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The Impact of Employment and Economic Growth on Tourism in Algeria: An Econometric Study Using BARDL

Abdelkrim Mokhtari [1], Mohamed Lahcine [2] , Bilal Toumi [3]

[1] University of Saida – Dr Moulay Taher, Algeria. Email: mokhtari.abdelkrim90@gmail.com , ORCID: 0000-0003-3622-5212

[2] University of Saida – Dr Moulay Taher, Algeria. Email: mohamed.lahcine@univ-saida.dz , ORCID: 0009-0003-2578-5852

[3] University of Blida 2 – Lounici Ali, Algeria. Email: bilaltoumitoumi@gmail.com , ORCID: 0009-0000-2889-9845

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Abstract:

This study aims to assess the impact of employment and economic growth on tourism in Algeria during the period from 1995 to 2023 using BARDL, in addition to Granger causality. The study concluded that there is a long-term relationship between the study variables, with a significant positive relationship between economic growth and tourism and a non-significant positive relationship between employment and tourism in the long and short term. The causality results showed a linear causal relationship from economic growth to tourism only.

Keywords: Tourism, Employment, Economic growth, BARDL

JEL Classification Z32: J64, O64, C10

1. Introduction

The tourism sector provides opportunities for developing countries to create productive and inclusive jobs. It also contributes to the development of start-ups and to the economic growth of these countries. Before the coronavirus pandemic, tourism was the largest service sector in the world, providing one in ten jobs worldwide, accounting for around 7% of total international trade and 25% of global service exports. It is an essential source of foreign exchange, with the sector estimated to be worth more than US$9 trillion in 2019, accounting for 10.4% of global GDP (World Bank, 2022). In Algeria, the tourism sector has gone through several phases, most of which were marked by stagnation due to various economic imbalances and accompanying reforms, which led to layoffs and a decline in GDP growth rates. The employment rate also declined by about 10% in 2000 compared to 1990 (ONS, 2021). These

developments prompted Algeria to seek other policies aimed at economic and social development, including a tourism development plan. From the above, it is clear that there is a relationship between tourism, employment, and economic growth. The research question can therefore be formulated as follows:

What is the impact of employment and economic growth on tourism in Algeria?

To answer this question, the following two hypotheses were formulated:

- There is a significant relationship between employment and tourism in the short and long term in Algeria.
- There is a significant relationship between economic growth and tourism in the short and long term in Algeria.

The relationship between tourism, employment, and economic growth has been studied over the past five decades, with tourism considered a driver of economic growth in the short and long term. Numerous studies have confirmed this theory by using various factors related to tourism, employment, and economic growth. For example, there is a direct relationship between tourism and economic growth, with a positive correlation between the two. Employment in tourism is considered a starting point and an essential indicator of tourism growth. However, there is debate about the inverse relationship between its impact on economic growth and the wages of tourism workers. First, the development and utilisation of human capital in tourism contributes to economic growth.

Furthermore, tourism is the only or main industry that contributes to the income of the population in some local communities. More importantly, tourism is the primary industry for employment in many countries. Secondly, although many studies confirm the positive impact of tourism employment on economic growth, the wages of tourism workers are among the lowest in the entire industry (Vuković, Maiti, & Petrović, 2023). Tourism development can also contribute significantly to poverty reduction by creating new job opportunities. In Nepal, for example, the tourism sector ranks second in terms of national employment and national income after agriculture. Other theoretical analyses show that with perfect mobility between industries of capital and with only one tradable good, tourism development in the South reduces unemployment and raises national income. However, this tourism development does not affect unemployment or national income in the South in the mobile capital model when there are two tradable goods. However, when the tourism sector uses the sector's own capital, but the capital is mobile between two sectors of traded goods, tourism development keeps the unemployment rate unchanged but raises national income in the South (Gupta & Dutta, 2019). There is much debate about the economic benefits of tourism development in a less developed economy. There is very little theoretical literature linking tourism development to the problem of unemployment. Analysis of some theoretical studies shows that tourism development may reduce the level of unemployment in urban areas, depending on the capital intensity ratio between the tourism sector and the non-tourism sector. This result is valid for tourism in urban areas as well as in rural areas. In addition to this section, this paper is divided into a section on previous studies, a section on methodology and results, followed by a section discussing the results, and finally a conclusion with recommendations for the future.

