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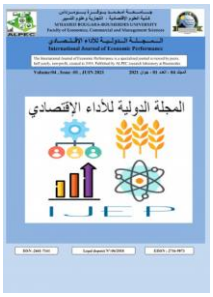

EMPIRICAL ANALYSIS OF THE TRAVEL AND TOURISM SECTOR COMPETITIVENESS INDEX ON PANEL DATA IN THE MENA REGION

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Abstract:

Many writings have shown that the choice of a tourist destination varies according to a large number of factors and of different nature. Among the most important are price, accommodation conditions and quality of tourism services, natural and cultural resources and security climate. The use of tourism competitiveness indices helps to identify the strengths and weaknesses of a destination compared to others, to give a country a sense of the tourism situation and to promote the sustainable development of the travel sector. In this contribution, we are interested in studying the competitiveness index of the travel and tourism sector through some indicators that describe this concept by adopting a panel data approach under Eviews software on a sample of 12 MENA countries from the world economic forum WEF database during a biennial period from 2007 to 2021.

Key words: Travel & Tourism Competitiveness Index - Mena Region - Panel Data.

Introduction :

Over the past few decades, the tourism industry has recorded impressive growth rates, both in terms of tourist flows and tourism revenues. From just 25 million arrivals in 1950, the industry now records over one billion international tourist arrivals. Tourism is recognised as an important economic factor worldwide, contributing to growth and employment, accounting for nearly 10% of global gross domestic product (GDP) and 9.8% of total employment. An unprecedented number of destinations have been developed and tourism-related investments have been made. And as in other areas, international benchmarking tools are being developed for tourism, the most widely used and referred to is the Travel and Tourism Competitiveness Index (TTCI) established within the framework of the World Economic Forum (Davos Forum). The index was calculated on the basis of tourism policies, infrastructure and natural and cultural resources. The results of the report, especially those that highlight the country's weaknesses, should be a starting point for new strategies.

It is in this context that our problematic, which manifests itself in the following question: What are the assessment tools of the Travel and Tourism Competitiveness Index and what are their effects on the MENA region?

In order to better analyse this issue, we will provide answers to the following questions:

1- How to calculate the Travel and Tourism Competitiveness Index?

2- Tourism Competitiveness: Where does the MENA region stand?

3- According to the selected variables, which can influence the TTCI the most?

In the context of this research, several preliminary hypotheses can be proposed:

1- The TTCI provides information to states to develop tourism activities.

2- The Middle East and North Africa region is affected by economic and political transformations that may have consequences on the Travel and Tourism Competitiveness Index ranking.

Therefore, this article is treated around three axes. First, the concept of the Travel and Tourism Competitiveness Index is explored, as well as the factors affecting competitiveness. The competitiveness of the MENA region in the travel and tourism market will be discussed in the second axis. The third axis and in the light of this framework, aims at adopting an econometric analysis that will be based on a panel data approach under Eviews software on a sample of 12 MENA countries through a set of variables explaining this index.

