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# Trade Openness, Institutions and Economic Growth in MENA Region, Cross-Country Evidence over the Period 1994-2018

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**Abstract :**

This research paper aimed to examine the influence of openness on economic growth represented by the GDP per capita in the MENA region over 1994-2018. The descriptive study is interested in analyzing per capita real GDP growth rate, openness, and institutions globally and focused on comparing the MENA region's situation with other geographical regions. Our results for the descriptive study show that the per capita growth rate in the world reached 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%. Simultaneously, the region attends a very poor level of institutions quality (-0.26) compared to the sample mean (0.10), even the six measures of the institutional quality developed by Kaufmann, Kraay and Mastruzzi all negative and much smaller than the sample mean for each indicator.

To test the openness-growth relationship, we use the neoclassical growth model of Mankiw, Romer and Weil (1992), augmented by openness and institutions indicators. The empirical results supported the descriptive study because the variables' estimated coefficients of openness and institutions are positive and statistically significant.

**Keywords:** *Growth, Openness, Institutions, Cross-sectional models, MENA Region.*

**Jel Classification Codes :** ***C21 ; F10 ; O43 ; O53 ; O57.***

**الملخص**:

هدفت هذه الورقة البحثية إلى دراسة تأثير الانفتاح على النمو الاقتصادي الذي يمثله الناتج المحلي الإجمالي للفرد في منطقة الشرق الأوسط وشمال إفريقيا خلال الفترة 1994-2018. تهتم الدراسة الوصفية بتحليل معدل نمو الناتج المحلي الإجمالي الحقيقي للفرد، الانفتاح، والمؤسسات على مستوى العالم، وتركز على مقارنة وضع منطقة الشرق الأوسط وشمال إفريقيا مع المناطق الجغرافية الأخرى. أظهرت نتائج الدراسة الوصفية أن معدل نمو نصيب الفرد في العالم بلغ0.80%بينما في منطقة الشرق الأوسط وشمال إفريقيا كان يقترب من متوسط العينة (0.79%)، في حين بلغ متوسط مؤشر الانفتاح 79.63% في العالم، حيث كان في منطقة الشرق الأوسط وشمال إفريقيا 90.77%.في الوقت نفسه، تشهد المنطقة مستوى ضعيفًا جدًا من النوعية المؤسساتية (-0.26) مقارنة بمتوسط العينة (0.10)، حتى المقاييس الستة لنوعية المؤسسات التي طورها كل من Kaufmann, Kraay and Mastruzzi كلها كانت سلبية وأصغر بكثير من متوسط العينة بالنسبة كل مؤشر.لاختبار علاقة الانفتاح بالنمو، استخدمنا نموذج النمو النيوكلاسيكي ل Mankiw, Romer and Weil (1992)، المدعم بمقاييس الانفتاح والمؤسسات، حيث دعمت النتائج التطبيقية نتائج الدراسة الوصفية لأن معاملات المتغيرات المقدرة للانفتاح والمؤسسات إيجابية وذات دلالة إحصائية.

**الكلمات المفتاح**: نمو، انفتاح، مؤسسات، نماذج البيانات المقطعية، منطقة الشرق الاوسط وشمال افريقيا.

**تصنيف JEL** ***C21 ; F10 ; O43 ; O53 ; O57***.:

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## 1. Introduction

The openness-growth relationship considered as an old issue in economics, which probably goes back to Adam Smith. Foreign trade theories always have tried to understand and explain the countries' gains from trade between them through specialization in production and trade openness, Since then, numerous empirical studies have been conducted to test whether trade openness will promote the economics of countries or not, and views differ in many cases. There are conflicting views about the advantages of countries from the trade liberalization. The first views, trade liberalization advocates confirm a positive relationship between liberalization trade (ie: openness) and economic growth (in most studies, it is represented by the Gross Domestic Product GDP), and this received a large turnout from economic thinkers. The second views show that many economists adopted the protectionist views, and became dominant over a small empirical academic investigation group.

