There is a broad conclusion about the positive impact of tourism on growth, which can be drawn from studies on a single country as well as from studies on many countries. For example, (Balaguer & Cantavella Jorda, 2002) for Spain; (Gunduz & Hatem-J, 2005) for Turkey; (Katircioglu, 2009) for Cyprus; (Dritsakis, 2004) for Greece; (Oh, 2005) for South Korea; (Durbarry, 2004) for Mauritius; (Lee & Chien, 2008)for Taiwan; (Brida, Carrera, & Risso, 2008) for Mexico. Some studies with panel data conclude that there is a relationship between tourism and economic growth, pointing to different directions of causality and the dependence of this relationship on other factors.

Algeria is the largest country on the African continent and the 10th largest country in terms of total area. The country is in North Africa. One of the main attractions for tourists is the Sahara Desert, the second largest desert in the world. Some sand dunes can reach up to 180 meters high. The state has been a member of the World Tourism Organization since 1976, but tourism in Algeria is still in its infancy. Tourism revenues do not exceed 10% of the gross domestic product. According to the World Tourism Organization report published in 2014, Algeria ranks fourth in Africa with 2.7 million foreign tourists in 2013 and 111th in the international tourism landscape, according to the London-based World Tourism and Travel Council (WTTC). The tourism sector in Algeria accounts for 3.9% of export volume, 9.5% of productive investment, and 8.1% of gross domestic product.

The main competitors are the Mediterranean countries, most of which have developed economies heavily based on this sector. The tourism sector is still underdeveloped in Algeria in terms of accommodation and other services. For this reason, the government has launched a strategic plan to promote this sector by 2025.

According to the Gallup Law and Order Index, which measures personal safety and personal experiences with crime and law enforcement, Algeria ranked 7th in 2017.

This study examines three hypotheses about the relationship between tourism and economic development in Algeria:

1. The hypothesis of tourism-driven economic growth.
2. The hypothesis of tourism growth driven by the economy.
3. The two-way causal hypothesis combining (1) and (2), where causality between tourism and economic growth can run in one or both directions.

Recognizing a causal relationship between international tourism and economic growth will have important implications for the development of various tourism marketing and policy decisions. For example, if there is a clear, unidirectional causality between tourism growth and economic growth, then tourism-led economic growth makes sense. If the results show reverse causality, then economic development may be necessary for tourism industry expansion.If the causal process is bidirectional and tourism growth and economic growth have a reciprocal causal relationship, then a boost in both would be beneficial. Finally, if there is no causal relationship between tourism growth

and economic development, then strategies such as enthusiastic tourism promotion may not be as effective as tourism managers and policy makers currently believe.

This study aims to help address the above questions about the tourism-induced growth hypothesis by testing cointegration, constructing a bivariate vector autoregression model (VAR), and consequently determining a long-run effect of these two variables (i.e., tourism and economic growth) on the Algerian economy. Section 2 describes the data, methodology and results of this empirical analysis, which includes a unit root test for time series stationarity and a test for cointegration for a long-run relationship. Finally, Section 3 provides the concluding discussion and further comments.

I.1.The potential role of tourism in economic growth and poverty reduction:

Tourism is an important driver of economic and social development. It can have a positive or negative impact depending on planning, development, and management, but faces several challenges such as seasonality and global competition in the tourism industry. Algeria, for example, faces strong competition from emerging destinations in Tunisia and Morocco. In addition, tourism development may lead to the loss of traditional jobs. For example, workers from industries such as forestry, mining, agriculture, and fishing may migrate to service jobs in tourism.

