Impact of Trade Liberalization on Economic Growth - Case Study of Some Petroleum Countries of Mena Region – Period From 2000 to 2020

Haythem Hammi[1, *], Dounia Kerzabi[2], Okba Rimi[3]
[1]Univ Temcen (Algeria) Mifma Laboratory, haythem.hammi@univ-tlemcen.dz
[2] Univ Tlemcen (Algeria), dounia.kerzabi@univ-tlemcen.dz
[3] Univ Eloued (Algeria), okba.rimi@univ-eloued.dz

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Summary: This study aimed to analyze the impact of trade liberalization on economic growth for nine petroleum countries from Mena region (Algeria, Bahrain, Iran, Kuwait, Libya, Qatar, Emirates Arabe United, United Kingdom of Saoudi Arabia and Oman), period from 2000 to 2020, this paper has relied on the following variables: Economic growth index, Trade freedom index, Foreign direct investment index, Human development index, Import index, Export index and Money supply index. A descriptive analytical approach has been applied using FGLS panel data model. The study concluded that trade liberalization promotes the economic growth on the studied countries.

Keywords: Trade Liberalization; Economic Growth; Mena Region; FGLS.

Jel Classification Codes : F14 ; F43

ملخص: هدفت هذه الدراسة إلى تحليل أثر تحرير التجارة على النمو الاقتصادي لتسع دول نفطية من منطقة الشرق الأوسط وشمال أفريقيا (الجزائر، البحرين، إيران، الكويت، ليبيا، قطر، الإمارات العربية المتحدة، المملكة العربية السعودية وعمان) للفترة من 2000 إلى 2020، واعتمدت هذه الدراسة على المتغيرات التالية: مؤشر النمو الاقتصادي، مؤشر الحرية التجارة، مؤشر الاستثمار الأجنبي المباشر، مؤشر التنمية البشرية، مؤشر الواردات، مؤشر الصادرات، مؤشر عرض النقود. تم تطبيق المنهج الوصفي التحليلي باستخدام نموذج الأثر الثابت لبيانات البانل، وخلصت الدراسة إلى أن تحرير التجارة يعزز النمو الاقتصادي في الدول محل الدراسة.

الكلمات المفتاحية: تحرير تجارة؛ نمو اقتصادي؛ منطقة شمال افريقيا والشرق الاوسط؛ نموذج الأثر الثابت.

تصنيف JEL: F14؛ F43:

I- Introduction :

The countries from North Africa and the Middle East have remained outside the interests of economic researchers and literature in the past decades despite their geographical position that mediates the world and distinguishes them by the inhibition of agricultural territories and the abundance of resources, especially from oil and gas. These resources are an important element for attracting direct foreign investment, establishing joint-ventures and opening markets to the movement of goods, services and of production factors at international level. In this field, literature reviews have varied on whether or not opening markets and liberalizing trade is a source of economic growth for countries and a reason offor improvement of their macroeconomic indicators. And here comes this current study to analyse the following problem: **What is the impact of trade liberalization for petroleum countries' economic growth from the MENA Group**?

In order to answer this problem, **we rely on the current hypotheses saying that trade liberalization promote economic growth on petroleum countries from Mena Region**

The **importance of the study** that highlights the topic of trade liberalization and its gains at all levels. Therefore, States had to pay attention to this issue, especially in developing countries, because it was a comprehensive process that sought solutions to the problems and dilemmas faced by these societies, based on their economic, human and technological possibilities and resources, especially in view of the growing gap between those economies and those of developed countries.

This study objective is to enrich and present the topic of trade liberalization from a different angle as it focuses on a group of rich- resource and exporting countries from **MENA** region that make up the greatest value of their public revenues.

This study has considered two main variables, the trade liberalization as independent variable and economic growth as dependent variable, so how these two variables are defined as per economics leaders.

I.1. Trade liberalization and Economic growth, what a relationship?

Trade liberalization is: reducing trade barriers like tariffs, quotas, and other restrictions, countries can benefit from increased competition, specialization, and access to a wider range of products.
It is represented by openness ratio , it is defined by World development bank as ; Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.*
Economic growth is: Economic growth is commonly defined as the increase in the production of goods and services within an economy over a specific period of time.
It is defined by the World Bank as an increase in the quantity or quality of goods and services produced by an economy, measured by the rise in the inflation-adjusted market value of these goods and services. *

The relationship between trade liberalization and economic growth has been a subject of extensive study and debate in economic literature. The theory of comparative advantage, suggests that countries benefit from specializing in the production of goods and services in which they have a comparative advantage and then trading those goods with other countries. This specialization and trade can lead to increased productivity, efficiency, and economic growth.