We thought it would be better before present the literature concerning the openness-growth relationship, give some definitions of "trade liberalization" or "openness".

(Sachs and Warner 1995a, p.24) say «"an open economy as one in which none of the five conditions applies[1]"». Some other researchers have defined it as the flows of goods, services, and capital, without all restrictions and obstacles, represented in customs taxes and quantitative, administrative, and technical restrictions. (Pritchett, 1996, P.309) simply defines openness «"as an economy's trade intensity"». Furthermore, (Kyrre Stenses 2006) considered that the barriers imposed by governments on international trade are among the most important determinants of countries' openness. In addition, (Harrison, 1996 p. 420) defined openness as «"the concept of openness, applied to trade policy, could be synonymous with the idea of neutrality"», Where neutrality means here that the incentives are neutral. While, (Yanikkaya 2003) indicated that openness definition has changed with time. The definition of openness has recently become «"which is a trading system in which all trade distortions are eliminated, has become similar to the concept of "free trade"» (Yanikkaya, 2003, p. 60). Since different openness measures have different impacts and are differently linked to economic growth, it was important to understand the concept of openness.

This research based on the hypothesis that the greater trade openness promotes economic growth and that quality institutions and governance are an important factor in enhancing productivity and is a factor that affects economic performance.

This research paper aimed to investigate the influence of openness on growth in the MENA region over 1994-2018. The descriptive study is interested in analyzing the performance of per capita real GDP growth, openness to trade and institutions in the world, and focused on the benchmarking of the MENA region's position with other geographical regions. To test the openness-growth relationship, we use the neoclassical growth model of Mankiw, Romer and weil (1992), augmented by openness and institutional quality measures.

The next sections of this paper are set up as follows. The second section documents a literature review. The next section contains the econometric method and data. While the fourth section shows empirical evidence on the openness-growth relationship and the last section offers conclusions and suggestions.

## 2. Brief Review of the Literature

In empirical and theoretical literature, numerous researchers, like (Edwards, 1993), (Grossman and Helpman, 1990), (Harrison1996), (Pritchet, 1991, 1996), (Sachs and Warner, 1995a), and (Wacziarg and Welch, 2003) indicated the importance of the openness role to international markets in promoting growth. Furthermore, several papers present largely informative reviews of the most

[1] See Sachs and Warner (1995 a) page 22 for more information about conditions applies until the economy is considered open.

important findings of the empirical growth-openness. Some empirical analyses have benefited from various cross-country regressions growth to test the importance of trade policies. In addition, several researchers used numerous different measures[1] to study the growth-openness relationship. This is because trade openness is difficult to measure. where can considered an index that contains all barriers that deform international trade such as non-tariff barriers and tariff bilateral between two geographic regions or between two countries as a perfect measure of a country's openness. (Anderson and Neary 1992) has developed a "Trade Restriction Index", which contains both tariff and non-tariff barriers. However, it does not include all countries around the world.

The difficulty of measuring trade openness on the one hand, and on the other hand, some measures of openness are available for specific periods, so several empirical researches used available data (whether data on trade volume or trade restrictions) to study the growth-openness relationship. While some other researchers like (Leamer, 1988), (Dollar, 1992) and (Sachs and Warner, 1995) constructed and developed indicators that measure the openness, and it is available for a large sample of countries but at specified times.

In his paper about trade orientation, trade distortions and economic growth, (Edward, 1992) presents cross-sectional evidence of 30 developing countries, from 1970 to 1982, and used two groups of trade policy measures, constructed by (Leamer, 1988). He found that countries where their trade policies are less distorted and more open, headed to grow faster than countries with more restrictive policies.

In his famous paper "Does Trade Cause Growth?" (Jeffrey Frankel and David Romer's, 1999) created an "indisputably exogenous variable" (the amount of trade which is caused by geographical factors). It could be used as an instrument for trade/GDP ratios in growth regression. When dealt with the predicted trade share, the findings show that the trade ratio factor's coefficient remains statistically significant in these growth regressions.