1- The theoretical approach of the Travel and Tourism Competitiveness Index

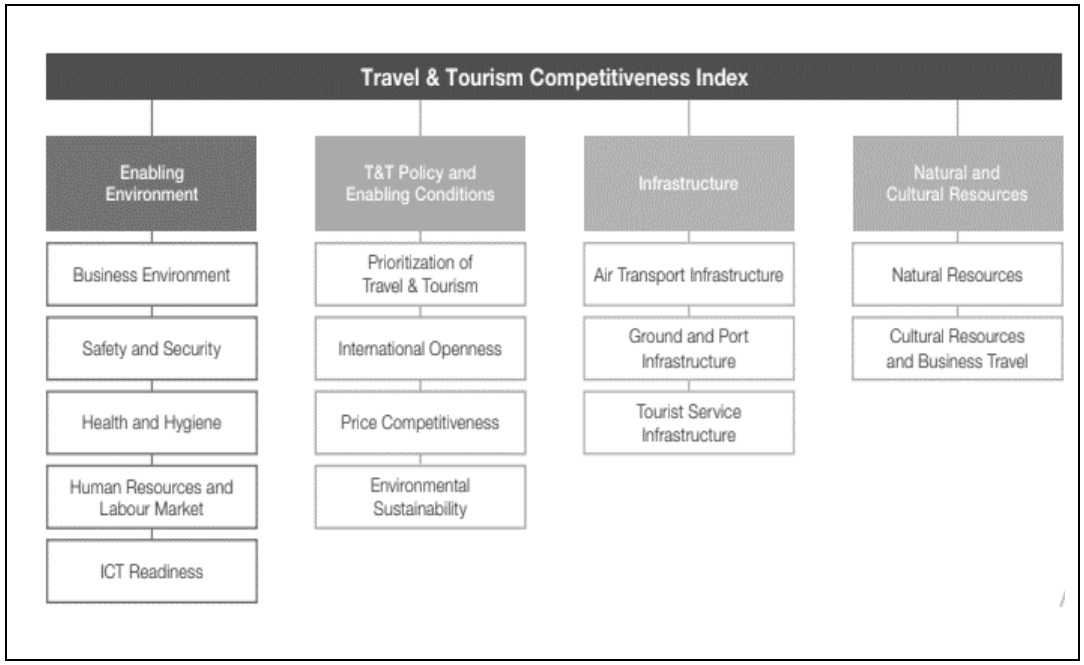
For the OECD, competitiveness refers to the ability of firms, industries, regions, nations or supranational groupings to generate a relatively high level of income and employment on a sustainable basis, while being and remaining exposed to international competition (Ati, 2022). Tourism competitiveness for a given destination is the ability of the place to optimise its attractiveness to residents and non-residents in order to offer the consumer quality, innovative and attractive tourism services and to gain market share in the domestic and global market, while ensuring that the resources available to support tourism are used efficiently and sustainably (Dupeyras & MacCallum, 2013). This competitiveness, which is emerging as a key objective, is reflected in the TTCI. The Travel and Tourism Competitiveness Index (TTCI) is a World Economic Forum measure of the factors and policies that contribute to the competitiveness and development of the tourism industry in different countries. The Tourism Competitiveness Index report has been published regularly every two years since 2007 and is structured around four or five key areas.

The first report(2007) , which analyses the performance of 136 economies through the Travel & Tourism Competitiveness Index (TTCI), provides a unique insight into the strengths and areas for the development of each country to enhance its industry competitiveness. It allows for a cross-country comparison, for benchmarking countries' policy progress and for making investment decisions related to the business and industry development (Širá & Pukała, 2019) .

According to the 2019 report, the first category relating to the enabling environment includes 5 criteria, namely, the working environment, safety and security, health and hygiene, human resources and the labour market and the level of digitalisation. The second category concerns enabling policies and conditions based on travel and tourism priorities, international openness, price competitiveness, and environmental

sustainability. The third category focuses on air, land and port transport infrastructure, as well as tourism service infrastructure. Finally, the fourth category focuses on natural and cultural resources, and business travel. Each axis is composed of several pillars, 14 in total, which in turn summarise a large number of indicators, namely 90 (WEF, 2019).

Figure 1 : Travel & Tourism Competitiveness Index



Source : World Economic Forum

All indicators used in the report range from 1 to 7 (Skabeeva & Stakhova, 2021), with 7 being the maximum. It is used for a detailed analysis of the competitiveness of each country's travel and tourism sector, which allows countries to be compared with each other on the strategies adopted. A good position in the ranking offers a good reputation and international prestige to any country.

The TTCI is calculated using the arithmetic mean of the rating obtained, starting with the pillars, to obtain the value of each of the sub- indices, and with those sub-indices, the aggregated index is calculated (Marti & Puertas, 2017). The TTCI is based on data from

publicly available sources, international institutions and specialised experts, as well as on the results of the Executive Opinion Survey, a comprehensive annual survey carried out by the World Economic Forum in collaboration with its network of partner institutes in the countries surveyed. The number of participating countries varies from one report to another. The table below summarises the number of countries according to the versions published.