2. Literature review

There have been numerous empirical and theoretical studies on the subject of tourism, employment, and economic growth. Each study has its own findings, which vary according to place and time, as well as the different economic mechanisms of the samples in those studies. The study (Pavlić, Tolić, & Svilokos, 2013) aimed to test the relationship between tourism and employment in Croatia based on quarterly data from 2005 to 2012 and aimed to test the relationship between tourism and employment in Croatia based on quarterly data for the period 2000-2012. The relationships were examined using Granger causality testing and Johansen's cointegration approach. The results indicated that tourism has a positive effect on employment opportunities, while the cointegration test indicates a long-term relationship between the two variables. The aim of the study by (Condratov, 2017) was to investigate the validity of the hypothesis that tourism development contributes directly and indirectly to reducing unemployment in Romania

during the period from 1990 to 2015. The researcher used panel data and obtained coefficient estimates using fixed effects and random effects models.

The results showed that the relationship between the total number of graduates and the unemployment rate is inverse, i.e., a 1% increase in the total number of graduates leads to a 2.3% decrease in the unemployment rate. The model confirms that there is a direct relationship between the unemployment rate and the variable of average monthly net nominal income in the hotel and restaurant sector, as changes in average monthly net nominal income in the hotel and restaurant sector cannot represent an important motivating factor in attracting the workforce. As a result, the hypothesis that tourism contributes to reducing unemployment based on the results of the study was verified. The latest results also supported the study (Manzoor)assumption that tourism contributes to reducing unemployment, based on the results of the study. The latest results also supported the study (Manzoor, Wei, Asif, Haq, & Rehman, 2019), which clarified the extent to which sustainable tourism contributes to economic growth and employment in Pakistan. The researchers relied on time series extending from 1990 to 2015 and estimated two models using simple regression, where tourism index growth is represented as an independent variable, corresponding to the volume of employment and economic growth as dependent variables. In addition, the cointegration relationship was estimated using Johansen's methodology. The results of the study showed that tourism has a positive and significant impact on economic growth in Pakistan as well as on the employment sector. There is also a long-term relationship between the variables under study. The study suggested that decision-makers should focus on policies that support and promote the tourism sector, given its great potential throughout the country.

Meanwhile, the study by (Gómez López & Barrón Arreola, 2019) aimed to study the relationship between employment and tourism activities, in addition to economic variables for the 32 states of Mexico for the period 1999-2014. The researchers used panel data and cointegration according to panel data. The main results show that domestic tourism is the variable with the most significant impact on direct employment generation in the tourism sector, a finding supported by both methodologies used in the study. Economic growth also has a direct impact on employment generation. The study also shows that there is cointegration between the variables studied.

The study (Boudia, Brouja, & Ben zidane, 2020) sought to identify and measure the impact of the tourism sector on raising employment rates and combating unemployment in a sample of 12 Arab countries during the period 2000-2017. Panel data was used based on the growth rate of total tourism employment, the unemployment rate, and the growth rate of the number of incoming tourists. The results of the study found a positive relationship between the growth rate of tourism and the employment rate and an inverse relationship between the growth rate of tourism and the unemployment rate in Arab countries at a rate of 0.12% and 0.002%, respectively. In order to determine the extent to which the tourism industry contributes to reducing unemployment in Algeria, the study (Terfaia & Touat, 2021) on time series from 1995 to 2018, using the ARDL methodology based on the tourism employment variable, which represents the contribution of the tourism sector to total employment at the national level, as well as unemployment rates. The study concluded that there is a long-term equilibrium relationship between tourism employment and unemployment rates, which means that unemployment rates respond to changes in tourism employment in the long term. Since this relationship is inverse and significant, it is possible to rely on tourism as a strategic option in addressing unemployment in the long term. However, the main objective of the study (Vazquez Vicente, Martin Barroso, & Blanco Jimenez, 2021) was to analyse the impact of wine tourism on economic growth and employment in Spain. More specifically, by applying panel data techniques, we examine the economic impact of tourism in nine Spanish wine routes from 2008 to 2018. Our results indicate that tourism in these wine routes had a positive impact on economic growth. However, we find no clear evidence of a positive impact on job creation. The study (Tosun, Çalişkan, Şahin, & Dedeoğlu, 2021) provided a critical analysis of tourism employment and sustainable development in the context of regional inequality, poverty alleviation, and internal migration, with particular reference to Turkey. It found that although Turkey has experienced rapid growth in tourism in

terms of volume and value, it has contributed little to reducing unemployment and poverty rates between regions, and migration from less developed regions to more developed regions in search of better job opportunities. The study also concluded that utilising tourism as a tool for development in this context is a challenging task given the prevailing social and economic conditions in the developing world and therefore requires a reformulation of difficult political and economic choices and decisions based on complex social and economic trade-offs.