In addition, (Berg and Krueger, 2003), think of a number of mechanisms through which growth could be influenced by resources allocation[2]. There are numerous determinants of poverty reduction and growth where trade policy is one of these determinants, promoting growth.

The main findings of (Sachs and Warner, 1995a) and (Warner, 2003) explained how import restrictions could depress growth by growing the capital cost, and at the same time reducing the investment, especially by influence the investment incentives. Moreover, (Wacziarg and Welch, 2003) found an augmentation of growth rates by an average annual of 1.5 percentage points was for the countries that liberalized their trade compared with the situation before liberalization. The increase after the liberalization in the investment rates was between 1.5 and 2 percentage points, which confirms the previous results that the liberalization is working to stimulate growth by influencing physical capital accumulation.

A particularly influential paper in the literature is "Institutions, trade, and growth" that published by (Dollar, Aart Kraay's, 2003) in the Journal of Monetary Economics; they found that the good quality of institutions has an important role in growth, especially in the long run. While the high level of trade greatly influences growth in the short term, furthermore, good growth records, trade, and institutions go together.

(Yanikkaya, 2003) reexamined the growth -openness relationship (growth is represented by per capita income growth) by using cross-country growth regressions for 120 countries over 1970-1997, in this study, he used two sets of openness measures. The first set of openness measures is trade volumes, while the second is trade barriers. Regarding trade volumes, his result consistent with the others empirical studies. This means trade promotes growth. Despite that majority of empirical

[1] For example, trade volume and trade barriers. To know more about trade measures see, Edwards (1998), Sachs and Warner (1995), Yanikkaya (2003).
[2] See Berg and Krueger (2003) page 6.

studies found a negative relation between trade restrictions and growth (different from theoretical), he proved the opposite, which this is consistent with the theory, especially of developing countries.

In addition, with using panel data approach during the period 1980-2008 for South Asia economics, (Rizavi et al, 2010) examined the relationship between trade and growth in three countries in the South Asia region (India, Bangladesh and Pakistan). They found an important role for openness on growth record in these regions. Therefore, previous studies support the idea of openness (openness promotes growth), as the more open the country the faster it grows.

In the recent past, (Rodriguez, 2007) discussed the applied studies of (Dollar and Kraay, 2002), (Wacziarg and Welch, 2003) and (Warner, 2003), where he debated and explained that these studies was unable to find a relation between openness indicators and growth. Furthermore, in his empirical study over 1990-2003 for 141 countries around the world, his results did not support the idea of the supporters of liberation, and he found that countries with an open trade system not better than the countries with the less open system over this period (in terms of growth performance). Moreover, the worst performance economies were the countries that tried an important attempt and made considerable efforts to liberalize their trade regimes, especially like Mongolia and Ukraine.

## 3. Econometric Method and Data

Our research aims to examine the influence of both openness and institutions on growth, thus it was appropriate to use the neoclassical growth model of Mankiw, Romer and weil (1992). It is considered as an extended model that includes measures of institutional quality and a measure of openness. Where equation 1 below is used in cross- section models, where one observation is taken for each country, and this observation is usually the average of the study period (or Logarithm of the series mean). , As for the estimation method, the Ordinary Least Squares is often used. The mathematical formula can be written as shown in equation 1(Durlauf et al, 2005).

$$\gamma_i = \beta \log y_{i,0} + \psi X_i + \pi Z_i + \varepsilon_i \qquad (1)$$

Where: $\log y_{i,0}$ denotes the initial per capita income (in our growth regressions represented by the natural logarithm of per capita real GDP in 1994). $Xi$ Contains a constant,$\log(n_i + g + \delta)$, $\log s_{K,i}$ and $\log s_{H,i}$ .Therefore, they represent respectively by effective capital depreciation, the physical capital[1] and human capital[2]. Where represents the set of variables contained in $\log y_{i,0}$ and Xi represents the determinants of growth proposed by Sthe Solow's model. While the variables contained in $Zi$ represent the control variables, which appear in the different applied studies, in our growth regressions, we use the openness[3] and institutions indicators[4].