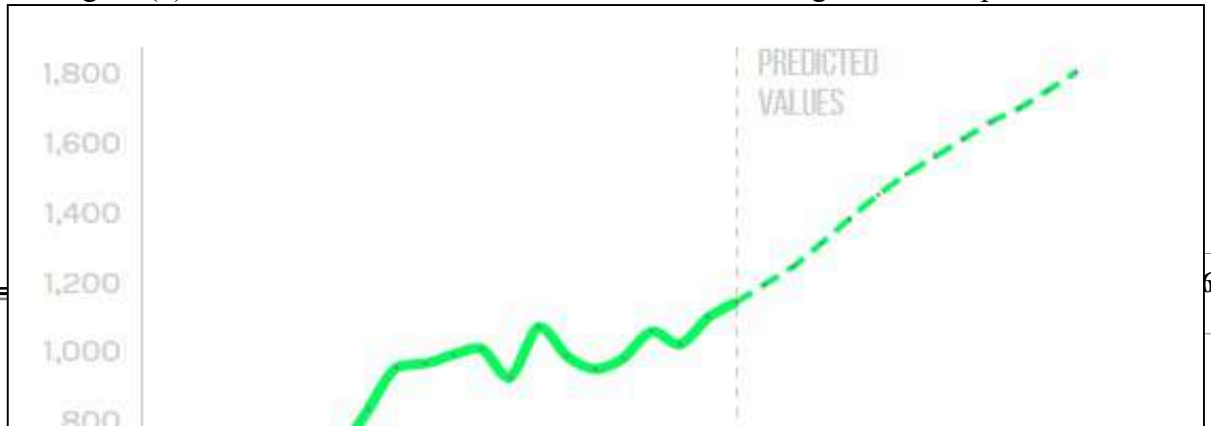
According to the World Tourism Organization report (2010), tourism activities can seriously affect the environment. For example, speedboats and divers, if careless, can damage coral reefs. In 2007, the tourism sector, including accommodation, transportation, and other activities, accounted for 4% to 6% of total global emissions. This is roughly equivalent to the total emissions of Canada, Brazil, and South Korea combined. Tourism infrastructure can also affect natural habitats. Tourism often occurs in areas of high biodiversity, such as coastal areas, mountains, and protected areas. Uncontrolled mass tourism is one of the main causes of coastal degradation. Climate change can seriously affect tourism activities. For example, decreasing snow cover in mountainous regions could lead to a decline in winter tourism. At the same time, rising sea levels could change tourism in coastal areas.(Athanasopoulou, 2013, p. 22)

The contribution of the tourism sector to economic growth, job creation, domestic capacity building, and poverty reduction depends on the following factors:

- The extent to which the tourism sector is integrated into the national economy through backward and forward linkages with other sectors and integration into regional and global value chains.
- The extent to which tourism-generated revenues, including foreign exchange, are used to finance infrastructure development, support local businesses, particularly small and medium enterprises (SMEs), and develop the skills and institutions needed to create a vibrant local economy.
- Government policies and strategies and whether they encourage increased domestic and foreign investment in tourism and the transfer of technology and know-how, support labor-intensive activities, and target regions where the poor live and work.
- National efforts to ensure that tourism activities are carried out sustainably and meet economic, social, and environmental objectives.(UNCTAD, 2013)

Figure 1 shows the total contribution of tourism to economic growth during the period 1995-2015. We show that the contribution of the tourism sector in Algeria to GDP during the period (1995-2015) does not exceed 1,098 million DA, which is very low. The weak contribution of the tourism sector is due to the large growth of the Algerian economy due to the increase in oil prices in international markets, which led to focus on the oil sector and neglect other sectors, including the tourism sector.

Figure (1): contribution of travel and tourism to GDP in Algeria at Real prices



The source: World Travel & Tourism Council 2016

I. 2. Theoretical Background and Previous Empirical Works

In recent years, many researchers have studied the relationship between tourism growth and economic growth. In some cases, they have reached contradictory results within the same country. One of the reasons for the inconsistent empirical results is due to the different approaches and testing procedures used in the analyzes. Many of the earlier analyzes used simple log-linear models estimated using ordinary least squares, without considering the nature of the time series characteristics of the variables involved. The econometric techniques used in the earlier studies of international

Tourism has proven to be inadequate because it lacks new developments in econometrics such as cointegration and Granger causality concepts (Katircioglu, 2009, p. 18). However, as recently proved, most economic time series in the form of levels are non-stationary, see (Granger & Newbold, 1974). Therefore, not considering such characteristics could lead to misleading relationships between variables.

Following developments in time series analysis in the 1990s, recent tests of the relationship between tourism growth and economic growth have used bivariate causality procedures based on (Granger C. , 1969) and Sims' tests (Sims, 1972).

However, these tests may not be able to detect additional causal channels and could also lead to conflicting results. There are several empirical papers that use time series techniques and analyze the contribution of the tourism industry to a country's economic growth. One of the most notable works on this topic was conducted by (Balaguer & Cantavella Jorda, 2002) for tourism in Spain. Their results indicate that there is a long-term stable relationship between economic growth and tourism growth. The causality test confirms the existence of this relationship and provides the necessary arguments to support the hypothesis of tourism-induced growth.