To highlight the relationship between tourism-led employment, (Južnik Rotar, Gričar, & Bojnec, 2022) used time series between 2000 and 2019 for the Alpine and Adriatic countries and applied an autoregressive model and Granger causality. The results confirmed that tourist arrivals have a significant impact on the labour market in the hospitality sector in Slovenia, where bilateral causal trends in total tourist arrivals drove employment in the accommodation industry. Furthermore, the health of tourism-led employment has implications for job creation and economic growth, with a focus on domestic tourists. The study (Ben Ali, 2022) aimed to highlight the important role that sustainable development plays in the tourism sector at the theoretical and practical levels, as well as the most important basic methods in the economic field in order to address the problem of unemployment at the global and national levels by defining the tourism sector and sustainable development and their relationship to the phenomenon of unemployment, with reference to the case of Algeria. The study concluded that tourism is a factor in regional expansion because it leads to economic development and the creation of new job opportunities in poor and isolated areas, as well as the establishment of tourism projects in these areas and the development of other activities, thereby achieving regional balance and supporting the economy in general.

In contrast, the study **"** (Zhao, Yang, Zhao, & Lei, 2023) The Role of Tourism in Employment and Other Control Variables " examines the role of tourism in employment and other control variables, such as foreign direct investment, technological innovation, and total natural resource rent, in the economies of the G7 countries. Data on the selected variables were extracted from the World Development Indicators (World Bank, World Development Indicators 2020) for the G7 economies using panel data. The study showed that international tourism has the most significant impact on direct job creation in the tourism industry, and that control variables such as foreign direct investment and international investment increase job opportunities in the target economies. Furthermore, the results confirm that total natural resources reduce employment services in the G7 economies. In Algeria, a study entitled (Ben Issa & Bouknadel , 2024) aimed to analyse and measure the impact of the tourism sector on the most important economic variables in Algeria (GDP, employment, tourism balance) during the period 2000-2020. For the quantitative analysis, the autoregressive distributed lag (ARDL) model was used, based on the following variables: per capita GDP, international tourism (number of arrivals), and oil price. The results revealed a positive and significant impact of oil prices on economic growth in both the long and short term. At the same time, there was an insignificant positive relationship between the tourism sector and economic growth in Algeria during the study period.

However, there is still a clear research gap in the literature, given that this current study is recent, taking into account the various stages that the Algerian economy has gone through and the shocks it has experienced. The main contribution of this study is to analyse the impact of employment and economic growth on tourism in Algeria for the period from 1995 to 2023 using BARDL, testing the causal relationship between the variables, which enhances the scientific and practical value of the study.

3. Data, methodology, and results

3.1. Data

Based on previous empirical studies that addressed the topic of tourism and its relationship to employment and economic growth, and relying on the economic theory that explained the relationship in the same topic, the study variables were selected as follows: The tourism index, expressed by the number of international tourist arrivals, employment rates, and economic growth, expressed by gross domestic product. Table (1) shows the definition and sources of the study data.

Table (1): Definition and sources of study data

Study variables	Code	Definition	Source
Tourism	**TOUR**	International tourism, growth in the number of arrivals (%)	World Bank
employment	**EMP**	Total employment rate relative to population aged 15 and over (%)	World Bank
Economic growth	**GDP**	Gross domestic product growth (% per annum)	World Bank

3.2. Descriptive statistics

For the descriptive study of the time series for the study, covering the period from 1995 to 2023, as well as to understand their nature and characteristics and the extent of their homogeneity, we relied on graphical representations of the values of the study variables in addition to statistical results. It can be seen from Figure (1) and Table (2) that the time series of the study variables fluctuated during the study period, but this fluctuation does not confirm the stability of the time series of the study variables. Descriptive measures will clarify whether this fluctuation was violent or not.