Equation (1) represents the baseline for much of growth econometrics[5], and Because of the frequent use of equation 1 by Barro, it is called Barro's regressions (see Barro, 1991). Concerning the estimation of equation (1) with OLS method, it would be more appropriate to assume the absence of endogeneity problem, otherwise, if the endogeneity problem is exist; it is appropriate to use the Instrumental Variables Method.

For our analysis, we build a sample from three (3) databases, our most important dataset is the World Development Indicators, and most of the variables had calculated using the data available on this database.

The second dataset used in this study is the database that offer six indications of the institutions' quality and is known as Worldwide Governance Indicators(WGI database). These, these indicators

[1] Physical capital here is gross fixed capital formation (% of GDP).
[2] Human capital is gross secondary school enrolment in 1994.
[3] Openness is the share of trade to GDP.
[4] Institutions index is an overall index calculated as a simple average of the six indicators in (Kaufmann et al, 2019). (See Table 5 in the appendix for more information about data and how to calculate it)
[5] See Durlauf, Steven N., Johnson, Paul A., and Temple, Jonathan R.W, chapter 8, page 580.

are: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. The six aggregate indicators are based on over 30 underlying data sources[1].

The last one is the Penn World Table dataset developed by Feenstra (University of California) and Inklaar and Timmer (University of Groningen) in version 9.1. It contains data of 48 indicators over 1950 to 2017 from 182 countries.

The intersection of these three databases gives a sample from 97 countries over the period 1994-2018. The country's sample used in this research is 115 countries, that are presented in the Appendix(Table 4). However, in each model (growth regression) we used less than 115 countries, i.e. 97 countries[2], depending on data availability. GDP per capita growth rate (in a constant prices-2011 base year- and PPP terms) is the dependent variable taken from WDI database.

There are two sets of independent variables. The first is the state variable, which includes includes the variables that we use as the initial levels, represented in both income indicator (initial level of real GDP) and human capital indicator, in addition investment indicator and population growth. The second set is the control variables, which include openness and institution indicators.

We also added regional dummies for the Middle East and North Africa(MENA); and another dummy variable for the Organization for Economic Co-operation and Development(OECD). Details about variables definitions and sources are in the appendix (Table 5).

## 4. Results and discussion

This section discussed the empirical results concerning the openness-growth relationship, starting with the general analysis of the world's performance in terms of growth and openness, and giving special focus on the MENA region's performance compared to other geographical regions, by using descriptive statistical tools. Then we explain the estimated results for growth regressions and assess their conformity with the stylized facts.

### 4.1 Stylized facts

*Table 1: Per Capita Real GDP Growth, Openness to Trade and Institutions in the World (Classification by Income Groups and Geographic Regions):*

| Group or Region | Number of Countries | GROWTH9418 (%) | OPEN (%) | INST |
|---|---|---|---|---|
| Low income | 18 | 0.44 | 56.40 | -0.74 |
| Middle income | 58 | 0.90 | 81.47 | -0.36 |
| High income | 39 | 0.83 | 89.64 | 1.18 |
| EAP | 12 | 1.41 | 84.53 | 0.27 |
| ECA | 39 | 0.70 | 92.37 | 0.69 |
| **MENA** | **8** | **0.79** | **90.77** | **-0.26** |
| NAM | 2 | 0.57 | 45.65 | 1.46 |
| SUBS | 29 | 0.54 | 73.84 | -0.54 |
| SASIA | 5 | 1.48 | 43.46 | -0.64 |
| LAC | 20 | 0.89 | 72.17 | -0.02 |
| **Sample** | **115** | **0.80** | **79.63** | **0.10** |

*Source: Calculations by authors using data described in Appendix (Table5).*

[1] For more information, see (Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, 2010). "The Worldwide Governance Indicators: A Summary of Methodology, Data and Analytical Issues".