(Dritsakis, 2004) found a strong feedback relationship between tourism and economic growth in Greece. A cointegrating vector was found between gross domestic product (GDP), the real effective exchange rate and international tourism receipts from 1960: Q1 to 2000: Q4.

(Ongan & Demiröz , 2005) suggested a bidirectional causality between international tourism and economic growth in Turkey. Oh (2005) found that the tourism-led economic growth (TLG) hypothesis could not be verified in the case of the Korean economy. The results of Oh's Granger causality test indicate the existence of a one-way causal relationship in relation to economy-driven tourism growth.

(Lee & Chang, 2008) apply the heterogeneous panel cointegration technique to examine the causal relationship between tourism and economic growth for two samples: OECD and non-OECD countries. They indicate that there is panel cointegration between tourism development and GDP in both samples. However, tourism development has a larger impact on GDP in the non-OECD countries. In the long run, a unidirectional causality relationship is found between tourism development and economic growth in the case of OECD countries, while a bidirectional relationship is found in the sample of non-OECD countries.

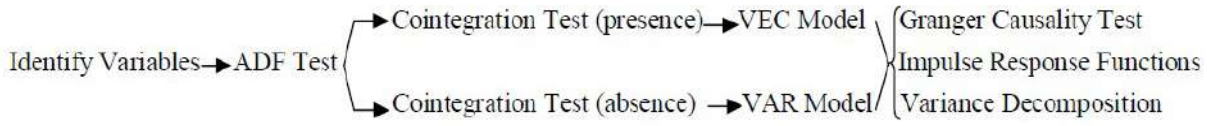
In Algeria, many economists study the relationship between tourism and economic growth, such as the study of (Taibi & Lamri, 2020), which analyzed the relationship between tourism and economic growth in Algeria during the period 1995-2018 using the cointegration test and the Vector Error Correction Model "VECM" and the Granger causality test. The results show that the number of tourists has a negative impact on economic growth in Algeria, which means that Algeria relies on other variables to increase economic growth, such as oil revenues

(Sari Hassoun, Adda, & Sebbane, 2021), used two natural logarithm variables, gross domestic product (GDP) per capita and the natural logarithm of international and domestic tourism expenditure (ITE) per capita, to examine the relationship between the tourism sector and economic growth in Algeria over the period 1995-2017 using a vector autoregressive model (VAR). The model showed that the tourism sector has a positive and non-significant coefficient on economic growth, while the economic growth factor has a positive and significant effect on the tourism sector. In the short run, there was a one-way causal relationship between GDP and ITE at the 1% level, confirming the hypothesis of economy-driven tourism growth.

II– Methods and Materials:

The objective of this paper is to study the dynamics of the relationship between tourism revenues and economic growth in Algeria using annual data for the period 1995 to 2015. In this study, the two variables gross fixed capital formation and human capital were listed to avoid biased estimates. The variables are real international tourism receipts (RITR), real gross domestic product (RGDP), gross fixed capital formation (GCF) used as a proxy for investment in physical capital, and secondary education (SCH) used as a measure of investment in human capital. All variables are taken in their natural logarithms to avoid heteoscedasticity.

To achieve the objective of this study, some econometric techniques such as cointegration and error correction technique are used in this study. Moreover, some useful tools of these techniques such as impulse response functions and variance decomposition are used to study the dynamic impact of tourism on Algerian economy. The whole estimation consists of three steps: In the first step, we test whether the variables contain a unit root to confirm the stationarity of each variable (Engle & Granger, 1987). This is done using the augmented Dickey-Fuller test (F-ADF). The second step is to test whether there is a long run cointegrating relationship between the variables. This is done with the help of the Johansen-Fisher method. Finally, in the last step, if all variables are I (1) (integrated first order) and cointegrated short-run elasticities, the vector error correction model (VECM) method proposed by Engle and Granger (1987) can be computed. In this case, there is an error correction mechanism by which changes in the dependent variable are modeled as a function of the level of disequilibrium in the cointegrating relationship captured by the error correction term (ECT), as well as changes in the other explanatory variables to capture any short-run relationships between the variables



