

Tourism's contribution as an export industry to stimulate foreign trade
An econometrics study of a sample of Arab countries during the period
(2000-2017) by using panel data

مساهمة السياحة كصناعة تصديرية في تفعيل التجارة الخارجية

دراسة قياسية لعينة من الدول العربية خلال الفترة (2000-2017) باستخدام نماذج البانل

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Abstract:

This study aims to try to know the status of tourism as an export industry in the Arab countries under study, by using cross-sectional data models (panel data) for the period (2000-2017). And to know the extent of its contribution to activating foreign trade, where three independent variables were used and the degree of trade openness as a dependent variable.

Based on the results of estimating the model, the study concluded that there is a positive correlation between the rate of tourism openness and openness to foreign trade, and an inverse correlation between tourism revenues and the rate of openness to trade, As for the number of inbound tourists, it has no bearing on the activation of foreign trade.

Keys words: tourism industry, foreign trade, openness trade, openness tourism.

JEL classification codes: Z31; F10; C33 .

ملخص:

تهدف هذه الدراسة لمحاولة معرفة مكانة السياحة كصناعة تصديرية في البلدان العربية محل الدراسة، وذلك باستخدام نماذج البيانات المقطعية البانل للفترة (2000-2017)، ومدى مساهمتها في تنشيط التجارة الخارجية، حيث تم استخدام ثلاث متغيرات مستقلة ودرجة الانفتاح التجاري كمتغير تابع.

وبناء على نتائج تقدير النموذج توصلت الدراسة إلى وجود علاقة ارتباط إيجابية بين معدل الانفتاح السياحي والانفتاح على التجارة العالمية، وعلاقة ارتباط عكسية بين الإيرادات السياحية ومعدل الانفتاح على التجارة وهذا يرجع حسب رأينا إلى تفاوت وتمايز هذا المتغير بشكل كبير بين دول العينة، أما بالنسبة لعدد السياح الوافدين فليس له علاقة تأثير على تنشيط التجارة الخارجية.

الكلمات المفتاحية: صناعة السياحة، التجارة الخارجية، الانفتاح التجاري، الانفتاح السياحي .

تصنيف JEL: Z31، F10، C33 .

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1-Introduction

In the modern era and in the light of trends and development in the global economy, tourism has a great potential and plays a very important role in reaching the main macroeconomic goals which regard economic growth, employment, sustainable economic and social development (Thano, 2015, p. 529). So, it acquired great importance as it changed the concept of the welfare of modern community, especially in those countries that face failure of technology and capital, but excess of labor force (Rasheed R & al, 2019, p. 1). For this reason, tourism has become a major source of export earnings for many countries of the world, especially developing countries that do not have competitive advantage in a particular industry and do not have other sources of revenues as natural resources such as oil, gas, gold, etc, (Timothy A. Faladeobalade, 2014, p. 17) whether it is in developed or developing countries or less developed countries. Tourism is one of the main sectors in the international trade that allows the possibility of diversifying the export earnings of its exports, especially in view of the fact that traditional exports are subject to price fluctuations. Besides, it plays an important role in addressing the bottlenecks caused by low exports in production sector. It is also the source of generating national income and calming the effects on the economy caused by crises from the other sector (Cihangir M, Erkan, & Harbalioglu, 2014, p. 47), it is a good alternative to improve the reserve currency by providing a balance of foreign currency that enters the economy of the host country and its positive impact on the balance of payments (Thano, 2015, p. 529). The relationship between tourism and international trade is defined on the basis of the impact of foreign tourist spending at both national and international level. According to UNWTO data, tourism revenues account for about 29% of the world services exports, 7% of the total world exports and about 9% of the world GDP (unwto, 2020). On the other hand, trade represents 20 to 40% of the budget of the average consumer of the tourist during the trip, which largely depends on the level of development of tourist destinations including the trade activity. On the other hand, we can say that developing trade in the tourism market is related to the impact of foreign currency (Andrej R & al, 2017, p. 5).

