

The role of the tourism sector on economic growth in Algeria: an analytical and econometric study for the period 2000-2024
دور القطاع السياحي في تحقيق النمو الاقتصادي في الجزائر: دراسة تحليلية وقياسية للفترة 2000-2024

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Abstract:

Tourism plays a significant role in the economies of numerous countries around the world, particularly those with strong foundations for success, whether stemming from natural or human resources. Algeria, for instance, possesses these essential elements but has not maximized their potential effectively. Additionally, several obstacles have hindered the development of this vital sector. A study utilizing the VAR model during the period 2000–2024 revealed that while both tourism revenue and investment have a positive impact on economic growth, their influence remains minimal. This finding highlights the limited contribution of the tourism sector to Algeria's overall economic growth.

Keywords: Tourism, economic growth, tourism revenue, VAR model.

JELClassificationCodes:B23, C01, E24, F43, L83

ملخص:

تشكل السياحة عنصرا رئيسا في اقتصاديات كثير من دول العالم ولا سيما الدول التي تمتلك عناصر ومقومات نجاحها سواء كانت الطبيعية منها أو البشرية مثل الجزائر التي تمتلك هذه المقومات إلا أنها غير مستغلة بالشكل الصحيح إلى جانب وجود مجموعة من المعوقات التي حالت دون النهوض بهذا القطاع الحيوي. حيث أكدت نتائج الدراسة وذلك باستخدام نماذج أشعة الانحدار الذاتي VAR خلال الفترة 2000–2024 على وجود تأثير إيجابي لكل من حجم الإيرادات والاستثمار في القطاع السياحي على النمو الاقتصادي ولكن بشكل ضئيل جدا يكاد ينعدم وهذا يفسر شبه غياب مساهمة القطاع السياحي في النمو الاقتصادي في الجزائر.

كلمات مفتاحية: السياحة، النمو الاقتصادي، الإيرادات السياحية، نماذج أشعة الانحدار الذاتي.

تصنيفات JEL: B23, C01, E24, F43, L83

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1. introduction

In the twenty-first century, the capitalist economy has reached a stage of maturity, revealing its limitations through various global crises, including financial instability, rising unemployment, environmental degradation, and food shortages. These challenges have collectively given rise to what is now referred to as the emerging care crisis. This crisis gradually weakens societies, diminishing their capacity to create and sustain jobs, which ultimately impacts individual well-being and, by extension, the health of society as a whole.

This has necessitated the consideration of a new global economic system designed to achieve sustainable development while fostering fairer and more equitable societies. In such societies, the majority would benefit from economic growth, reducing exploitation and environmental degradation. In response to these needs, the concept of the green economy emerged as a solution to various crises triggered by the flaws of the traditional economic model, including food insecurity and climate change. The green economy seeks not only to protect the environment and prevent its deterioration but also to promote the efficient use of resources, enhance individual well-being, and ensure social equality. This vision entails restructuring key economic sectors such as agriculture, water management, energy, transportation, tourism, and waste recycling. By making these sectors more environmentally friendly and socially inclusive, the green economy aims to support sustainable development, ensuring long-term progress without a decline in current growth rates.

Economists and development experts consistently highlight the vital role of the tourism industry in driving global economic and social progress. Over recent years, the tourism sector has demonstrated its exceptional ability to achieve sustained and impressive growth rates unmatched by any other economic sector. This has made it a significant contributor to increasing national income, creating extensive employment opportunities, and stimulating various other sectors of the economy directly linked to tourism activities. Moreover, the experiences of numerous countries, with Turkey being a prominent example, have shown how tourism can positively influence the development of unrelated industries like textiles, construction, agriculture, fisheries, furniture manufacturing, and more. In addition to generating foreign exchange, the advancement of tourism has become a dominant force in global economies due to its unparalleled capacity to spark a chain reaction of productive and investment-related activities. The interconnected nature of tourism demand affects a wide range of primary and secondary economic sectors that play a role in the production of tourism-related goods and

services. This interconnectedness underlines tourism's strategic economic significance, as it serves as a driving force for broader economic momentum. Its dynamic impact extends beyond immediate benefits, facilitating growth across diverse industries and solidifying its position as a fundamental engine for economic transformation.