Figure (1): Time trend plots

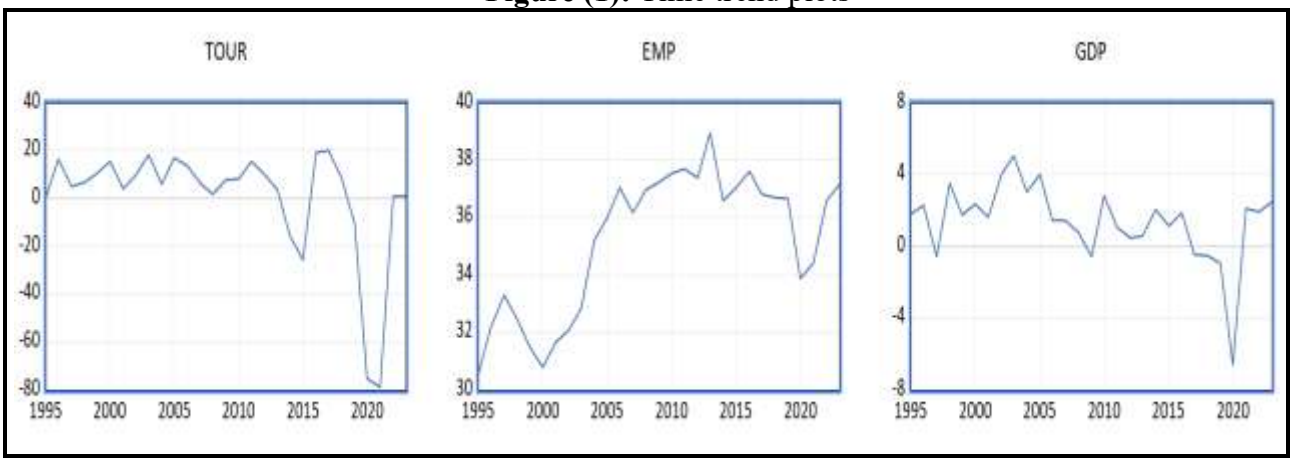


Table 2: Descriptive statistics

	TOUR	EMP	GDP
Mean	0.6751	16.855	1.3741
Median	6.7716	12.437	1.7668
Maximum	20.205	31.840	5.0674
Minimum	-78.809	9.820	-6.6316
Std Dev	23.809	7.5814	2.1378
Skewness	-2.4789	0.7753	-1.6640
Kurtosis	8.5241	1.8993	7.9836
Jarque-Bera	66.574	4.3691	43.395
Probability	0.000	0.1125	0.0000
Sum	19.579	488.80	39.849

Sum Sq Dev	15873.3	1609.3	127.96
Observations	29	29	29

In addition to studying the previous descriptive statistical indicators and in order to understand the characteristics of the study variables, the strength of the correlation between them was analysed. The results in Table (3) show that there is a very weak positive correlation between tourism and employment. There is also a weak positive correlation between tourism and the economic growth rate, and a very weak negative correlation between economic growth and employment.

Table (3): Correlation coefficients

Variables	TOUR	EMP	GDP
TOUR	1.0000		
EMP	0.0332	1.0000	
GDP	0.4817	-0.2029	1.0000

3.3. Unite Root Test

In order to determine the stability of the time series of the study variables, several qualitative and quantitative tests can be used, including autocorrelation analysis, Box-Pierce and Ljung-Box statistics, as well as unit root tests (ADF), (PP), (KPSS), and NG-Perron tests. These tests not only reveal the presence of instability but also determine the nature of the instability, whether it is TS or DS.(Bourbonnais & Terraza, 2014, p.). From Table (4), we observe that the probability value of the PP test results for the study variables is greater than the 5% confidence interval at the level. Therefore, we accept the null hypothesis (H_0: $Ø_1 = 1$), i.e., the existence of a unit root. After taking the first differences, we observe that the probability value of the PP test results for the study variables is less than the 5% confidence interval, and therefore we reject the null hypothesis (H_0: $Ø_1 = 1$), i.e. there is no unit root. Therefore, both the TOUR and EMP series are integrated of degree I(1), while the GDP series is the opposite, i.e. it is stable at the level.