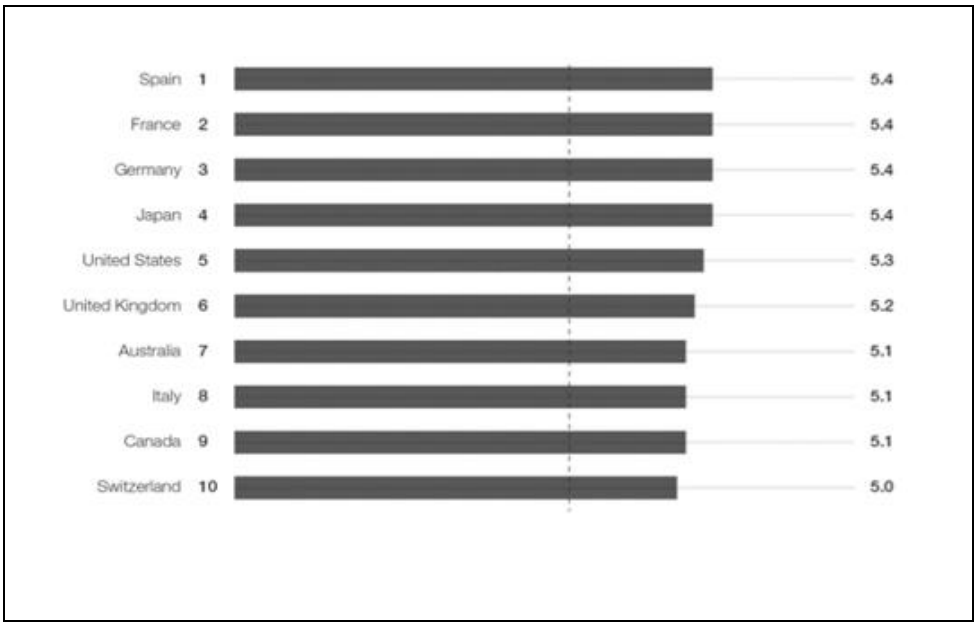
Table 1: Number of participating countries

Year	Number of participating
2007	**124**
2009	**133**
2011	**139**
2013	**140**
2015	**141**
2017	**136**
2019	**140**
2021	**117**

Source: World Economic Forum

It should be noted that the 2021 report covers 117 economies. The countries that were present in 2019 and absent in 2021 are: Algeria, BruneiDarussalam, Burkina Faso, Burundi, Democratic Republic of Congo, Ethiopia, Eswatini, Gambia, Guinea, Haiti, Iran, Jamaica, Liberia, Mauritania, Mozambique, Norway, Oman, Russian Federation, Seychelles, Uganda, Ukraine, Zimbabwe, Taiwan and China (Economic Forum World, May 2022). With this in mind, the Travel and Tourism Competitiveness Index (TTCI) 2019 shows that out of the 140 participating countries, some managed to improve their scores and others recorded slight declines. Based on the criteria taken into account, the World Economic Forum has compiled a ranking of the ten best countries to visit. Europe - the world's leading tourist destination - remains the most competitive region for travel and tourism. It has state-of-the-art tourism capabilities and infrastructures.