The Arab world is full of enormous tourism ingredients, and it occupies an important location due to its proximity to the continents of Europe, Africa and Asia, where the Arab countries have a wonderful climate and a picturesque nature that attracts the attention of the world with its magic. They have elements of tourism that differ from natural, cultural and historical riches. All these elements allow to form an important tourist attraction destination as tourism has become in some Arab countries the main engine for economic development is to increase the contribution of the tourism sector to the national economies of many of these countries (benzekri M & chibane, 2019, p. 2). In addition to its strategic position in international trade, especially in the services sector, of which tourism is part and on which many Arab countries depend as an

important source of its revenues in order to cover its increasing expenses and in light of the scarcity of other sources of revenue collection in light of a fragile economy, the majority of which depends on unilateralism in exports. So, in this research paper, we try in this research paper to study the role of tourism as an export industry and as an alternative strategy for export development compared to other goods and services in stimulating foreign trade for a sample of Arab countries.

1-1- The problematic of the study

Through what we mentioned earlier can highlight the main problem:

To which extent does tourism contribute to stimulate the Arab foreign trade?

1-2- Study hypotheses

To answer the research problem, we can formulate the main hypothesis:

Tourism contributes to various degrees to stimulate trade between the Arab countries under study or with others.

Based on this hypothesis, we draw three hypotheses:

- H_1 : There is a statistically significant effect of international tourism revenues on the degree of trade openness of the Arab countries under study
- H_2 : There is a statistically significant effect of the degree of tourism openness on the degree of trade openness of the Arab countries under study.
- H_3 :There is a statistically significant effect of the number of tourist arrivals on the degree of trade openness of the Arab countries under study.

1-3- Literature review

When reviewing previous studies in this field, we find that the majority of them focused on two main parts:

Study the relationship between international tourism and economic growth or the relationship between international trade and tourism in one direction. We can review some of them as follows:

1-3-1- Analysis of the relationship between tourism and economic growth

In an empirical study, Salih T. Katircioglu (2009) revisits and investigates the tourism-led-growth (TLG) hypothesis in the case of Turkey by employing the bounds test and Johansen approach for cointegration using annual data from 1960–2006. He did not find any cointegration between international tourism and economic growth in Turkey. Therefore, he rejects the TLG hypothesis for the Turkish economy (T. Katircioglu, 2009, p. 1).

If we talk about tourist performance, Robert Lanquar (2011) has mentioned in his report that the share of the growth in tourism is the balance of services sector which has increased gradually at 11 Mediterranean countries including Turkey, Egypt, Jordan, Morocco and Tunisia. They have recorded the highest growth rates in inbound world tourism, with domestic tourism increasing rapidly too. The economic performance of tourism in the 'MED 11' has been

astonishing, given the security risks, natural disasters, oil prices rise and economic uncertainties in the region and the recent financial crisis. This trend suddenly stopped in early 2011 during the Arab Spring. But the writer expected the resumption of tourism performance when the situation stabilized, and the MEDPRO report proposed four scenarios to maintain this trend until 2030 (Lanquar, 2011, p. 1).

After several studies as Hasan Bulent Kantarci, and Ugur Karakaya, (2016) tried to explain, the effects of tourism sector on the development of Turkey as an important source of foreign currency. The researchers found that future development about tourism sector will continue to have positive effects on economic development, leading Turkey to have a greater share in international tourism (Bulent & Ugur, 2016, p. 1).

In Malaysia, Muhammad Shahbaz.al, (2017) examined the impact of tourism and used two separate indicators – tourism receipts per capita and visitor arrivals per capita revisits. They used time series quarterly data over the period 1975–2013. The results showed the evidence of cointegration between the variables. Assessing the long-run results using both indicators of tourism demand, it is noted that the elasticity coefficient of tourism is 0.13 and 0.10 when considering visitor arrivals and tourism receipts (in per capita terms), respectively. Notably, the impact of tourism demand is marginally higher with visitor arrivals. The elasticity of trade openness is 0.19, that of financial development is 0.09 and that of capital share is 0.15. In the short run, the coefficient of tourism is marginally negative, and for financial development and trade openness. It is 0.01 and 0.18, respectively (Shahbaz M & al, 2017, p. 1).

On the other hand, Ramphul ohlan (2017) investigated the relationship between tourism and economic growth in India by considering the relative importance of financial development over the period of 1960–2014. The results combined test indicate that tourism, economic growth and financial development are cointegrated. It is shown that the inbound tourism spurs economic growth in India both in long-run and short-run. In addition, the analysis indicates the presence of a long-run one-way Granger-causation running from tourism to economic growth (Ramphul, 2017, p. 1).