Tourism underwent significant transformation during the twentieth century, both in the Arab world and globally. Nations began competing to attract tourists by enhancing their tourism infrastructure, showcasing religious landmarks, archaeological sites, and natural landscapes. Several key factors contributed to this development. Among them was the remarkable advancement in various modes of transportation—air, land, and sea—making travel faster and more accessible. Additionally, progress in media, whether print, audio, or visual, played a crucial role. The ability to relay news and information across continents in real time sparked curiosity among individuals, encouraging them to visit new destinations and explore what they'd heard or seen. Economic advancements were also integral. Higher living standards and increased per capita incomes in many countries resulted in disposable incomes being directed toward leisure activities like tourism. Furthermore, rising social, cultural, and educational standards across nations heightened interest in travel, fostering greater attention toward the sector's development. Many countries actively promoted tourism by investing in its growth, addressing challenges, and finding innovative solutions—particularly those lacking natural resources but seeking to boost national income through this avenue. This collective effort transformed tourism into a thriving global industry.

Tourism is considered when its components can be provided, like oil, to those who do not have it and do not have the economic baptism of farming, mining or corresponding industries. Therefore, all countries are intensively looking for the right locomotive to drive economic development and find a way to develop tourism.

Our Arab societies face major challenges in carrying out economic development work. Perhaps the most important of these is the ability to invest in family skills and manpower.

The Algerian economy serves as an example of a traditional system, heavily reliant on a fundamental driver—fuel. As a result, the need to focus on the development of tourism activities in Algeria emerges as a critical area for attention. The country's rich natural and historical tourism assets contribute to diversifying global tourism demand, making it a vital factor for promoting economic growth.

Our study aims to analyze and evaluate the impact of the tourism sector on economic growth in Algeria during the period of time between 2000 and 2024, using the VAR models.

Research problem: What is the impact of tourism investment on economic growth in Algeria?

Research hypotheses: The problematic analysis of the research requires the following hypothesis: The tourism sector contributes to supporting economic growth in Algeria.

Research objectives: Through our research, we aim to:

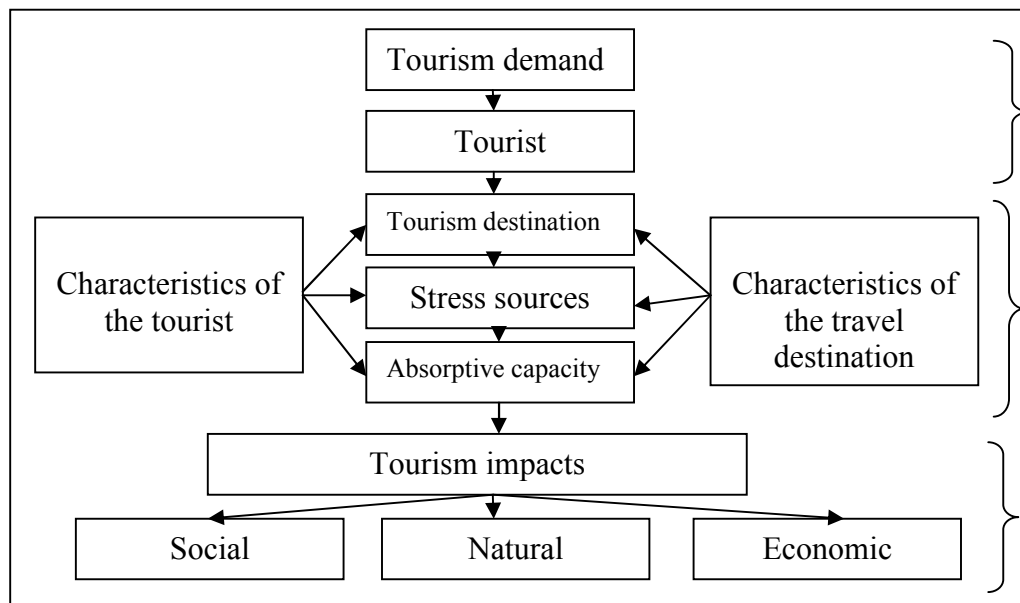
- Highlight Algeria's qualifications in the tourism field
- Analysis of the reality of tourism in Algeria
- Attempting to build a standard model that studies the impact of tourism investment on economic growth in Algeria

Research methodology: A descriptive approach, relying on the collection of information and data, has been adopted using various references and sources to address the theoretical framework. Additionally, an analytical inductive approach has been employed to examine the trajectory of the tourism sector in Algeria.