Furthermore, economists like Krueger (1978) and Bhagwati (1978) argue that trade liberalization can encourage specialization in sectors with economies of scale, leading to long-term improvements

in efficiency and productivity. When countries open up to trade, they can access larger markets, which may allow firms to achieve economies of scale by producing more units at lower average costs. This can enhance competitiveness, stimulate innovation, and drive economic growth.(Keho, 2017)

I.2.Literature Review

Study of (Moyi et al., 2013): This paper aims to delves into the relationship between international trade liberalization and economic growth, focusing on the influence of regulatory policies in a shorted list of sixteen sub-Saharan African (SSA) countries. While international trade liberalization involves the removal of all/part of trade barriers, regulatory policies pertain to enhancing credit, labor, and product markets on countries. The study employs the following Variables, GDP per capita growth rate, Gross Capital formation, Human Development Indicator, Trade Liberalization Indicator, Regulatory policies and using panel data Generalized Method of Moments (GMM) methodologies to address endogeneity issues.

The findings indicate that improved regulatory policies significantly lead to economic growth. Furthermore, international trade liberalization yields more favorable outcomes when accompanied by enhancements in regulatory policies. This suggests that countries with fewer regulations benefit much compared to heavily regulated ones from trade liberalization. Therefore, enhancing policies regulating credit, labor, and product markets will amplify the benefits of international trade liberalization in Sub-Saharan Africa.

Study of (Abbas, 2014): This paper investigates the influence of trade liberalization on the economic growth of short listed developing and least developed economies, including Pakistan, Turkey, Indonesia, Philippines, Bangladesh, Botswana, Mauritius, and Morocco. It augments the standard production function to analyze this relationship. Using a panel fixed effect model, the study estimates the impacts of macroeconomic variables on economic growth over the period from 1990 to 2011. The study relied on Real GDP as dependent variable, and dependent and support variables are K(real capital stock),LF(labor force),X(presents exports) and TL(trade liberalization).

The results reveal a significant positive impact of short listed variables on economic growth, with the exception of the trade liberalization index. Interestingly, a one-unit increase in trade liberalization is associated with a deterioration in economic growth, indicating a negative impact. This suggests that there is a relatively greater share of imports than exports in these economies. Consequently, the paper suggests that developing nations should focus on developing their production capabilities and adopting export promotion policies, while also managing imports to achieve sustainable growth.

Study of (Fetahi-Vehapi et al., 2015): This study aims to examine how trade liberalization impacts the economic growth in South East European (SEE) countries. Despite variations in development stages and levels of integration with the European Union, differences in trade openness among these countries are not emphasized. The empirical analysis utilizes a 16-year panel dataset spanning from 1996 to 2012, encompassing 10 SEE countries. Employing system GMM as the most convenient estimation method, this approach addresses various econometric defis, including endogeneity issues. The growth rates of the short listed countries are modeled as dependent on trade liberalization and a range of control variables, such as initial income per capita, human capital, gross fixed capital formation, FDI, labor force indicator, and several interaction variables with trade openness. The primary estimation findings suggest that the positive impact of trade openness on economic growth is contingent upon the initial income per capita and other explanatory factors;

otherwise, there is limited evidence between these variables. Furthermore, trade openness appears to be more advantageous for countries with higher initial per capital income, as well as those with greater levels of FDI and the gross fixed capital formation.

Study of (Hozouri, 2016):This research paper aims to delves into of both effects of international trade and tariff rates on economic development, focusing on a shorted list of 12 MENA states starting 2000-to 2013. Using the dynamic panel data model, which is widely employed for studing the impacts of globalization and external liberalization of economies, mainly the effects of trade liberalization on economic growth, the study explores these relationships where variables are : Growth rate of GDP per capita, impure & with gap, the growth rate of total trade and tariff growth rates on international trade. The results reveal significant and inverse relationships between economic growth sensitivity and changes in tariff rates, indicating that as tariff rates decrease, economic growth becomes more sensitive to changes in other factors. Conversely, the economic growth sensitivity and trade volume is positive, suggesting that increased trade volume contributes to higher economic growth.