Table (4) : PP test results

PP test at the level		TOUR	EMP	GDP
Constant	t-statistic	-2.614	-1.915	-3.841
	Probability	0.102	0.320	0.006*
Constant and trend	t-statistic	-3.407	-1.915	-4.277
	Probability	0.070	0.619	0.011*
Without constant and trend	t-statistic	-2.673	0.917	-2.966
	Probability	0.009	0.899	0.004*
PP test at the first difference		**DTOUR**	**DEMP**	
Constant	t-statistic	-6.323	-5.119	
	Probability	0.000*	0.000*	
Constant and trend	t-statistic	-5.927	-5.018	
	Probability	0.000*	0.002*	
Without constant and trend	t-statistic	-6.384	-5.092	
	Probability	0.000*	0.000*	

Notes: (*) Indicates significant level at 5%.

3.4. Granger causality test

To determine the short-term causal relationship between tourism, employment, and economic growth in Algeria during the period 1995-2023, we used Granger's causality test with a lag of Lag=1. The results shown in Table 5 indicate that the probability values corresponding to the F statistic calculated in the causal relationship between tourism and employment, as well as economic growth and employment in all directions, were all greater than the 5% significance level. Therefore, we accept the null hypothesis, i.e., there is no linear causal relationship in the short term in all directions between them. at the same time, the same results showed a linear causal relationship from economic growth towards tourism only, as the probability value corresponding to the calculated F statistic was 0.020, which is smaller than the 5% significance level. Therefore, we accept the alternative hypothesis for this test.

Table (5): Granger causality test results

Null hypothesis	Obs	F statistic	Probability
Employment does not cause tourism. Tourism does not cause employment.	27	0.345 0.197	0.561 0.660
Economic growth does not cause tourism. Tourism does not cause economic growth.	27	6.205 2.684	0.020* 0.114
Economic growth does not cause employment. Employment does not cause economic growth.	27	2.096 0.780	0.160 0.385

Notes: (*) Indicates significant level at 5%.

3.5. Cointegration by the Bounds Test Approach of the ARDL Model

The autoregressive distributed lag model is one of the dynamic models that emerged in the 1960s, explaining the dynamic relationship between the dependent variable and its previous values, as well as the lagged independent variables. This model was further developed by Pesaran and Shin (1995). Pesaran, Shin, and Smith (2001) added the Bound Test to the ARDL model, and this methodology became known as the ARDL Bound Testing Approach. This is in accordance with conditions and assumptions aimed at studying the dynamic relationship between the dependent variable and the independent variables, testing for the existence of a cointegration relationship, and estimating the error correction model in its presence (Pesaran & Shin, 1995) (Pesaran, Shin, & Smith, 2001) , as well as demonstrating the logic of the cointegration relationship or its absence (Sam, 2016) . However, there are some weaknesses inherent in the bounds test according to the ARDL methodology, including those characteristics related to size and strength. In addition, inferences based solely on the significance of the F-test and the individual t-test of the ARDL boundary test are not sufficient to avoid deteriorating cases. This is evident in series with small sample sizes of less than 30 observations, where the solution is the bootstrapping technique, or what is known as Bootstrapping the autoregressive distributed lag test for cointegration (McNown, Sam, & Goh, 2017) , where the standard model during the study period will be as follows:

$$\Delta TOUR_t = C + \sum_{i=1}^{p} \beta_1 \Delta TOUR_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta EMP_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta GDP_{t-i} + \phi_1 TOUR_{t-1} + \phi_2 EMP_{t-1} + \phi_3 GDP_{t-1} + \varepsilon_t$$

Where:

Δ : refers to first-order differences.

C**:** the constant term.$\boldsymbol{\varepsilon}$: the random error term.

P: The upper limit of the time lag periods included in the model.

$\beta_{(3)},\beta_{(2)},\beta_{(1)}$: Short-term relationship coefficients.

ϕ_3,ϕ_2,ϕ_1:Long-term relationship coefficients.

After determining the optimal lag periods according to several criteria such as AIC, SC, BIC, and through the results of Figure 2, we note that the optimal model is ARDL (2,4,3). As for Table (6), the cointegration results showed the existence of cointegration, given that the calculated F value is 11.463, which is greater than the critical values estimated using the bootstrap technique at different significance levels of 1%, 5% and 10%. Therefore, we reject the null hypothesis and accept the alternative, i.e., the existence of a cointegration relationship between tourism, employment and economic growth.