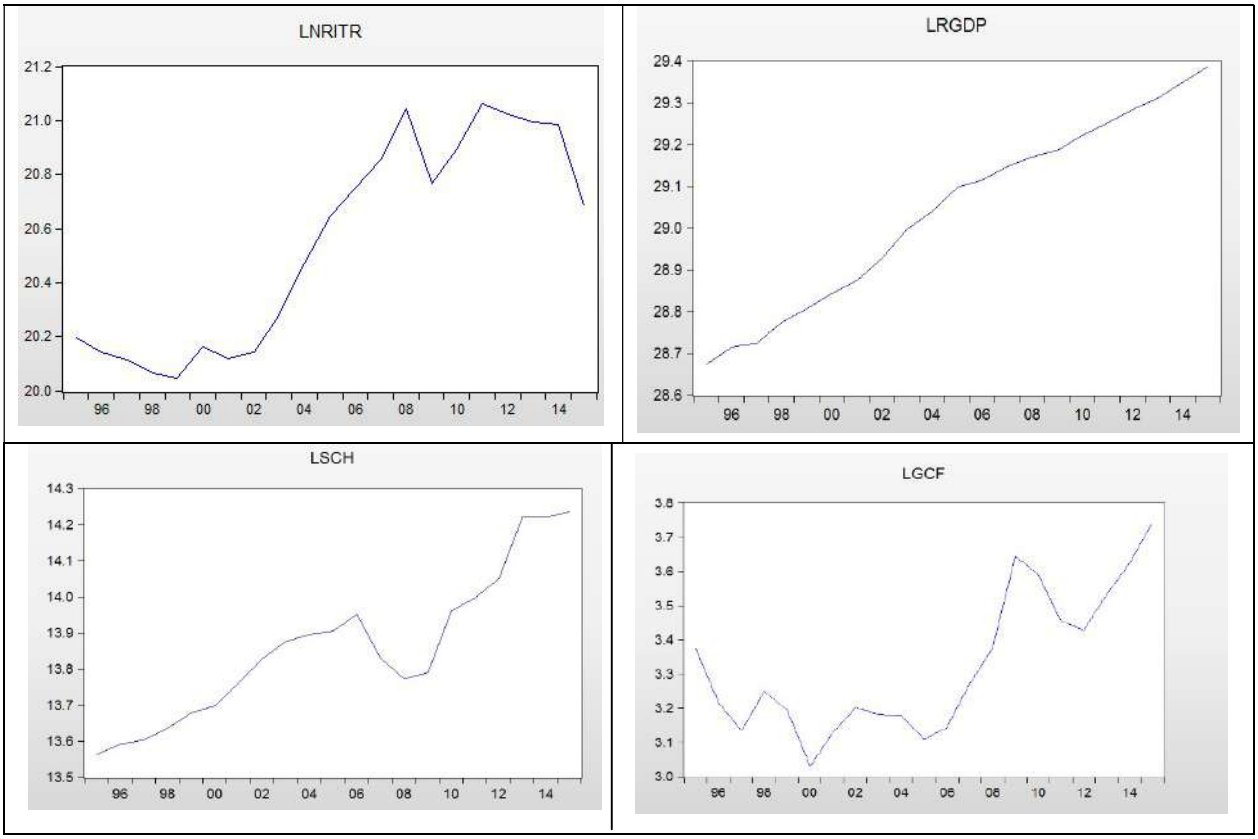
III- Results and discussion:

III.1 Stationary: graph, ACF function and Unit Root Test

An important first step in any econometric analysis is visual inspection of the data. A stochastic process is said to be covariance-stationary if the mean, variance, and invariance of the process are constant over time.

Figure 2 shows that the three series (rgdp, ritr, gcf, sch) are non-stationary during the study period (1995-2015) and show an increasing trend.

Figure (2) : Graph of Stationary



The source : prepared by researcher based on Eviews 9 output

Another way of saying the same thing is to note that the series shown in Figure 2 has a clear trend. However, the good fit of the estimated model might lead a researcher to believe that the series is stationary around the cubic trend line shown in Figure 2. Our eyes can be deceived because such trend lines are fitted to minimize the observed residuals.

Table 1 shows the ACF of log real GDP, log real tourism receipts, log gross fixed capital formation, and log human capital. We can see that the ACF is slowly declining. This kind of slow decay of the ACF is indeed typical of a series with a stochastic trend. Thus, detrending the data does not appear to result in a stationary series.

Rather than relying solely on an analysis of the correlograms, one can also formally test whether a series is stationary. We examine such tests in the next sections. The testing procedure is not as simple as it might seem. We cannot use the usual testing techniques because the classical procedures all assume that the data are stationary. For now, suffice it to say that (Nelson & Plosser, 1982) cannot reject the null hypothesis of a unit root. However, before we examine the tests for a unit root, it is important to note that the problem of nonstationary also arises naturally in the context of the standard regression model.