[2] We used 115 countries in this study; Where the World Bank continuously provides an important set of statistical data for all countries of the world. According to his 2019 report, 115 countries used in the study can be classified as follows: 18 countries ranked as low income, 58 as middle-income, and 39 are high-income. These countries used in this study can also classified into geographical regions, for that we have, 12 countries from East Asia and Pacific(EAP). 39 from Europe and Central Asia(ECA). 9 from Middle East and North Africa(MENA). 2 from North America(NAM); 29 from Sub-Saharan Africa(SUBS); 5 from South Asia(SASIA). In addition, 20 countries from Latin America and the Caribbean region(LAC).

Table 1 indicates the case of the real GDP per capita growth rate, openness and institutions. The values obtained reflect the existence of positive correlations between openness and growth, and institutions and growth.

Economic growth in the world seems to have been close to 0.80, the share of international trade is equivalent to 79.63%, while the performance of institutions is acceptable and positive, about 0.10.

*Table 2: Governance Indicators in the World (Classification by Income Groups and Geographic Regions):*

| Group or Region | Number of Countries | CCOR | GEFF | PAV | REGQ | RLAW | VACC |
|---|---|---|---|---|---|---|---|
| Low income | 18 | -0.73 | -0.85 | -0.71 | -0.69 | -0.77 | -0.67 |
| Middle income | 58 | -0.46 | -0.30 | -0.43 | -0.23 | -0.44 | -0.33 |
| High income | 39 | 1.29 | 1.29 | 0.88 | 1.21 | 1.27 | 1.17 |
| EAP | 12 | 0.27 | 0.48 | 0.13 | 0.35 | 0.32 | 0.06 |
| ECA | 39 | 0.65 | 0.78 | 0.45 | 0.83 | 0.70 | 0.71 |
| **MENA** | **8** | **-0.24** | **-0.12** | **-0.42** | **-0.13** | **-0.12** | **-0.54** |
| NAM | 2 | 1.73 | 1.70 | 0.78 | 1.57 | 1.67 | 1.33 |
| SUBS | 29 | -0.55 | -0.62 | -0.44 | -0.54 | -0.60 | -0.51 |
| SASIA | 5 | -0.67 | -0.46 | -1.38 | -0.52 | -0.43 | -0.35 |
| LAC | 20 | -0.03 | -0.04 | -0.06 | 0.01 | -0.22 | 0.21 |
| **Sample** | **115** | **0.09** | **0.15** | **-0.03** | **0.18** | **0.08** | **0.12** |

Source: Calculations by authors using data described in Appendix (Table5).

Notes: **CCOR**: Control of Corruption; **GEFF**: Government Effectiveness; **PAV**: Political Stability; **REGQ**: Regulatory Quality; **RLAW**: Rule of Law; **VACC**: Voice and Accountability.

The six measures of governance given by Kaufmann et al. (WGI 2019) that construct the institutional quality index (INST), show an acceptable pattern during the period 1996-2018 (CCOR=0.09; GEFF=0.15; REGQ=0.18; RLAW=0.08; and VACC=0.12), except the PAV=-0.03, see Table.2.

These values support the assumption that openness (trade) and institutions raise income and growth and answer the next questions: does openness promote growth? Do openness and institutions go together when they affect economic performance, especially economic growth? Thus, openness through trade liberalization promotes reducing the cost of capital, which helps attract, encourage, and increase the incentive to invest and institutional quality.

Table 1 shows that the middle-income economies have a good growth record compared to high-income economies. This does not negate the previous findings of the literature. Although the real GDP per capita growth rate in Wealthy countries (high-income) has been weak (0.83) but has a good performance in international trade and institutional quality. Thus, it can be said that the size of economies of rich countries and their rapid convergence in earlier periods towards their equilibrium levels, in the long run, push the current level of growth down, while they maintained a good pace in terms of trade (89.64%) and institutions (1.18).

Now we analyze the performance of the MENA region compared to other geographical regions. We see it as superior to the ECA; LAC; SUBS in terms of per capita real GDP growth (MENA=0.79; ECA=0.70; SUBS=0.54), also in the share of international trade (MENA=88.55%; EAP=84.53%; SUBS=73.84%; LAC=72.17%). On the other hand, it appears that the ECA region acts better than the MENA in openness and institutional quality issues.