Figure (2): Model Selection Graph

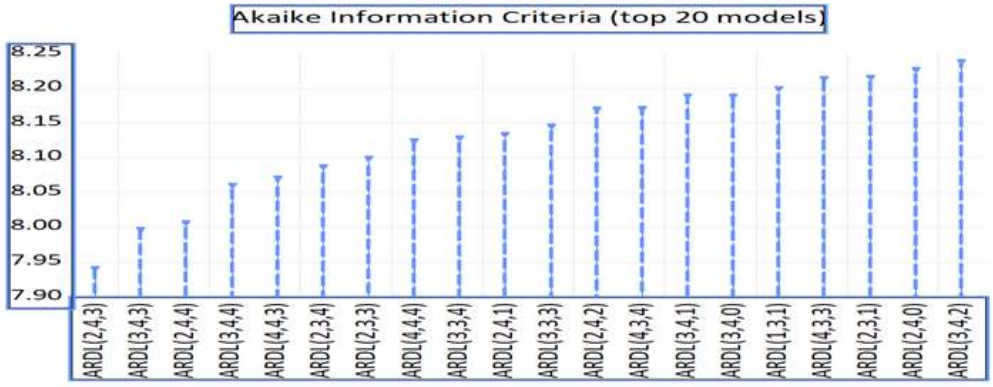


Table (6): BARDL test results

ARDL (2 4 3) (TOUR, EMP, GDP)		Calculated F statistic	Calculated t-statistic
		11.463	2.052
Bootstrap c values	1%	9.250	-3.380
	5%	5.7	-2.300
	10%	4.290	-1.820

3.6. Diagnostic tests

Table (7) shows that: The probability value for the Jarque-Bera test was 0.431, which is not significant at a 5% significance level. Therefore, we accept the null hypothesis that the residual series is normally distributed. The probability value for the Breusch-Godfrey Serial Correlation LM Test was 0.311, which is not significant at a 5% significance level. Therefore, we accept the null hypothesis, i.e., there is no serial correlation problem between the residuals in the estimated models. Moving on to the Breusch-Pagan-Godfrey and ARCH tests, we find that their probability values are 0.856 and 0.544, respectively, which are not significant at a 5% significance level. Therefore, we accept the null hypothesis, i.e., the

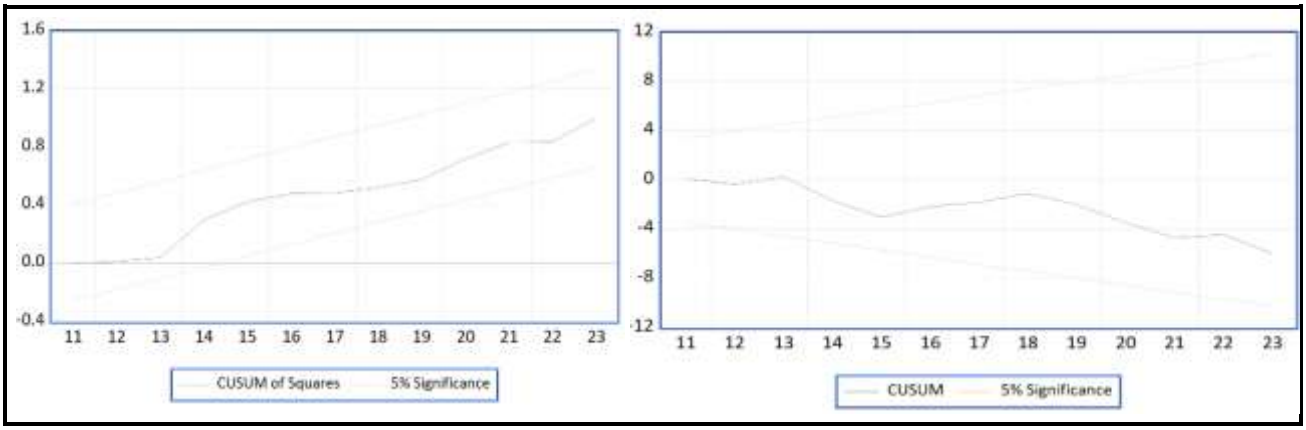
variance of the random error term in the estimated models is constant. The results of the Ramsey RESET test confirmed the validity of the spectral shape of the estimated models.