Study of (Mahfoudh et al., 2018) **:** This research paper investigates the impact of international trade liberalization on economic growth in the MENA region, focusing on export growth as a primary variable. Various estimation methods are employed to analyze the coefficients relative to each variable which are (GDPpc growth, GDPinit, Education Level, Gross Fixed Capital Formation, Population Growth, Final Consumption Expenditure, Foreign direct investments, Index of export diversification) using a panel approach of 13 MENA countries spanning from 1990 to 2014.

The findings suggest that international trade liberalization generally benefits the states of the MENA region. Notably, the effect of liberalization is predominantly mediated with growth of exports. According to the results, export diversification holds significant importance for these countries, not only for its positive impact on economic growth but also as a key factor in supporting exports. The non-petroleum-exporting MENA states are urged to prioritize diversification efforts to bolster and sustain export growth, leveraging the opportunities presented by trade liberalization.

Study of (Karam & Zaki, 2019) **:**This study aims to delves into the macroeconomic and sectoral reflects of trade in merchandise and services on the economic performance of 21 MENA states spanning from 1960 to 2011 using dynamic panel Model. It provides an analysis of Middle East and North Africa GDP growth to untangle the contributions of trade in merchandise & service and other variables as Inv, Land, Pop Growth and school.

The findings indicate a positive correlation among real GDP and trade of both service and merchandise. Interestingly, the interaction term between trade in merchandise and trade in services shows a negative relationship, proposing that as trade in merchandise expands, the incremental effect of service trade on real GDP diminishes. Nevertheless, the overall impact of service trade on real GDP remains positive.

Upon decomposing GDP growth, it becomes apparent that goods trade exerts a greater influence, although service trade holds significance, surpassing the effect of tertiary enrollment for most countries.

Study of (Hadjou & Raad, 2020) **:** This study targets to analyses the impact of trade liberalization on economic growth / GDP per capita in the MENA region over 1994-2018. The research paper focused in analyzing the following variables, real GDP per capita growth rate, trade liberalization,

and institutions globally and concentrated on comparing the MENA with other territories using OLS estimation method (Ordinary Least Squares Method). The main result for the descriptive research shows that the growth rate per capita in the world attended 0.80% while in the MENA region have close to the sample mean (0.79%), while the mean sample of openness indicator reached 79.63% in the world, where in the MENA region was 90.77%.

Study of (Bardi & Hfaiedh, 2021)**:** The work paper aims to analyses the impact of trade openness on economic growth in Mediterranean countries using a panel data approach spanning from 1975 to 2016. By applying panel ARDL technique, it analyzes how different aspects of openness to international trade, along with other economic policy variables, influence economic growth in these countries, the variable considered on the research paper are the following: GDP per capital, openness rate, investment index, HC (expenditure on education), FDI, FD(Financial Development), Exchange rate. The results indicate that both commercial and financial openness contribute positively to economic growth.

II– Methods and Materials:

II.1 Variable Selection:

We have used annual data of nine petroleum countries from North Africa and Middle East (Algeria, Bahrain, Iran, Kuwait, Libya, Qatar, Emirates Arabe United, United Kingdom of Saoudi Arabia and Oman) for the period between 2000 and 2020, see table N 1 for the used variables in this study.

Table 1: Identification of Variables and Source of Data

Variable	Code	Source
Economic Growth	*Eco*	World Bank
Trade Freedom	*FT*	World Bank
Foreign direct investment	*FDI*	World Bank
Human development indicator	*HDI*	World Bank
Import of goods & services	*M3*	World Bank
Export of goods & services	*EXP*	World Bank
Money supply	*MS*	World Bank

Source : Prepared By Researchers

The descriptive statistics of variables is as follow:

Table 2: **Descriptive Statistics**

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Eco	189	3.653	9.67	-50.339	86.827
FT	189	70.866	16.146	0	90
FDI	189	1.968	2.494	-2.76	15.751
HDI	189	.788	.058	.649	.92
M3	189	-5.909	33.166	-140.689	123.273
EXP	189	5.977	27.773	-80.275	218.095
MS	189	58.416	28.779	0	197.588

Source : STATA.17 OUTPUTS

II.2 Correlation Test :

The correlation matrix measures the strength of association or link between two or more variables and the direction of their relationship , the Correlation Coefficient is measured on a scale that varies from -1 to 1.

When the value of one variable increases as the value of the other increases , the correlation is positive . When the value of one variable decreases as the value of increases , the correlation is negative .