1-3-2- Previous studies on tourism and international trade

Many of the previous studies have been addressed nexus between tourism and foreign trade, and also discussed the possibility of benefiting from tourism revenues to reduce the severity of the current account deficit as many countries suffer from a deficit in the balance of payments which necessitates the search for alternatives to compensate for the shortcomings of other sectors. Therefore, many countries now attach importance to the tourism sector to achieve incomes that could reduce the severity of the current account deficit. Some studies can be summarized in the following table:

Table 01 : Previous studies on tourism and international trade

Author	Methodolgy	Country	Result
(Çelik & al, 2014)	Dickey-Fuller Test (ADF) test Series (1984-2012)	Turkey	the increase in tourism revenues has resulted in a decrease in the balance of payments deficit
Mehmet Cihangir Birol Erkan,Melda Harbalioglu (2014)	VAR analysis method and, Granger causality	Turkey	Tourism revenues have positive effects on current account
Rakela THANO (2015)	quantitative comparative analysis between the balance of payments indicators and indices representing the tourism sector (2004-2013)	Albania	the tourist sector has a positive impact on the balance of payments and exports of services in Albania are mostly supported in tourism exports.
(Alp & Genc, 2015)	TAR-VECM 2003-2013	Turkey	Tourism revenues have positive effects on the balance service thus current account balance
(Chaisumpunsakul Wipaporn & Piriya, 2017)	panel data 1998 -2010	from 207 trading partners of Thailand	the degree of trade openness was positively correlated with international tourism demand
(Bahram & al, 2017)	the panel Granger causality 1995-2014	35Asian countries	Tourism , economic growth and trade are casually related.
(Suresh & Kumar, 2017)	Granger-causality tests and frequency analysis April 1991 to July 2012.	India	there is bidirectional Granger-causality between trade and tourism and economic growth and tourism in positive components, but unidirectional Granger causality running from tourism to trade and economic growth to tourism for negative components.
(Kumar, Prashar, & Jana, 2018)	wavelet methodology January 1999 to February 2018	United states	increasing trade leads to higher tourist inflows (b) tourist receipts are lagged by economic growth, and (c) these relationships are significant in the long term
Rubina Rasheed, Muhammad Saeed Meo, Rehmat Ullah Awan ,Farhan Ahmed (2019)	(ARDL) model 1976–2015	pakistan	Tourism growth leads to a decrease in deficit in the BOPs

Source : Prepared by researchers using a set of references

2- Concepts and Principles

Tourism plays an important role in achieving economic development of countries through its many benefits that accrue to society through various investments. Many countries depend on tourism as an important source of national income and have become associated with economic development

significantly after it was an abstract science taught in universities and scientific institutes. In fact, it represents one of the important unforeseen exports and a basic component of economic activity in different countries. So, scientific and economic organizations, such as the World Bank and UNESCO, have taken an interest in it, which has come to view tourism as an important factor of proximity between the different cultures of the world (ecissi, 2001, p. 94).

2-1- Tourism as an export industry

Tourism in today's world is an industry with foundations and rules. The strategies and plans are set for it to occupy an advanced place in the list of global economic resources. It is also an industry with multiple dimensions and goals that it mainly works on contributing to national income and national economies, and this industry is greatly affected by its scientific progress and development. Indeed, tourism is an industry and a human economic activity before being a tangible and personal entity. The tourism industry is described as the industry of the tangible in a tangible world (messani, 2019, p. 193).

We refer to tourism as an export industry that enjoys the advantages and activities of export and avoids many of its burdens, in the sense that tourism service brings its customers to it and does not go to them unlike the other exports. Besides, tourism revenues have higher wages than those of local consumption activities. Tourism avoids many of the burden of export (transport - insurance - promotion), which is free of charge, for the satisfied customer is the most promoted (ecissi, 2001, p. 95).

Today, tourism industry is a boom in economic activities around the world to the extent that economists call it “invisible export”. Tourism is an export industry because foreign visitors who travel to a country purchase the “touristic experience” of that country and because it is intangible goods (Payam, 2017).