Table (7): diagnostic tests

Test	Calculated statistics	Probability
J.Berra	1.680	0.431
LM	1.357	0.311
B-P-G	0.521	0.856
ARCH	0.379	0.544
Ramsey RESET	1.573	0.141

Figure 3 shows the stability of the constant and means in the estimated model, as indicated by the CUSUM test. The same applies to the estimated parameters, all of which were stable, as confirmed by the CUSUM of Squares test. Therefore, the estimated model and its parameters have structural stability, i.e., there is stability between the short-term and long-term results at a significance level of 5%.

Figure (3): CUSUM and CUSUM square test



3.7. Long-run and short-run relationship

From the results in Table (8), we observe that, with regard to the long-term relationship, the volume of employment has a non-significant positive effect on tourism, while economic growth has a significant positive effect on the tourism index at a significance level of 5%, as a 1% increase in the economic growth rate corresponds to a 15.56% increase in the volume of tourism. In contrast, the short-term relationship showed that 67.8% of short-term errors are corrected in the first year, as indicated by the statistical significance of the error correction parameter. The volume of employment had the same effect as in the long term, as did the economic growth rate, except that every 1% increase in the economic growth rate corresponds to a 5.51% increase in tourism volume.

Table (8): Results of the long-term and short-term relationship

Variable	Coefficient	Standard deviation	t-statistic	Probability
Long-term relationship				
EMP	3.705	2.322	1.595	0.124
GDP	15.56	4.544	3.424	0.002*
Short-term relationship				
COINTEQ	-0.678	0.174	-3.891	0.001*

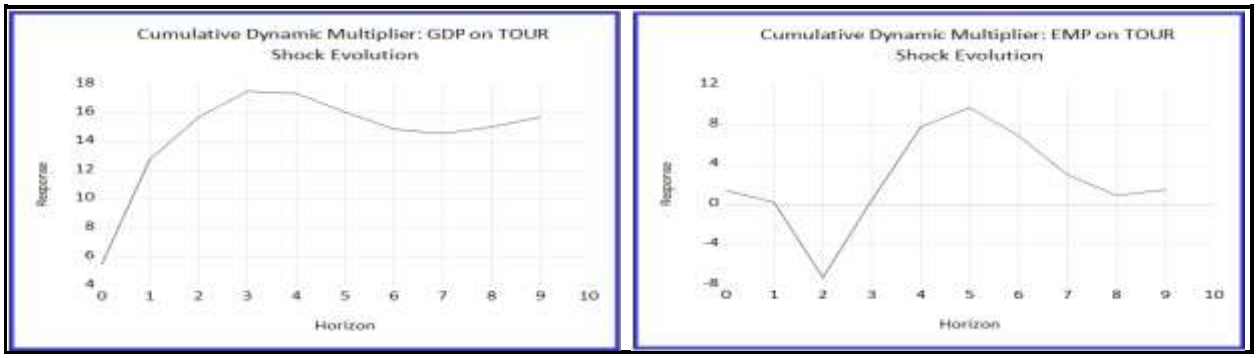
D(TOUR(-1))	0.646	0.182	3.553	0.002*
D(EMP)	1.409	2.267	0.621	0.543
D(EMP(-1))	-3.640	2.527	-1.440	0.170
D(EMP(-2))	-9.155	2.103	-4.440	0.000*
D(EMP(-3))	5.216	2.240	2.328	0.003*
D(GDP)	5.519	1.116	4.944	0.000*
D(GDP(-1))	-3.160	2.345	-1.347	0.197
D(GDP(-2))	-3.654	1.479	-2.470	0.026*
C	-102.9	26.05	-3.951	0.001*

Notes: (*) Indicates significant level at 5%.

3.8. Shock analysis

Figure 4 shows that when a shock of one standard deviation occurs in the volume of employment, the volume of tourism declines immediately until the end of the second period after the shock, then gradually increases until the end of the fifth period, followed by a decline until the end of the eighth period, and then remains relatively stable until the end of the tenth period. When the economic growth index experiences the same amount of shock, tourism volume rises immediately and continues to do so until the end of the third period after the shock, then remains stable until the end of the fourth period, after which it begins to decline gradually until the end of the seventh period, followed by a gradual increase until the end of the tenth period after the shock.