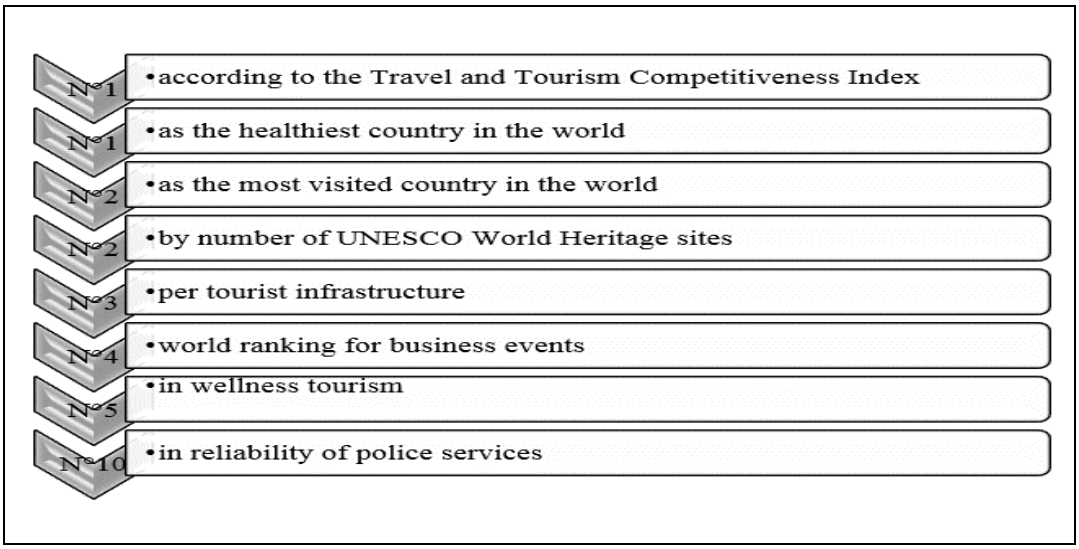
Figure 2: The top ten countries to visit according to TTCI



Source : World Economic Forum

Spain has been voted as the most competitive country in Europe, mainly due to its excellent natural and cultural resources, traditions and gastronomy attracting millions of visitors every year.

Figure 3: Spain in the top 10 of TTCI's global ranking in 2019



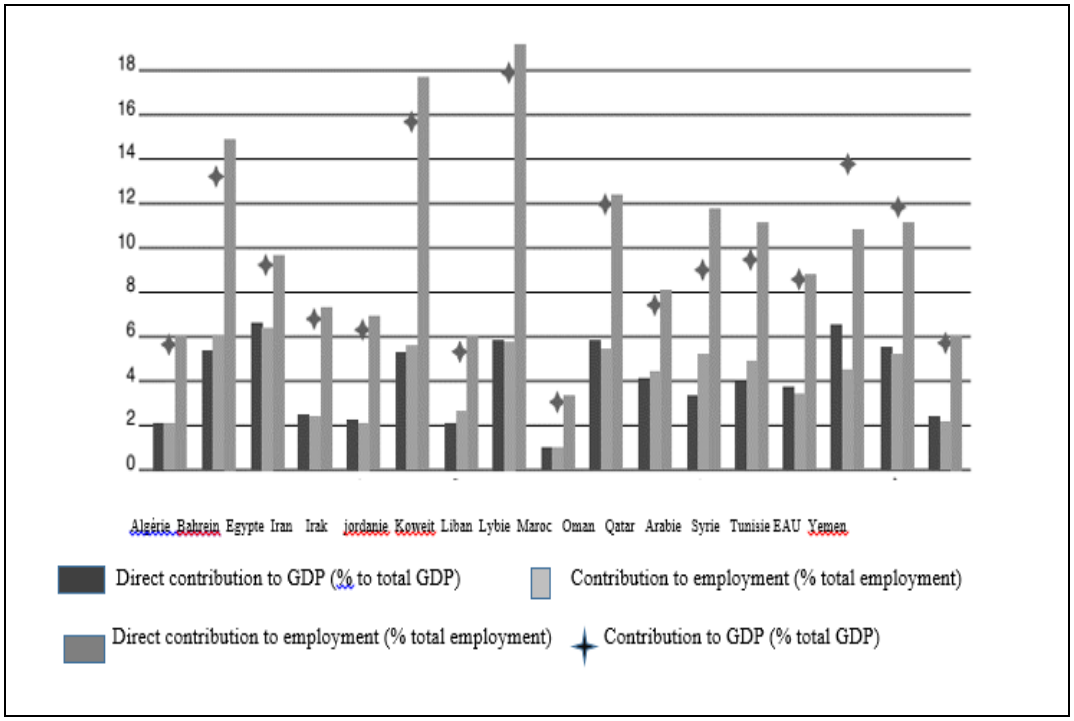
Source : World Economic Forum

2- Evaluation and comparison of TTCI rankings in the MENA region

MENA is an abbreviation for Middle East and North Africa. It refers to a large region, stretching from Morocco in northwest Africa to Iran in southwest Asia. This region covers the following countries: Algeria, Bahrain, Djibouti, Egypt, Ethiopia, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, the Occupied Palestinian Territory, Tunisia, the United Arab Emirates and Yemen.