2-2- Relationship between tourism and international tourism

Foreign trade is defined as the process of trading in goods, services and other different elements of production between several countries with the aim of achieving mutual benefits for the parties to exchange (benzekri M & chibane, 2019, p. 385). So, tourism is part of trade in services and thus in international trade. The question that arises here is how tourism affects trade between countries.

International travel is the component of international trade, so international travel has an impact on economy. Tourists of all sorts directly consume goods and services. For example, visitors purchase services such as lodging, transportation as well as they purchase goods such as souvenirs, food and gasoline that some of which need to be imported.

Usually, business people travel to foreign country for trading and successfully business trips generate export. So, people can earn money and they will spend it. This makes the economy stronger. We can say that travels are part of international trade and tourism because it can affect both of them and lately this business travel extensive in companies. On the other hand, normal

travel can create export such as travelling to undeveloped countries and if you see what they need so you can trade with this country and it is pretty much the same thing as we said before.

Business visitors travel to a country (tourist destination) for the purpose of buying certain products from that country (and thus contribute to its export earnings) or selling certain products to that country (accounting for its import purchases), successful business trips; therefore, directly create a flow of exports and/or imports in subsequent periods. Such visits may also create a lot of positive externalities (indirect effects) on both trade and tourism.

All in all, tourism is made to help the countries which can improve their economic power easily. It is a good way to earn money because tourism is inevitably international trade relationship between them (Badur & al, 2014).

As far as empirical research is concerned, we will measure this effect in the following element.

3- The empirical part of study

3-1- Sample

We have tried to obtain as much data as possible from the Arab countries. However, some of them were not available, especially those suffering from political instability. Some of these countries were very conservative in publishing their data in various international sources, such as Saudi Arabia and the United Arab Emirates although they are a first-class tourist pole. Meanwhile, the scarcity of data made it a reason to exclude them from the sample. Therefore, the study sample consisted of 10 Arab countries from 2000 to 2017.

Table 02 : The Arab countries used in the study

Continent	country
Africa	Algeria, Tunisia, Morocco, Egypt, Sudan
Asia	Lebanon, Jordan, Kuwait, Oman, Bahrain

Source:Prepared by the researchers

3-2- Study variables and the mathematical model approved

In order to test the role of international tourism in stimulating foreign trade, this study uses a multiple regression model based on cross-sectional time series data (**Panel Data**).

The following mathematical model has been adopted:

$$opness_{it} = \alpha_i + \beta_1 RT_{it} + \beta_2 OPT_{it} + \beta_3 ARRI_{it} + \varepsilon_{it}$$

- $i=1,2,\dots, 10$, It is the number of Arab countries that made up the study sample;
- t : the time period (2000-2017);
- $\beta_1, \beta_2, \beta_3$ regression coefficients for the independent variables;
- α_i : constant, represents the value of the dependent variable when the value of all independent variables is 0 ;
- $opness$: It is the degree of openness to world trade, and it is the dependent variable as an indicator that expresses the effectiveness of countries' foreign trade, and is obtained by dividing total exports and imports by the gross domestic product (cherouki, 2017, p. 332);
- RT : international tourism revenue ;

- OPT: Tourism openness (inbound plus outbound tourism expenditure) over GDP (unwto, 2020) ;
- ARRI : number of inbound tourists: it is the number of tourists traveling to a country other than the country in which they have their usual residence, but outside their usual environment, for a period not exceeding 12 months, and their main purpose of the visit is not to work in an activity for which they receive compensation from within the country visited, data on tourist arrivals refer to the number of arrivals, not to the number of departures (worldbank, 2020) ;
- ε_{it} :Error limit.

3-3- Data collection sources

The study was based on data sources:

- Books and scientific articles to illustrate the theoretical aspect of the study variables;
- For countries' data, it has been taken from various sources: World Bank, World Tourism Organization, Arab Monetary Fund, Canada's applied Policy School website from 2000 to 2017.

3-4- Model of study

When we were briefed on a group of previous studies, we found many of them, as we mentioned earlier, studying the relationship between tourism and many variables, especially those associated with economic growth. The international trade has mostly been studying the impact of international trade on the activation of demand for international tourism, which is the characteristic of our study, Where we study the inverse relationship by using three independent variables, which are tourism revenues, the rate of tourist openness and the number of tourist arrivals, in contrast, the variable of activation of foreign trade represented by the variable of the rate of openness to world trade as a dependent variable.