2. The concept of tourism and its position in the economy:

Many researchers have tried to find a comprehensive and consistent definition of the term tourism. The International Association of Scientific Experts in Tourism defines it as: "A set of interrelationships and phenomena arising from people travelling and staying in places that are neither their permanent residence nor their place of work, either for leisure or for activities related to work or study."

This concept is often described as a system of relationships and services tied to a process of movement that occurs spontaneously over time, without commercial or strictly literal purposes. This definition represents a modern understanding of tourism, as it highlights the network of services and relationships that tourists utilize by contributing economically. It also emphasizes the human and cultural connections that arise from interactions between tourists and the residents of the destination, fostering an exchange of cultural values and experiences. (Mathieson& Wall, 1982).

Fig.1. Conceptual framework of tourism

Source: Abla Bukhari, 2012, p. 06.

According to the same researchers, tourism is composed of three fundamental elements. This perspective is further supported by economists, such as McIntosh (1995), who highlight the diverse aspects of tourism and their connections with a range of other activities, including:

- The dynamic dynamics component, which involves travel to one or more specific areas.
- The residential element, which consists of residence in the area.
- The causal factor, which arises from the first two factors, involves the impact that tourists have directly or indirectly on economic, natural and social systems.

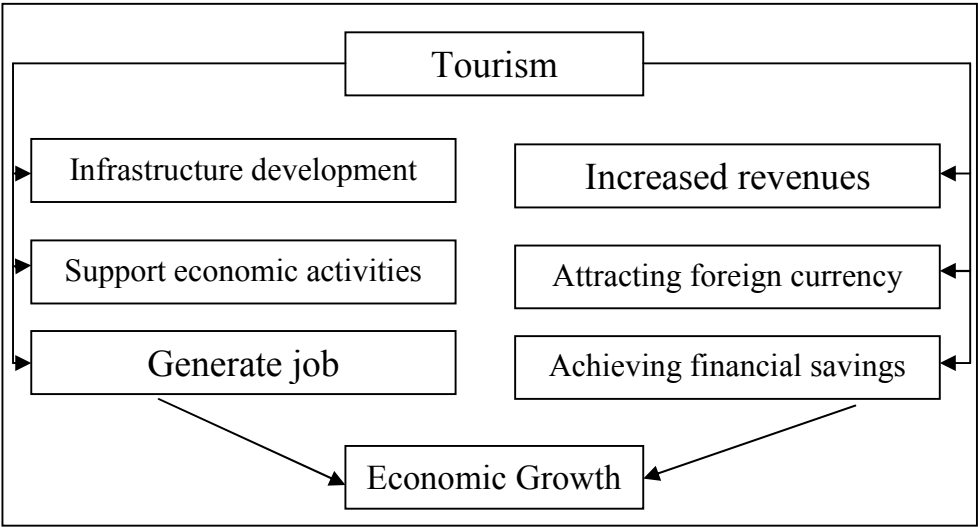
Tourism encompasses an economic dimension characterized by a range of financial variables influenced by tourism spending and a state's readiness to welcome visitors. On the natural side, it refers to the movement of individuals traveling from their usual residences to other locations for leisure or other purposes. Meanwhile, the social aspect involves interactions and exchanges with various social systems in the host country. Additionally, the World Tourism Organization defines tourism as the activities undertaken by individuals traveling and staying outside their usual environment for leisure, business, or other purposes for durations not exceeding one year.

Tourism has emerged as a key area of study for researchers, given its significant role as both an economic driver and a catalyst for social transformation in many countries. Several factors contribute to its importance:

- Tourism enhances environmental awareness, promotes psychological and physical well-being for travelers, and fosters cultural and knowledge-based exchanges among people.
- It serves as a vital source of foreign currency, bolstering the balance of payments and helping mitigate deficits.
- By diversifying the economy, tourism generates fiscal surpluses that support broader revenue streams.
- The industry significantly aids the growth of small and medium-sized enterprises by facilitating a network of integrated services, ultimately delivering high-quality tourism experiences.
- Tourism directly reduces unemployment by creating jobs in hotels, restaurants, travel agencies, and similar businesses, while also indirectly supporting industries linked to tourism operations.
- It supports balanced regional development by revitalizing underdeveloped urban and rural areas, redistributing populations, and contributing to overall social advancement.
- Tourism drives improvements to infrastructure, including investments in transportation networks, accommodations, and modern facilities such as international airports equipped with state-of-the-art technology.
- It indirectly benefits the agricultural and industrial sectors by creating synergies that respond to their pressing needs.