Table (1) : ACF Function

Variable / AC	LRGDP	LRITR	LSCH	LGCF
1	0.863	0.913	0.805	0.747
2	0.728	0.792	0.585	0.499
3	0.587	0.659	0.353	0.380
4	0.451	0.481	0.189	0.330

The source: prepared by researcher based on Eviews 9 output

To test for the presence of unit roots and to determine the degree of differentiation necessary to induce stationary, the Augmented Dickey Fuller Test (ADF) is used based on the work of (Dickey & Fuller, 1979). If a nonstationary variable becomes stationary after differentiating d times, then the order of integration is said to be d. The test is based on the estimation of the following regression, which contains both a constant term and a trend:(Walter , 2014, p. 207)

$$\Delta y_t = a_0 + \gamma y_{t-1} + a_2 t + \sum_{i=2}^{p} \beta_i \Delta y_{t-i+1} + \varepsilon_t \ldots\ldots\ldots\ldots (1)$$

The null hypothesis is: γ= 0, the series has a unit root and is nonstationary. The results of Unit root test are summarized in table 2.

Table (2) : Unit Root Test

Variables	lrgdp	lritr	lgcf	lsch
Levels	11.005	0.764	-2.372	-1.576
	P= (1.0000)	P= (0.8710)	P= (0.3803)	P= (0.765)
First Difference	-3.848	-3.224	-3.657	-3.456
	P= (0.0096)	P= (0.0028)	P= (0.0515)	P= (0.0735)

The source: prepared by researcher based on Eviews 9 output

The estimated values of γ for the logarithm of real GDP, the logarithm of real RITR, the logarithm of gross fixed capital formation, and the logarithm of human capital are not statistically different from zero at the 0.01, 0.05, and 0.1 levels.
Taking the first difference of the variables, we show that the absolute value of the ADF statistic is above the critical values at all significance levels (1%, 5% and 10%), so that the null hypothesis of the presence of a unit root can be rejected in the case of the variables with first difference, and therefore the variables considered (LRGDP, LRITR, LGCF and LSCH) are I (1).

III.2. Lag length test:

To ensure the consistency of the research results with the real economic situation and economic theories, an appropriate lag length was selected using the VAR framework for the cointegration test, the VEC model, and the causality test. The result of the lag length selection criterion is shown in Table 3.
As shown in Table 3, the criteria LR, FPE, AIC, SC and HQ recommend lag length 1. Therefore, lag length 1 is used for the cointegration test and VEC model.

Table (3) :Lag selection based on VAR lag length criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	50.680	NA	1.10^{e}-07	-4.668	-4.468	-4.629
1	139.39	**133.06***	**8.01^{e}-11***	**-11.93***	**-10.94***	**-11.74***

The source: prepared by researcher based on Eviews 9 output

III.3. Cointegration Test:

Having established that the interested variables of interest have unit root and are integrated with the same order one I (1), the next step is to check whether there is a long-run relationship between them. The approach of (Johansen, 1988) allows us to test for the presence of multiple cointegration relationships, r, in a single step. The likelihood ratio test based on the trace statistic ($\lambda\ trace$), which tests H0: $r \leq q$ against H1: $q = r$is calculated as follows:

$$\lambda_{trace}(r) = -T\sum_{l+1}^{p} \ln(1-\hat{\lambda i})$$

Where $\lambda r + i \ldots\ldots\ldots \lambda n$, are the last value of eigenvectors (p-r).The second test is the maximal eigenvalue test (λ_{max}) which tests the H_0: there are r cointegrating vectors against the H_1: there are r+1 cointegrating vectors and is calculated as follows:(Hamdi & Sbia, 2013, p. 7)

$$\lambda_{max}(r, r+1) = -T\ln(1-\hat{\lambda}r+1)$$

Here we want to determine whether tourism income, human capital, gross fixed capital formation, and GDP are cointegrated. Cointegration explains how a set of economic variables behaves in long-run equilibrium. When several variables are integrated, they may drift apart in the short run, but in the long run, economic forces will return them to their equilibrium relationship(Hassan.A & Masan, 2015, p. 106).