In the MENA region, the tourism sector, a major economic pillar, represents approximately 5% to 19% of GDP depending on the country and 6.7 million jobs (Belaid, 2021).

Figure 3: The weight of tourism in the MENA economies in 2019



Source : IEMED- 2021

The MENA region's tourist attractions are unique and limitless. It has considerable assets, linked to its natural, cultural and historical heritage, but among other things, the region is paradoxically considered to be a place of insecurity and instability that affects

the index of security and safety. This region has been suffering in the last decades from political instabilities and recently the effects of the Arab Spring. These circumstances have had major effects on theregion in general and the tourism industry in specific. Some countries were greatly affected by the events while others weren't significantly influenced. All the Arab tourism destinations are now trying to design policies to counteract the effects of the political chaos and are taking seriousssteps to get back the tourism flow (Rouby, 2019).The WEF establishes rankings by region. This table shows the classification made by the World Economic Forum in the Middle East and North Africa since its first edition.

Table 2: TTCI rankings 2007-2019 for the MENA region

	2007		2011		2015		2019	
	TTCI	RANG/124	TTCI	RANG/139	TTCI	RANG/141	TTCI	RANG/140
Algeria	3,67	93	3,40	113	2,93	123	3,10	116
Bahrain	4,45	47	4,50	40	3,85	43	3,90	64
Egypt	4,24	58	4,00	75	3,49	83	3,90	65
Jordan	4,52	46	4,10	64	3,59	77	3,60	84
Kuwait	4,08	67	3,70	95	3,26	103	3,40	96
Qatar	4,71	36	4,40	42	4,09	43	4,10	51
Saudi Arabia			4,20	62	3,80	64	3,90	69
Tunisia	4,78	34	4,40	47	3,54	79	3,60	85
United Arab Emirates	5,09	18	4,80	30	4,43	24	4,40	33

Source: World Economic Forum

In its 2019 report, Algeria is ranked 116th out of 140 countries after its 123rd position out of 141 countries in 2015. Egypt moved up 7 places in the ranking after the political instability and insecurity that the region experienced following the events of the Arab Spring. However, it is not only security that determines the success or failure of tourism, there are other parameters that can be mentioned such as health and hygiene, the economic environment and infrastructure and the competitiveness of prices and services. According to all the reports published by WEF, UAE beat MENA countries in the global tourism index . In 2019, they have achieved the best result ahead of some famous

destinations like Turkey ranking 33rd in the world. This ranking attempts to give a general overview of the country. UAE is a federal state, composed of seven emirates, each of which is a dwarf state with an absolute monarchy: Abu - Dhabi, Ajman, Dubai, Ras Al Khaimah, Umm Al Quwain, Fujairah and Sharjah. The history of the Emirates as a tourist destination is still quite young, in just three decades the country has become rich in events, impressive results and, above all, rapid development with many tourist sites and buildings to see architecturally as well as beautiful beaches. The Emirates are home to the world's largest aquarium, a ski resort in the desert and incredibly beautiful mosques. When the United Arab Emirates was founded, it was already clear to the leading authorities that tourism would be an important branch of the economy in order to become independent of oil. In a short time the country has become one of the most popular travel destinations in the world and a favourite among Europeans. The country has the best favourable environment in the region (17th), and safety and security conditions (7 th), but it ranks poorly in terms of natural resources (103th) with no natural world heritage sites.

3- Data and methodology

3-1 Data and model specification

As indicated in the introduction, we will try to assess the effects of SS, PC, NR on the TTCI. We have selected and estimated a multiple empirical model with a single equation written as: TTCI= F(SS, PC, NR). The data used in this research comes from the World Economic Forum (WEF).