The following shape shows us the importance of tourism in achieving economic growth.

Fig.2. The economic importance of tourism



Source: Prepared by researchers.

3. The components and qualifications of tourism in Algeria: Algeria has huge tourism potential, but lack of interest in it during its developmental path prevented its use and identifying its capabilities locally and internationally. In addition to the diversity of its terrain, from the coastal belt to the inland highlands to the vast desert, and the abundance of different tourist attractions in each region, Algeria also has a long historical heritage that defies hatred, such as caves, shrines and rock art that dates back to prehistoric times.

3.1 Natural components: Algeria is situated along the southwestern coastline of the Mediterranean Basin. Benefiting from its geographic and economic significance, as well as its social and cultural attributes, the country holds a pivotal role in the Maghreb, Africa, and the Mediterranean region. With diverse natural landscapes, abundant resources, and a coastline stretching approximately 1,200 kilometers, Algeria spans an impressive area of 2,381,741 square kilometers and is home to over 40 million people. It ranks as one of Africa's largest nations, second only to Sudan in size. Algeria is characterized by two distinct regions:

- **The Northern Region:** This area consists of plains and expansive fertile lands, interspersed with mountains and valleys, forming a landscape that is more expansive than elongated and ideal for agriculture.

- **The Southern Desert Region:** This vast desert landscape is defined by three main features. The first includes large plateaus known as Hamada and Al-Daraa. The second feature highlights areas with geological veins, while the third is shaped by rugged and barren terrains.

3.2 Tourist areas in Algeria: It is possible to list 6 tourist areas in Algeria according to the diversity of geographical data(Khaled Kawash, 2004) :

- The Sahel region
- Atlantic chain region
- The high plateaus region
- The Saharan Atlas region
- Desert oasis area
- The Sahara region

4. Evaluation of the tourism situation in Algeria during the period 2000-2024

4.1. Status of Algerian tourism: In order to evaluate the performance of the Algerian tourism industry, it is necessary to identify some indicators and determinants that reflect the actual performance of the sector. The aim is to compare the extent to which the planned goals in the National Tourism Development Plan (SDAT 2030) have been achieved with the actual goals. The aim is to promote the development of this important sector so that it can

replace the hydrocarbon sector in the long term.

The Travel and Tourism Competitiveness Report, released biennially by the World Economic Forum, evaluates the rankings of Arab nations on both global and regional levels. It provides an in-depth analysis of their strengths and weaknesses based on a range of indicators that showcase the tourism potential of countries worldwide, including Algeria.

The 2024 edition of the report emphasizes several key indicators that underscore Algeria's tourism potential, as outlined below.

Table 1. The tourism components in Algeria for the years 2017-2024.

Indicators	2017	2019	2024
Tourism performance rank	116	118	98
Business environment	4	3.9	3.24
Safety and security	5.3	5.6	5.58
Health and hygiene	4.6	5.2	4.35
Human resources and the labor market	4	4.1	3.03
ITC Readness	3.7	4.2	4.41
International openness	1.5	1.5	2.49
Price competitiveness	6	6.2	6.03
Environmental sustainability	3.7	3.5	3.86
Air transport infrastructure	2.1	2.2	2.66
The infrastructure for land and maritime transport	2.5	2.8	2.80
The infrastructure for tourism services	2.1	1.8	2.61
Natural resources	2.2	2.1	2.47
Cultural resources and travel activities	2.1	2	2.20