3-5- Descriptive statistics of the study variables

Before starting to estimate and analyze the results of the tourist determinants for activating foreign trade in the sample of the study (2000-2017),the study variables data must be described and their key features clarified using the most acceptable descriptive analysis. This includes standard deviation, highest value, lowest value. Table 03 shows this (cherouki, 2017, p. 332) .

Table (03) : descriptive statistique of variables

	OPNES	RT	OPT	ARRI
Mean	0.89	9.18	10.5	6.44
Median	0.91	9.27	8.40	6.58
Maximu	1.92	10.1	51.80	7.15
Minimu	0.20	6.48	0.400	4.58
Std.	0.36	0.64	9.59	0.49
Obs	180	180	180	180

Source: Prepared by the researchers based on the outputs of the **Gretl** program

We notice through table (3) that the index of trade openness has the lowest value of the standard deviation of 0.36. In this case, it is responsible for the concentration of the sample. Meanwhile, the maximum value of the standard deviation was for the tourist openness rate of 9.59, which means that the reason

for the dispersion of the sample is due to its disparity between the Arab countries, which is the same for the arithmetic mean (OPNESS=0.89 , OPT=10.5).

3-6- Analysis of correlation between explanatory variables

We prepared a correlation matrix between independent variables in order to ensure that there is no problem of multiple linear correlation between the study variables. Table (04) explains that:

Table (04): Matrix of correlation between independent variables

	RT	OPT	ARRI
RT	1.0000		
OPT	0.5249	1.0000	
ARRI	0.6980	0.1266	1.0000

Source: Prepared by researchers based on the outputs of the **Gretl** program

We notice from the above table that the largest value of the correlation coefficient is 0.69, and therefore there is no multiple linear correlation problem between the independent variables. Whereas, according to many researchers, the problem of multiple linear correlation appears when the values of the correlation coefficients are greater than 0.8 .

To reinforce and confirm the absence of this problem, we did a VIF test (Variance inflation factor), where if the coefficient of this test is less or equal to 10 then the problem of multiple linear correlation between the independent variables does not exist (Gujarati & Porter, 2009, p. 340) . The following table shows the results of this test:

Table (05): Variance inflation factor test (VIF)

Variables	VIF
RT	3.13
OPT	1.63
ARRI	2.30

Source: Prepared by researchers based on the outputs of the **Gretl** program

Since the coefficient of variance amplification for all the explanatory variables (VIFRT = 3.13, VIFopt = 1.63, VIFarri = 2.30) respectively is less than 10 , the model excludes the problem of multiple linear correlation between the explained variables.

3-7- Time series stability test

To avoid getting what is called a spurious regression problem, the stability of the study variables must be studied by relying on the most common and used tests. Table 6 displays the results of these tests :

Table (06): Results of the study variables stability test

variables	tests	level		First difference	
		Stat	prob	stat	prob
OPNESS	LLC	-2.38501	0.0085	-8.31900	0.0000
	IPS	-1.36702	0.0858	-6.47722	0.0000
	ADF	26.3000	0.1561	78.3990	0.0000
RT	LLC	0.08931	0.5356	-6.93826	0.0000
	IPS	0.99380	0.8398	-7.10390	0.0000
	ADF	22.3409	0.3223	83.8773	0.0000
OPT	LLC	-2.28227	0.0112	//////	//////
	IPS	-2.09584	0.0180	//////	//////
	ADF	32.6997	0.0364	//////	//////
ARRI	LLC	-2.90854	0.0018	//////	//////
	IPS	-0.26610	0.3951	-6.78927	0.0000
	ADF	20.4619	0.4294	83.0356	0.0000

Source: Prepared by researchers based on the outputs of the **Gretl** program

What can be observed from the table is that the results obtained after applying the three tests are identical to one another. So, it clearly indicates the absence of the unit roots at the variable level of tourism openness. It reveals the stability of this variable at the level and indicates the rejection of the H_0 of the existence of the unit roots for the differential variables of the first degree at the level of 1%. These results showed that they include the rest of the study variables represented in the rate of trade openness, tourism revenues, and the number of tourist arrivals.