3-2 Presentation of countries

Due to missing data, we ended up with a database of only 12 MENA countries spread over a two-year period from 2007-2021: Algeria_01, Bahrain_02, Egypt_03, Iran_04, Jordan_05, Kuwait_06, Libya_07, Oman_08, Qatar_09, Saudi Arabia_10, Tunisia_11 and United Arab Emirates_12.

3-3 Presentation of variables

According to the literature, the travel and tourism competitiveness index is measured by several variables. In the context of our study, we have chosen three that we consider important for co-constructing sustainable tourism itineraries. To this end, we have selected the following variables:

- The exogenous variable SS Safety and Security; Deficiencies in safety and security in tourism are considered a factor that can compromise the viability of the sector on a continent. For a destination, safety and security are vital to remain competitive, attract investment and maintain a positive image as a tourist destination (UNWTO, 2021).
- The exogenous variable Price Competitiveness PC: This statistic is one of the major components of the TTCI and can be summarised in a few measurable indicators that appeal to notions of the quality of services and tourist facilities (price-quality ratio). For this index, Iran was at the top of the ranking with 6.7/7 ahead of Egypt, Algeria and Tunisia according to the 2019 data.
- The exogenous variable Natural Resources NR: Preserving natural resources - coasts, mountains, waterfalls and forests - are a main and major asset for tourism development and to promote competitive tourism. These resources are the basis of the tourism offer, they allow unique experiences and unforgettable moments for the visitors.
- The endogenous variable TTCI: The TTCI measures the country's competitiveness in the tourism sector through various indicators, including those mentioned above, in order to draw up strategies and policies that contribute to the development of this sector.

3-4 Econometric methods for estimating panel data

Before determining our estimation model for the analysis, we need to perform a series of main tests that are performed on panel data. The first is the Fisher test to determine the

existence or absence of effects. The second type of Hausman test allows us to choose between the fixed effects model and the random effects model.

A- **FISHER test**: is the model with effects or without effects? Several tests can be used to determine whether or not there are specific effects in a panel model. We have chosen the Fisher test, which consists of choosing between a pooled model and an effects model. It is a test that makes it possible to justify whether it is appropriate to estimate a model that groups all the countries together or whether it is necessary to estimate the individual model instead. The principle of the test is as follows:

Ho: No fixed effects

H1: Presence of fixed effects

The hypothesis of the presence of fixed effects will not be rejected when the calculated statistic is higher than the critical value read from the Fisher table.

B- **HAUSMAN test:** is the model with fixed or random effects? This test provides more precision on the nature of the effects, which makes it easier to choose between the fixed-effects model and the random-effects model. The Hausman test is based on the following assumptions:

H0: presence of fixed effects

H1: presence of random effects

If the P-value associated with the test statistic is greater than the critical 5% threshold, then the alternative hypothesis is accepted and the random effects model can be retained.

3-5 Econometric analysis

The Fisher test is carried out to test for the existence or otherwise of specific effects in a panel model. The Prob value associated with the F statistic shows that the model is

significantly different from a null model. Therefore, the hypothesis of the presence of fixed effects will not be rejected(table 3).

Table 3 : Test cross-section fixed effects –FisherTest

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.608816	(11,65)	0.0000
Cross-section Chi-square	91.379699	11	0.0000

Source : Author Computation using Eviews 10

A final step leads us to specify the nature of the effects. The Hausman test is performed to select the most appropriate model. Table 4 shows that the result of the test does not reject the alternative hypothesis and that the random effect model can therefore be retained for the best estimation of the structure of the data in our sample because it is more suitable than the fixed effect model as indicated by the test statistic 1.5447 with a P-value of 0.6720 which is higher .