The long-run relationships between tourism earnings, human capital, gross fixed capital formation, and gross domestic product (GDP) are estimated by ordinary least squares (OLS) (cointegrating regression) as follows:

$$Ln\ GPD_t = \alpha + \beta_1 LnITR_t + \beta_2 LnSCH_t + LnGCF_t + \varepsilon_t \ldots\ldots\ldots\ldots (2)$$

Where GDPt is real GDP, $ITR_t$is international tourism earnings in real terms, SCH_t is the human capital, and GCF_t is gross fixed capital formation Equation (2) presents an estimation of the long-run relation between Tourist earning, gross domestic product (GDP), we have included two variables (SCH_t&GCF_t) to minimize errors. All are in natural log and real terms. The results ofcointegrationtest are shown in table 4.

Table (4) : Johansen cointegration test:

Hypothesized	**Trace**	**Max-Eigen**
No. of CE(s)	Statistic	Statistic
None*	79.68	43.81
At most 1	35.87	19.05
At most 2	16.81	15.49
Trace test and Max-Eigen statistics indicate 1 cointegrating eqn(s) at the 0.05 level		
* Denotes rejection of the hypothesis at the 0.05 level		

The source: prepared by researcher based on Eviews 9 output

The existence of cointegration signifies that four is at least one long-run equilibrium relationship among the variables. In this case, Granger causality exists among these variables in at least one way (Engle and Granger, 1987). The VECM is used to correct the disequilibrium in the cointegration relationship, as well as to test for long and short-run causality among cointegrated variables. The correction of the disequilibrium is done by the mean of the Error correction term (ECT). Thus, we can derive the cointegrating equation from the above results with the log of real GDP as dependent variable while log of Tourist earning and log of human capital as regressors, as follows:

$$LRGDP_t = 14.596 + 0.299LRITR_t + 0.597LSCH_t$$

Looking critically at the numerical values of the coefficients and their effects, the above equation is saying that a 1% permanent increase in Tourist earning will cause the real GDP to increase by 29.9%,

while the same 1% increase in Human capital will increase real GDP by 59.7%. The variable of log gross fixed capital formation (LGCF) has been removed because it is not significant.

Table (5): The results of the long-run equilibrium relationship

Dependent variable: LRGDP

Variable	Coefficient	Std.Error	t-Statistic	Prob
C	14.596	0.771	18.913	0.000
LRITR	0.2999	0.042	7.0042	0.000
LSCH	0.5977	0.081	7.3777	0.000

The source: prepared by researcher based on Eviews 9 output

III.4. VAR model with an Error Correction Mechanism (VECM)

After cointegration is confirmed between variables, then the third step is developing a class of models that embodies the notion of correction. This term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of short-run adjustments. The whole system is referred to as Error Correction Model (ECM) and it is used to allow for short-run adjustment dynamics and indicate the speed of such adjustment to the long-run equilibrium state. In general, an ECM derived from the Johansen test can be expressed as follows:

$$\Delta x_t = \mu_x + \alpha_x ECT_{t=1} + \sum_{k=1}^{p} \beta_{xx,k}\Delta x_{t-k} + \sum_{k=1}^{p} \beta_{xy,k}\Delta y_{t-k} + \sum_{k=1}^{p} \beta_{xz,k}\Delta z_t + \varepsilon_{xt}$$

$$\Delta z_t = \mu_{zx} + \alpha_{xz} ECT_{t=1} + \sum_{k=1}^{p} \beta_{zx,k}\Delta x_{t-k} + \sum_{k=1}^{p} \beta_{zy,k}\Delta y_{t-k} + \sum_{k=1}^{p} \beta_{zz,k}\Delta z_t + \varepsilon_{zt}$$

$$\Delta y_t = \mu_y + \alpha_x ECT_{t=1} + \sum_{k=1} \beta_{yx,k}\Delta x_{t-k} + \sum_{k=1} \beta_{yy,k}\Delta y_{t-k} + \sum_{k=1} \beta_{yz,k}\Delta z_t + \varepsilon_{yt}$$

Where $ECT_{t=1}$ is the error correction term lagged one period, α is the short-run coefficient of the error correction term (-1< α <0), X, Z, and Y are the three endogenous variables in the system, and $\beta_{i,j,k}$ describes the effect of the k lagged value of variable j on the current value of variable i, j= x,y,z. The ε_{it} are mutually uncorrelated white noise residuals.

The error correction term represents the long-run relationship. A negative and significant one indicates the presence of long-run relationship. However, the coefficients of lagged explanatory variables indicate a short-run causality relationship between the examined variables.