When the value of correlation coefficient is close to 0, the correlation is weak, the zero value of correlation coefficient means complete absence of corelation between the vlariable.

The correlation matrix helps to understand the relationships between variables and determine the multiplicity of possible correlation. The materix of correlation below indicates existence of strong correlations between the variables of this study.

Table 3: Correlations Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Eco	1.000						
(2) FT	0.210	1.000					
(3) FDI	0.163	0.179	1.000				
(4) HDI	-0.003	0.577	0.211	1.000			
(5) M3	0.109	-0.018	0.050	-0.195	1.000		
(6) EXP	0.721	0.314	0.032	0.064	-0.101	1.000	
(7) MS	-0.196	-0.103	-0.168	-0.011	-0.056	0.014	1.000

Source : STATA.17 OUTPUTS

II.3 Model Estimate :

In order to study the impact of foreign trade openness on the economic growth of the petroleum countires of North Africa and the Middle East spanning from 2000 to 2020, we have estimated the following model :

$$Eco_{i,t} = \beta_0 + \beta_1 FT_{i,t} + \beta_2 FDI_{i,t} + \beta_3 HDI_{i,t} + \beta_4 M3_{i,t} + \beta_5 EXP_{i,t} + \beta_6 MS_{i,t} + \varepsilon_{i,t}$$

The estimation results of the of the three basic models of panel data are as follows:

Table 4: Descriptive variables statistics

	(Poold) Eco	(Fixed) Eco	(Random) Eco
FT	-.034	-.042	-.034
	(.037)	(.04)	(.037)
FDI	.435**	.342*	.435**
	(.188)	(.195)	(.188)
HDI	-1.961	-10.177	-1.961
	(10.111)	(14.267)	(10.111)
M3	.048***	.089***	.048***
	(.014)	(.018)	(.014)
EXP	.263***	.259***	.263***
	(.017)	(.018)	(.017)
MS	-.062***	-.079***	-.062***
	(.016)	(.018)	(.016)
_cons	9.072	17.588	9.072
	(6.722)	(10.939)	(6.722)
Observations	189	189	189
Within R^2	.z	.653	.641

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

II.4 Models Comparison

Table 5: Models Comparison

Test	Trade-offs	calculated value	probability	Decision
Ficher	Pooled/Fixed	3.75	0.0004	**Fixed**
Breusch and pagan	Pooled/Random	0.00	1.0000	**Pooled**
Husman	Fixed/Random	308.75	0.0000	**Fixed**

We have used Fisher's Test results from the estimation of the Panel Model for Constant effects for comparison between the Panel Aggregate Model and the Panel model for constant effects. P- value of test (F) significance is 0.000 which is less than 0.05, therefore, Panel Model for Constant Effects shall be selected.

To compare between the Random Effects Model and the Panel Aggregate Model, we have used results of the Breusch and Pagan LM test to determine the statistical value significance of the Chi-square It is equal to 1.000, which is greater than the 0.05; therefore, the Panel Aggregate Model is the best Model.

To Compare the Random Effects Model and the Fixed Effects Model we have used the Hausman Test results:
The above table shows the outcome of the Hausman Test, P-value is less than 0.05; Then, the rejection of the Null Hypothesis which states that Random Effects Model is the appropriate one, and acceptance of the Alternative Hypothesis which states that Fixed Effects Model is the appropriate Model.
Therefore, the Fixed Effects Model is the best model for analysis. The results of diagnostic tests for e Fixed Effects Model are as follows:

II.5 Diagnostic tests for Fixed Effects Model

Table 6 for Fixed Effects Model

Test	Test nomination	Value	probability
Cross-section correlation	CD Test Pesaran	0.357	0.7208
Heterogeneity of disparity	Wald for groupwise heteroskedasticity	1815.26	0.0000
Self correlation	HR-Born & Breitung	0.26	0.793

Source : Prepared by Researchers Based on Stata.17 Outputs

We have Pesaran Test for Cross Sectional dependence in Panal data (Pesaran, 2004) , Null Hypothesis (H0) of this test states , that here is no cross correlation between the Panal Data.
With reference to the above results , the test statistic is 0.357 with 0.7208 probability value, as the probability value of the test is greater than the significance level of 0.05, we accept the Null Hypothesis which states that there is no cross-sectional correlation in the panel data.
Relying on the results of this test, Panel techniques should be used taking into account sectional correlation. We have used the modified Wald for Groupwise Heteroskedasticity test which is based

on the Null Hypothesis test (H0) given that the variation of the Random Error Limit is homogeneous (constant) in Cross Sectional Panel Data.