Table 04 : Test cross-section random effects - Hausman Test

Test Summary	Statistic	d.f.	Prob.
Cross-section random	1.544732	3	0.6720

Source : Author Computation using Eviews 10

The linear regression of the random effects model between the SS, PC, NR and the TTCI for the 12 MENA countries gave the following results:

$$TTCI_{i,t} = 3.88983 + 0.13372*SS_{i,t} - 0.26360*PC_{i,t} + 0.29452*NR_{i,t}$$

(0.4455) (0.0503) (0.0707) (0.0406)

$R^2 = 0.4521$ F= 20.90 DW= 1.35

In economic terms, the relationship between the exogenous variables and the explained variable seems to be in line with theoretical and empirical considerations. This means that an increase in the SS variable by 1% leads to an increase in the TTCI of 0.13% since a tourist destination relies heavily on safety and security and according to the World Tourism Organisation "Africa has not always ranked high in terms of safety and security and is often perceived as highly unstable and a risky tourist destination" (UNWTO l. M., p. 10). In addition, the PC variable can contribute negatively to the Travel and Tourism Competitiveness Index. It generates an increase of 0.26% if the CP increases by 1%. It should just be noted that price competitiveness is calculated using four concrete data sets, namely; ticket taxes and airport charges, prices in national purchasing power parity, fuel price levels and the hotel price index. Our econometric results also indicate that the natural resources variable NR has a significant and positive effect on the dependent variable. An increase in the value of 1% leads to an increase in the competitiveness index of 0.294%.

Statistically, the estimation results clearly show that at 5%, the coefficients associated with the explanatory variables are statistically significant, as their p-value is less than 0.05. In order to decide on the overall significance of the model, the appropriate test is done through the Fisher test which according to the result the P-value is less than 5%, this shows that the Ho hypothesis is rejected in favour of the alternative hypothesis that the regression is globally significant. In view of this estimate, the regression also reveals a coefficient of determination of 0.4521, which means that exogenous variables explain 45.21% of the variation in the TTCI. There are also other variables that can explain the variation in the TTCI and that are not mentioned in the model, namely infrastructures, public policies ..... According to the results obtained, the Durbin Watson test shows that the residuals are significantly autocorrelated, which can be explained by the small size of the panel.

Conclusion

Overall, this study indicates the importance of the Travel and Tourism Competitiveness Index in enabling the sustainable development of the sector based on a range of factors and policies. These factors that influence competitiveness are diverse and can change rapidly. Acknowledging that the development of an TTCI relies on several stakeholders and faces challenges namely the availability of data from participating countries. Our analyses tested our research hypotheses. First, the TTCI brings together factors that are essential to the stage of travel and tourism development. Secondly, the Middle East and North Africa region is affected by economic and political transformations with the highest natural resource scores and the lowest security and safety scores.

This paper also analysed, on the basis of an empirical model, the competitiveness index of the travel and tourism sector on panel data for 12 MENA countries observed over the period 2007- 2021. Our model of analysis was that of a multiple linear function across a set of variables explaining this index. The overall results are consistent with the choice of the sample and variables. In the framework of our study, we chose three variables that we considered important for building sustainable tourism itineraries, namely: Safety and Security SS, Price Competitiveness PC, Natural Resources NR . Before determining our appropriate estimation model for the analysis, we performed a series of classical tests that are practiced on panel data, namely fixed and random effects models. Both tests show that the random model is the most suitable form of estimation for our sample data. The estimation obtained with this method reveals that, from an economic point of view, the relationship between the exogenous variables and the explained variable seems to be consistent with theoretical considerations. Statistically, the estimation results clearly show that at 5%, the coefficients associated with the exogenous variables are significant. In order to decide on the overall significance of the model, and based on the P-value result, the Ho hypothesis is rejected in favour of the alternative hypothesis that the regression is globally significant. A value of the Durbin-Watson test that certifies the non-

existence of autocorrelation of the errors indicates that the residuals are significantly autocorrelated, which can be explained by the small size of the panel.

It goes without saying that the TTCI depends on several indicators which allow the monitoring of the current evolution of tourism supply and demand. Therefore, the TTCI is one of the best tools for measuring the competitiveness of the tourism industry, helping a state to build and develop a sustainable and competitive tourism.

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