3-8- The Cointegration test

After performing stability tests and the presence of some unstable and integral variables of the same degree, which are growing at the same pace as the trend in the long term (a long-term equilibrium relationship), we move to the second stage, which is to test the simultaneous integration relationships between these variables using the **Pedroni** test. This latter focuses on the unit root tests for the estimated residual and this is shown in the following table:

Table (07): The results of the integration relationship –Pedroni test-

Within demension	statistic	prob	Weighted statistic	prob
Panel v-Statistic	-0.458632	0.6768	-0.085824	0.5342
Panel RHO Statistic	-0.415930	0.3387	0.004499	0.5018
Panel PP -Statistic	-1.492505	0.0678	-0.875937	0.1905
Panel PP -Statistic	-1.888184	0.0295	-1.228766	0.1096
Between demension	statistic		prob	
Panel RHO Statistic	1.202373		0.8854	
Panel PP -Statistic	-0.374606		0.3540	
Panel PP -Statistic	-1.601698		0.0546	

Source: Prepared by researchers based on the outputs of the **Gretl** program

The results shown in Table (07) indicate that most of the Prob values corresponding to the statistics V, PHO, PP, ADF are greater than 0.05. This means rejecting H_1 hypothesis and accepting H_0 hypothesis which states that there are no simultaneous integration relationships among the studied differential variables of the same degree represented in the rate of trade openness, tourism revenues, and the number of tourist arrivals.

3-9- choosing the appropriate model for the study

The appropriate model for the study is chosen through the comparison between the three models of the Panel, and this is done by doing two tests:

-Fisher's constrained test for choosing between a common constant model and a fixed effects model.

-Hausman's test of the comparison between the fixed effects model and the random effects model.

a- Fisher's constrained test: This test is based on the following two hypotheses:

H_0 : the common constant model is appropriate.

H_1 : the fixed effects model is appropriate.

H_1 : the fixed effects model is appropriate (Harkati, 2018, p. 225).

$$F = \frac{R_{FEM}^2 - R_{PM}^2 / (N-1)}{(1 - R_{FEM}^2) / (NT - N - K)} = (N-1, NT - N - K)$$

R_{PM}^2 = R-squared When using the Pooled Regression Model ;

R_{FEM}^2 = R-squared When using the fixed effects model ;

K : Number of parameters estimated ;

N : The number of the sample.

$$R_{PM}^2 = 0.5081, R_{FEM}^2 = 0.8695, NT = 180, T = 18, N = 10, K = 3$$

$$F_{cal} = \frac{(0.8695 - 0.5081) / (10 - 1)}{(1 - 0.8695) / (180 - 10 - 4)} = 50.12$$

$$F_{tab} = (9.166) = 1.93$$

We observe that the calculated Fisher value is greater than the tabular Fisher value at the level of 5%, and therefore we reject the H_0 hypothesis and accept the alternative hypothesis which states that the fixed effects model is the appropriate model.

b-Hausman's test: The results of this test are shown in the following table:

Table (08): Hausman test results

Chi-Sq-Statistic	1.70
P-Value	0.63

Source: Prepared by researchers based on the outputs of the **Gretl** program

Through Table (08), we note the probability value 0.63 is greater than the level of 5%, which means accepting the H_0 that states that the random effects model is the appropriate model for the study.

3-10- Analysis of multiple regression model results using a random effects model**Table (09): Results of multiple regression model using random effects model**

variable	coefficient	t-statistic	prob
C	1.5602	0.3510	0.0001***
RT	-0.1112	0.0390	0.0044***
OPT	0.0183	0.0021	0.0001***
ARRI	0.0000	0.0000	0.3691
R-squared	0.5354		
Adjusted R-squared	0.4770		
F-statistic	9.1630		
Prob(F-statistic)	0.000000		
Durbin-Watson stat	0.6316		

Source: Prepared by researchers based on the outputs of the **Gretl** program (***) ,(**) level of statistical significance 1%,5% Respectively