The short-run results which are presented in Table 6, since the objective of the study is to investigate the dynamic relationships between tourist earningand economic growth, Table 6 illustrates the results only in which DLRGDP is the dependent variable. Since the optimal lag length was one, the short-run results are also presented for one lag of each variable.

The coefficient of the error correction term of the GDP variable is significant and negative (Theoretically it is expected to be between -1 and 0).

From the short-term equation the GDP equation only has a long-term equilibrium relationship

III.5. Causality Test:

Table 7 reports results from Granger Causality Test based on the estimated VEC model discussed above. The results for model with the real GDP as a dependent variable indicate that the null of real Tourism earning does not Granger cause real GDP is rejected in favor of the alternative. So, we can say tourism earning affects the GDP, there is a causal relationship in one-way of tourism earning towards GDP.

IV-Conclusion:

This paper examines the short-run and long-run relationships among four economic variables in Algeria using the Johansen cointegration techniques as well as the stationary VAR. The results show that there is a long-run relationship between the four economic variables: real GDP, real tourism receipts, human capital, and gross fixed capital formation. The long-run coefficients indicate that they (LRGDP, LRITR, LSCH) are positive, while LGCF is not significant.

The above results have some implications for policy formulation. First, the combination of results suggests a one-way causality between tourism and economic growth in the long run.

As expected, international tourism revenues have no impact on Algerian economic growth because of the state's dependence on the oil sector.

Since the hypotheses posed at the beginning have been answered, we can state as a final observation that the significant impact that tourism has on the Algerian economy in the long run justifies the need for government intervention aimed, on the one hand, at stimulating and increasing tourism demand and, on the other hand, at providing and developing tourism supply.

The intensive state intervention for the growth of tourism and especially for the tourism industry results either directly from the implementation of tourism infrastructure works or indirectly from the mechanism of funds and incentives. In general, this is a characteristic feature of modern tourism, but it is also factual evidence of the need for the state to develop tourism, which is considered one of the most important sectors of the economy.

- Appendices:

Table (6): The ECM Results

Error Correction:	D(LRGDP)	D(LRITR)	D(LGCF)	D(LSCH)
CointEq1	-0.111500 (0.04697) [-2.37409]	0.481638 (0.52953) [0.90956]	-0.032268 (0.35672) [-0.09046]	0.472335 (0.18008) [2.62289]
D(LRGDP(-1))	-0.184706 (0.25784) [-0.71637]	4.021757 (2.90706) [1.38344]	-2.903997 (1.95839) [-1.48285]	2.065447 (0.98864) [2.08919]
D(LRITR(-1))	0.055764 (0.03934) [1.41746]	-0.181874 (0.44356) [-0.41003]	0.383796 (0.29881) [1.28441]	-0.572066 (0.15085) [-3.79236]
D(LGCF(-1))	0.064643 (0.03425) [1.88761]	0.011750 (0.38612) [0.03043]	0.276594 (0.26011) [1.06336]	-0.218026 (0.13131) [-1.66038]
D(LSCH(-1))	0.000334 (0.05904) [0.00566]	0.726103 (0.66561) [1.09088]	-0.466895 (0.44840) [-1.04124]	0.307989 (0.22636) [1.36060]
C	0.038705 (0.00950) [4.07583]	-0.131944 (0.10707) [-1.23235]	0.127429 (0.07213) [1.76673]	-0.023437 (0.03641) [-0.64366]

The source: prepared by researcher based on Eviews 9 output

Table 7 :Causality Test Result:

Dependent variable: D(LRGDP)			
Excluded	Chi-sq	df	Prob.
D(LRITR)	3.563371	1	0.0591
D(LSCH)	0.002395	1	0.9610
D(LGCF)	1.706481	1	0.1914
All	4.370100	3	0.2242

Dependent variable: D(LRITR)			
Excluded	Chi-sq	df	Prob.
D(LRGDP)	0.087408	1	0.7675
D(LSCH)	1.600183	1	0.2059
D(LGCF)	0.187535	1	0.6650
All	1.902472	3	0.5929

The source: prepared by researcher based on Eviews 9 output

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How to cite this article by the APA method:

O.CHEHAT, K.AKACEM (2022), The Long-Term Impact Of Tourism On Economic Growth in Algerian, Journal of quantitative economics studies, Volume 08 (Number 01) , Algeria: Kasdi Marbah University Ouargla pp. 459-470.