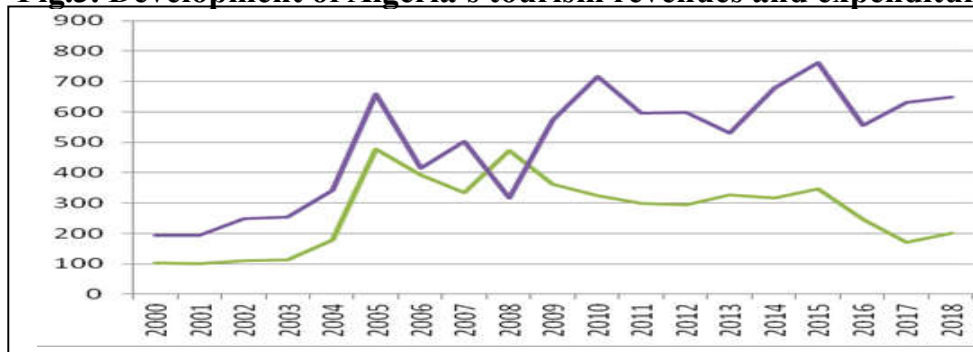
Source: Prepared by the researchers based on the Travel and Tourism Competitiveness Report 2017-2019-2024.

The table reveals that Algeria's travel and tourism competitiveness indicators have shown notable improvement in 2024 compared to 2017 and 2019. Back then, the country was ranked 98th out of 140 nations, with a score of 3.1 (on a scale of 7), placing it below average. Since then, Algeria has advanced across all indicators, including safety and security, health and hygiene, human resources and labor market, ICT readiness, and land and sea transport infrastructure. However, challenges remain. The primary reasons for past weaknesses are attributed to limited progress in international openness, as well as declines in environmental sustainability and tourism service infrastructure.

4.2. The development of tourism revenues in Algeria and their contribution to the GDP:

International tourism receipts include expenditures by international tourists from outside Algeria, including international transport fees paid to national transport agencies. Tourism receipts are highly volatile and low compared to Algeria's huge tourism potential. Between 2000 and 2018, average tourism receipts were \$270 billion. Algeria has made efforts to enhance its tourism sector, yet the highest recorded revenue peaked at approximately \$347 billion in 2015 before declining to \$172 billion by 2017. Interestingly, that same year, tourism expenditures surpassed \$632 billion. This disparity can be attributed to the limited appeal of Algeria's tourism offerings, which fail to captivate domestic travelers. As a result, many opt for international destinations, leading to elevated levels of outbound or reverse tourism. Contributing further to this issue is the inadequate positioning and availability of tourism-related services. The accompanying graph outlines the trends in Algeria's tourism revenues and expenditures between 2000 and 2018.

Fig.3. Development of Algeria's tourism revenues and expenditures



Source: Prepared by researchers.

Tourism's contribution to the gross domestic product (GDP) remains relatively low compared to global standards. This is largely due to minimal investment in the sector, accounting for just 0.1%, and its sidelining in favor of other economic sectors within the country. As a result, this has led to a growing trend of promoting tourism abroad instead.

5. Econometric study of the tourism sector's role in supporting economic growth in Algeria during the period 2000-2024:

5.1. Methodology and data: To examine the impact of the tourism sector on economic growth in Algeria, this study employs standard VAR models commonly used for time series analysis. The variables analyzed include economic growth, represented by GDP per capita at constant prices, foreign tourist flows (FT), tourism revenues (R), investment volume in the tourism

sector (INVT), inflation (INF), and unemployment (CH), covering the period from 2000 to 2024.

The analysis excludes the 1990s due to the near absence of tourism, attributed to the deteriorated security situation during that decade. Data for this study has been sourced from the National Bureau of Statistics (ONS), the World Bank, the World Tourism Organization, and the Organization of Islamic Cooperation database.

5.2. Study results: We start our study by checking the stationarity of the time series used in the study, and after applying the unit root test for Dickey-Fuller ADF and Phillips-Perron PP, we obtain the following results:

Table 2. Stationary test

Series	Model (4)		Model (5)		Model (6)		decision
	ADF	PP	ADF	PP	ADF	PP	
GDPC	0.016	0.997	0.0161	0.0161	0.8555	0.8554	Unstable
FT	0.9378	0.9217	0.3358	0.6824	0.1901	0.5468	Unstable
R	0.4727	0.5024	0.2561	0.2687	0.6692	0.8013	Unstable
INVT	0.7084	0.8280	0.0002	0.2399	0.1812	0.1990	Unstable
INF	0.2159	0.2666	0.0078	0.0078	0.1350	0.0379	Unstable
CH	0.0015	0.0040	0.0205	0.0187	0.0570	0.8966	Unstable

Source: Prepared by researchers using EVIEWS .