3-11- Diagnostic of the estimated model

- a- The statistical significance test for the estimated parameters:** Based on the previous table (09), we note that:
- With regard to the OPT coefficient, we notice that the probability value in its lowest value is 0.0001, which is less than 0.01, and of which OPT has a statistical significance in the model, meaning that the variable explaining the tourism openness affects the dependent variable openness to world trade.
 - With regard to the variable ARRI, we notice that its probability value is 0.3691, which is greater than 0.05, and of which ARRI is not statistically significant in the model. This means that the variable explaining the number of tourist arrivals does not affect the dependent variable openness to global trade.
 - As for the variable of tourism revenues, its probability value according to the chosen random model was 0.0044, which is a large value less than the level of statistical significance, and therefore it is statistically significant and has an impact on the dependent variable openness to world trade.
- b- The overall significance test of the model:** We use the determination factor and the Fisher test to test the overall significance of the model obtained as follows:
- **R squared** : was estimated at 0.5354, meaning that the explained variables control and explain 53.54% of the changes that occur in the dependent variable, which indicates that there is an average correlation between the rate of openness to international trade and the explained variables. Meanwhile the remaining 46.46% is explained by factors other than those included in the model and included in the error limit.
 - **Fischer statistic F:** Since the Fisher statistic, computed starting from the above table, is estimated at 9.1630 corresponding to probability 0.0000, which is less than the level of significance 5%, and therefore we

reject the null hypothesis and accept the alternative hypothesis. Accordingly, the model as a whole has a statistical significance.

3-12- Model quality testing

After confirming the quality of the model statistically, the second stage follows. It is a test in standard terms to see the extent of its consistency and conformity with the study hypotheses by conducting a autocorrelation test and testing the heteroscedasticity as follows:

3-13- autocorrelation test

Autocorrelation measures the degree of correlation between values for the same variable during a specific period of time and not between one or more variables. It is possible to find out if there is an **autocorrelation** between the variables of the independent study by the use of the **Wooldridge Test** to detect this problem. The results of this test were as follows:

Table (10): Wooldridge Test

Test statistic: F(1, 9)	109.262
p-value	0.0000

Source: Prepared by researchers based on the outputs of the **Gretl** program

It becomes clear to us that it is $\text{Prob}>F=0.0000$ and thus rejecting the null hypothesis and accepting the alternative hypothesis which states the existence of autocorrelation

3-14- heteroscedasticity test of variance:The **Wald test** is used to ensure the consistency of variance for errors or not, and the results of this test are as follow:

Table (11): The Wald test

Chi-square(10)	5693.97
p-value	0.0000

Source: Prepared by researchers based on the outputs of the **Gretl** program

We notice that the p-value is smaller than the level of significance 5%, and therefore the null hypothesis is rejected and the alternative hypothesis accepted. So there is an imbalance of the error variances in the random effects model.

Based on what is mentioned before, it can be said that the random effects model suffers from the autocorrelation problem and also heteroscedasticity problem. To correct these problems, we resort to the “arellano” method that depends on Robust standard error (HAC), and the results of the corrected study model can be presented as shown in the following table:

Table (12): The corrected random effects model

variable	coefficient	t-statistic	prob
C	0.4732	3.297	0.0010***
RT	-0.1112	0.0467	0.0174**
OPT	0.0183	0.0023	0.0000***
ARRI	0.0000	0.0000	0.5434
R-squared	0.5354		
Adjusted R-squared	0.4770		
F-statistic	9.1630		
Prob(F-statistic)	0.000000		
Durbin-Watson stat	0.6316		

Source: Prepared by researchers based on the outputs of the **Gretl** program (***) ,(**) level of statistical significance 1%,5% Respectively

4- results and Test the hypothesis of the study:

Through the results of statistical analysis and hypothesis testing, we reached a set of results that clarify the form of relationship and influence between some of the explanatory variables related to international tourism. All that affect the degree of openness to global trade and thus activate the countries' foreign trade for the period (2000-2017). The major results are the following:

- It was found that the corrected random effect model is the most appropriate to express the relationship between the study variables as the independent variables explain more than 53% of the changes occurring in the dependent variable, which is represented in the degree of trade openness of the economy of the Arab countries under study. Perhaps the superiority of this model over the fixed effects and aggregate regression models is due to the different tourism characteristics between the sample countries, especially in terms of tourism potentials and destinations. Each country has advantages over the others, so this model assumes that the differences between countries lie in the error limit.