Figure (4): shock analysis



4. Discussion of results

Through various previous standard tests aimed at determining the impact of employment and economic growth on tourism in Algeria during the period from 1995 to 2023, a joint integration relationship was found between the volume of tourism, employment rates and economic growth. These results are consistent with some previous empirical studies, as these variables behave in the same way in the long term . Therefore, any fluctuation, whether positive or negative, in the Algerian national economy has the same effect on all variables. Since Algeria has undergone several stages of reform and implemented several fiscal and monetary policies, starting with the second credit readiness programme, whose main objectives were to increase economic growth rates through several means, including increased government spending, followed by the Structural Stabilisation Programme, which aimed to increase employment rates and drive economic growth, followed by various programmes such as the Economic Recovery Programme and the Growth Support Programmes, especially the second one, as it coincided with a period of recovery in oil prices, leading to new economic programmes. All this was matched by the Master Plan for Tourism Development for 2030. From the above, it can be seen that the variables of

the study followed the same pattern during the period 1995-2023 in Algeria, as these variables were the focus of Algeria's economic policies and strategies.

Given the relationship of mutual complementarity between the volume of tourism, employment rates and economic growth in Algeria during the study period, the long- and short-term relationship showed that economic growth has a positive correlation with the volume of tourism in both periods, as the recovery of gross domestic product has a positive impact on other sectors and, consequently, also on the government's spending policy government spending, particularly in the tourism sector and its complementary sectors, which also allows for the creation of other wealth in the form of various tourism revenues, creating an economic cycle between tourism volume and economic growth. This was evident in the short and long-term effects and was confirmed by one of the five objectives of the 2030 Tourism Development Master Plan, which is to make tourism a sector that contributes to economic development and an alternative to the hydrocarbon sector. On the contrary, employment rates had a non-significant linear effect with the volume of tourism, which means that the tourism sector in Algeria is not a suitable environment for employment, given that this sector has been characterised by stagnation for most of the period starting with the political situation in Algeria, especially after 1995, followed by a slight recovery due to improved political and social conditions as well as the recovery in oil prices, with the number of workers in the tourism sector increasing by 14.5% by the end of 2013. These developments were followed by the Tourism Master Plan, which included plans to create around 400,000 jobs in the tourism sector by the end of 2015. However, the tourism sector was not a priority for the Algerian government, particularly in terms of government spending, and was followed by austerity measures at the end of 2014, which led to a decline in the number of workers in that sector. This plan was then met with the coronavirus pandemic, which had a significant impact on tourism worldwide, also affecting the employment rate. The tourism sector requires infrastructure and a skilled and trained workforce, which explains the non-linear relationship between the volume of tourism and the employment rate. These results were confirmed by the Granger causality test, and therefore the second hypothesis can be accepted and the first rejected.

5. Conclusion

This study discussed the impact of employment and economic growth on tourism in Algeria during the period 1995-2023. It addressed some theoretical analyses of the relationship between the study variables. Then it conducted a standard study to determine the impact of employment and economic growth on tourism in Algeria during the same period using the ARDL model methodology, and the bootstrap technique to estimate the relationship in the long and short term, with an analysis of future shocks.

The results of the study concluded that there is cointegration between the study variables, i.e., the study variables behaved in the same way during the period 1995-2023 in Algeria, as these variables were the focus of Algeria's economic policies and strategies. As for the long- and short-term relationship, it showed that economic growth has a significant positive correlation with the volume of tourism in both periods, as the recovery of gross domestic product has a positive impact on other sectors, especially tourism. Employment rates had a non-significant positive correlation with the volume of tourism, as the latter sector experienced a recession during most of the period due to the economic, social, and political conditions in Algeria. As for the results of the Granger causality test, they showed a linear causal relationship between economic growth and tourism only. With regard to the results of the shocks, any shock in employment rates and economic growth will affect the volume of tourism. Therefore, the second hypothesis can be accepted and the first rejected.

Through theoretical studies and our empirical study, we conclude that economic growth affects the volume of tourism and vice versa for the employment rate. We therefore propose the following recommendations: The need to support government spending in the tourism sector, as this has a positive impact on economic development and the creation of employment opportunities, in particular, taking advantage of various international experiences in promoting the tourism sector, especially the Chinese model, and the need for cooperation between various bodies in this regard. The construction of

infrastructure that will be a pillar of support for the various tourist facilities in Algeria, with the establishment of regulatory texts that encourage various tourism investments, the training and qualification of the workforce in the tourism sector, and the encouragement of individuals to pursue higher education and vocational training, with the need to provide jobs for this category.

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