The table indicates that all the analyzed variables are unstable and exhibit unit roots of the DS type. As a result, applying the differentiation method is the most effective approach to stabilize them. Following the application of the first difference, it was observed that the series CH, INF, and INVT are stationary at the first order, whereas the remaining series GDP, FT, and R are non-stationary at the second order. After examining the stability of the time series and making the necessary adjustments to stabilize them, the time lag duration for the VAR autoregressive model used in the study can be determined.

Table 3: Determining the time lag for the VAR model

Delay	HQ	SC	AIC	FPE	LR
0	71.58472	71.64292	71.55405	4.08e+28	NA
1	70.56140*	70.73601*	70.46938*	1.38e+28*	*42.02346
2	70.76006	71.05867	70.61428	1.60e+28	2.510028

Source: Prepared by researchers using EVIEWS.

*Indicates the number of optimal deceleration periods

From the table above, it is clear that the optimal delay period is one year, as the values of the three indicators mentioned in the table were lower at P=1. Therefore, we proceed to estimate the model as follows:

$$\text{GDP} = 0.992\text{GDP}(-1) - 1.325\text{INF}(-1) - 8.45^E - 0.08\text{INVT}(-1) - 1.29\text{E} - 0.07\text{R}(-1) - 4.70\text{E} \\ 0.06\text{FT}(-1) + 1.376\text{CH}(-1) - 0.238\text{INF} + 0.0012\text{INVT} + 0.00019\text{R} - 6.48\text{R} + 0.06\text{FT} + 4.793\text{CH}$$

The findings indicate that during the first slowdown period, economic growth exhibits an inverse relationship with the variables studied, except for the unemployment rate. Specifically, a 1 percentage point rise in the inflation rate results in a 0.238 decrease in the growth rate. Conversely, a 1 percentage point rise in tourism investment contributes to a 0.0012 increase in growth, while a similar change in tourism revenue leads to a 0.00019 increase. Notably, a 1 percentage point rise in the unemployment rate corresponds to a significant 4.79 increase in economic growth.

To assess the potential for a significant relationship between economic growth and the economic variables analyzed in the study over the short term, the Engel and Granger causality test is utilized.

Table 4: Engle-Granger causality test

Direction of causality	Prob
R→ GDP	0.0331
GDP→ INVT	0.0472
GDP→ CH	0.0302
INVT→ FT	0.0086
R→ CH	0.0206
CH→ INVT	0.0032
INVT→ CH	0.0074

Source: Prepared by researchers using EVIEWS.

The results show that there is a causal relationship between economic growth and the level of tourism investment and unemployment rate. Moreover, an increase in tourism revenue contributes to economic growth and reduces unemployment rate.

An increase in investment in the tourism sector directly contributes to a rise in the number of tourists visiting Algeria. Additionally, there exists a reciprocal relationship between tourism investment and the unemployment rate. This indicates that higher investments in tourism create more job opportunities, which, in turn, help lower the unemployment rate in the country.

6. CONCLUSION

The main objective of this study is to highlight the role of the tourism sector in Algeria's economic growth through the impact of tourism revenues, total investments in the sector, and the number of tourists flowing into Algeria between 2000 and 2024. This is achieved through a VAR model, the results of which confirm the positive impact of sales and investments in the tourism sector on economic growth, albeit small or even non-existent. This explains

the almost complete lack of contribution of tourism to Algeria's economic growth.

Algeria possesses significant potential for tourism, yet this sector remains underutilized. Numerous challenges still impede its growth and development. The country's tourism industry is in an early stage, hindered by insufficient infrastructure and a lack of modern facilities necessary to build a robust tourism economy. Given the eventual depletion of oil and gas reserves, it becomes crucial for Algeria to prioritize the advancement of this vital sector.

Agriculture and industry remain underdeveloped and are currently unable to compete with advanced nations. As a result, tourism stands out as a vital option and an essential avenue for pursuing development objectives. Implementing a balanced strategy that draws on the advancements seen in other countries worldwide could rejuvenate the sector and bring back its dynamism.

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