- The results of the multiple regression according to Table (12) indicate that there is a statistically significant effect between international tourism revenues and the degree of trade openness. The probability of the variable was estimated at 0.0174, which is smaller than the level of significance 5%. On the other hand, there is an inverse relationship between it and the dependent variable as the RT coefficient was negative -0.1112. This is due to the nature of tourism in the Arab countries under study. It may be seasonal, for example, or be linked to specific circumstances. Thus, the more tourism revenues increase, the degree of commercial openness decreases. So it was the opposite of the study of Mehmet Birol & all (2014) and Elçin Aykac Alp, Elif Guneren Genc (2015), which proved that there is a positive relationship between international tourism revenues and the balance of services, and consequently, the current account. Hence, increasing tourism revenues does not necessarily mean

increasing the degree of trade openness in the same direction, and this is what makes us **reject the first hypothesis**.

– The outputs of the random effect model indicate that there is a statistically significant relationship at the level of significance 1% between the tourism openness variable and the degree of openness to international trade. There is also a direct relationship between the two variables. As the degree of tourist openness increases by one unit, the degree of trade openness increases by 0.0183% and this was expected, which supports what had been stated in a previous study by **Wipaporn Chaisumpunsakul Piriya Pholphirul (2017)**. In fact, some studies proved that the degree of openness to international trade has a positive relationship with the demand for international tourism, **so the second hypothesis is acceptable**.

– As for the number of the explained variable ARRI, the results indicate that there is no statistically significant relationship between it and the dependent variable in which the statistical probability value was 0.5434. This is a very large value and greater than the level of statistical significance 5%. So, it is not statistically significant. In other words, the number of visitor arrivals does not affect the degree of openness to global trade in the sample countries. This is why we **reject the third hypothesis**.

5- Conclusion

This study examines the relationship of the impact of international tourism on the activation of international trade for some Arab countries during the period 2000 to 2017, using some factors related to international tourism as the revenues from international tourism, the rate of tourism openness for these countries, as well as the number of tourists coming to countries and its impact on the rate of trade openness of countries, based on cross-sectional data for time series. We have reached a model that has some standard problems. Though they are corrected, they may lead to misleading conclusions. Despite that, the study found a positive correlation between the rate of tourism openness and openness to foreign trade, and an inverse correlation between tourism revenues and the rate of openness to trade. This is due, in our opinion, to the discrepancy and differentiation of this variable significantly between the sample countries. As for the number of inbound tourists, it has no bearing on the activation of foreign trade. So through the results of the standard study, we conclude that international tourism in general contributes to stimulating international trade, directly or indirectly, and this depends on the nature of the tourism potentials of countries and the degree of tourism openness in them, In addition to the foreign trade policy followed in each country. Moreover, the determinants of international tourism are not limited to the selected factors in this study, which constitute prospects for future studies, especially since international tourism is an essential resource for some countries in strengthening their foreign trade.

Recommendations

We can also make the following recommendations:

- The necessity to give the utmost importance to the status of international tourism in the Arab countries, as it is an important source of income through which it can improve its balance of payments;
- Dedicate tourism culture in Arab societies in order to attract the largest possible number of tourists and to stimulate local industries, especially traditional ones ;
- The need to develop the infrastructure in Arab countries, especially those that enjoy tourist destinations, and to stimulate the interest of foreign tourists to remove barriers that hinder distinguished tourism service on the one hand, and stimulate trade on the other hand ;
- Cooperation between the Arab countries due to the cultural and geographical closeness in The area of international tourism through the various investments that will be made Activating intra-regional foreign trade ;
- Exchange of experiences to develop Arab tourism from successful countries in this field. Therefore, efforts should be made to facilitate the transfer of knowledge and exchange of experiences between emerging tourism markets, and the best countries in terms of performance ;
- Cooperation in order to create a positive image and confront negative media propaganda, because of political instability and civil conflicts in some Arab countries, a negative view was formed by international media, and this affected the degree of tourism openness and in turn the flow of foreign trade ;
- Organizing tourism events. There is a need for special conferences, business workshops and forums to present and advertise products and services related to Arab tourism, And bring together the main actors in the tourism market to exchange experiences and best practices and to brainstorm joint future policies and strategies and build relationships that could bear fruit in future international commercial dealings ;
- Use the media to promote, disseminate and publicize tourism activities.

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