As the probability value of this test is 0.0000. which is below the significance level of 0.05, we reject the Null Hypothesis ;therefore , there is a problem of heterogeneity in panel data. Based on the results of this test, Panel techniques that takes into account heterogeneity in panel data shall be used.

We have conducted HR-Born & Breitung as a post assessment of serial correlation test in Panel Data (Born & Breitung, 2016). The Null hypothesis (H0) of for this test states that there is no first-class serial correlation.

As our results show that the statistic of this test is 0.26 and probability value is 0.793 which is greater than the Significance level of 0.05, we accept the Null Hypothesis, which indicates that there is no first-class serial correlation in the panel data.

II.6 FGLS *Estimation Model (Feasible Generalized Least Squares*) :

We will estimate the FGLS model (Feasible Generalized Least Squares in a Cross Sectional Time Series) that takes into account the problem of heterogeneity.

The finddings are shown in the following table:

Table 7 : FGLS Panel Estimation Model Heterogeneous with Sectional Correlation

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Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic with cross-sectional correlation
Correlation:   common AR(1) coefficient for all panels  (0.3558)

Estimated covariances      =         45          Number of obs      =         189
Estimated autocorrelations =          1          Number of groups   =           9
Estimated coefficients     =          7          Time periods       =          21
                                                 Wald chi2(6)       =      366.85
                                                 Prob > chi2        =      0.0000
```

Eco	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
FDI	.2539359	.1458913	1.74	0.082	-.0320059	.5398776
HDI	-2.094272	6.111991	-0.34	0.732	-14.07355	9.885009
M3	.0713676	.0133598	5.34	0.000	.0451829	.0975522
EXP	.2934784	.0167374	17.53	0.000	.2606737	.3262832
MS	-.0406908	.0113723	-3.58	0.000	-.0629801	-.0184015
FT	-.0675322	.0279093	-2.42	0.016	-.1222334	-.012831
_cons	10.60747	4.019347	2.64	0.008	2.729693	18.48524

Source : STATA.17 OUTPUTS

An FGLS (feasible generalized least squares) model was estimated for the heterogeneous panel, and a cross-sectional correlation (Bai et al., 2020). All independent variables in the model are statistically significant and correlate positively with the dependent variable.

III- Results and discussion :

Through the study's output, the independent variables positively affect the independent variable, which is consistent with economic theories, so that the actions of the petroleum states of North Africa and the Middle East are supportive of economic growth. This positive relationship can be explained by the positive role played by governments in attracting FDI with incentives to establish partnership projects especially in oil and gas sector, Increasing attention to of the human development factor and considering that as a key of wealth accumulation, oil exports represent the largest proportion of the trade balance, imports of manufactured and semi- manufactured products

intented to satisfy the individual's needs and consumer preferences are almost total, It is imperative to pay attention to the productive field, the ability to offer money is a good financial sign to support domestic investment to boost national production which will replace imports, boost as well exports out of oil & gas, and preserve trade balances and foreign exchange reserves.

IV- Conclusion:

Developing countries are constantly confronted with issues related to trade and growth performance because of consumer preferences for goods and services and the role that governments play to achieve welfare goals and that is the result of increased trade through globalization and a highly integrated global economy and this may lead to trade deficit , with concerns that this would result in a continuing high trade deficit that would increase the external debt ranking and that empirical literature in this area shows mixed results of the impact of trade liberalization on economic growth.

This study examined using the FGLS model of trade liberalization on economic growth in short listed North African and Middle East petroleum countries for the period 2000-2020 using World Bank data for development, The result shows that trade liberalization boosts economic growth, the study has relied on the economic growth as dependent variable and the free trade as an independent variable and other variables of FDI, Human Development Index, Export Index, Import Index and Money Supply Index.

We conclude that,given to technological differences enjoyed by developed countries, ", requires the states under this study to maintain trade barriers and to maintain partial trade liberalization to preserve domestic industries from collapse by strong foreign competition, With the promotion of exports outside the oil and gas sector, especially in agriculture and labour-intensive production sectors on the basis of comparative advantages ,and the development of the production sector based on comparative advantages enhances growth opportunities and leads to long-term commercial and economic prosperity.

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