The weak performance of the MENA region in terms of growth can be explained by the poor quality of institutional structure: **CCOR** (-0.24), **GEFF** (-0.12), **PAV** (-0.42), **REGQ** (-0.13), **RLAW** (-0.12), **VACC** (-0.54), it is clear that these measures are the reason. Return to reality, we find that the period (1994-2018) has coincide with periods of instability and violence in the MENA region, like the political events and social and economic instability in Algeria, Egypt and Tunisia.

## 4.2 Discussion of the cross-country results

*Table 3: Estimated Regression Equations:*

*(Dependant variable: Growth rate of real per capita GDP, 1994-2018)*

| Eq / Vble | (1) OLS | (2) OLS | (3) OLS | (4) OLS | (5) OLS | (6) OLS | (7) OLS |
|---|---|---|---|---|---|---|---|
| **Constant** | -0.0038 | -0.0017 | -0.0070 | -0.0078 | 0.0035 | 0.0027 | 0.0029 |
| | (0.0078) | (0.0077) | (0.0078) | (0.0079) | (0.0090) | (0.0093) | (0.0094) |
| | [0.6268] | [0.8211] | [0.3739] | [0.3291] | [0.7009] | [0.7658] | [0.7572] |
| **LRPCGDP 94** | -0.0065 | -0.0094 | -0.0095 | -0.0097 | -0.0122 | -0.0122 | -0.0121 |
| | (0.0012) | (0.0017) | (0.0017) | (0.0017) | (0.0020) | (0.0020) | (0.0021) |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| **LINV** | 0.0311 | 0.0278 | 0.0247 | 0.0250 | 0.0237 | 0.0239 | 0.0237 |
| | (0.0053) | (0.0054) | (0.0054) | (0.0055) | (0.0053) | (0.0054) | (0.0054) |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0001] |
| **POPG** | -0.5899 | -0.3868 | -0.4226 | -0.3993 | -0.3703 | -0.3588 | -0.3799 |
| | (0.1305) | (0.1559) | (0.1523) | (0.1565) | (0.1512) | (0.1549) | (0.1636) |
| | [0.0000] | [0.0149] | [0.0067] | [0.0124] | [0.0163] | [0.0229] | [0.0226] |
| **LHC94** | - | 0.0072 | 0.0064 | 0.0068 | 0.0072 | 0.0074 | 0.0071 |
| | | (0.0289) | (0.0031) | (0.0032) | (0.0031) | (0.0032) | (0.0033) |
| | | [0.0032] | [0.0456] | [0.0374] | [0.0241] | [0.0230] | [0.0342] |
| **OPEN** | - | - | 0.0062 | 0.0062 | 0.0057 | 0.0057 | 0.0059 |
| | | | (0.0024) | (0.0025) | (0.0024) | (0.0024) | (0.0025) |
| | | | [0.0140] | [0.0135] | [0.0217] | [0.0215] | [0.0208] |
| **INST** | - | - | - | - | 0.0017 | 0.0017 | 0.0018 |
| | | | | | (0.0008) | (0.0008) | (0.0008) |
| | | | | | [0.0329] | [0.0407] | [0.0367] |
| DUMMENA | - | - | - | -0.0013 | - | -0.0007 | -0.0006 |
| | | | | (0.0019) | | (0.0019) | (0.0019) |
| | | | | [0.4968] | | [0.7055] | [0.7488] |
| DUMOECD | - | - | - | - | - | - | -0.0005 |
| | | | | | | | (0.0014) |
| | | | | | | | [0.6846] |
| **N** | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| $\overline{R}^2$ | 0.3752 | 0.4006 | 0.4331 | 0.4298 | 0.4552 | 0.4500 | 0.4446 |
| **F** | 20.2237 | 17.0400 | 15.6719 | 13.0607 | 14.3728 | 12.2228 | 10.6087 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| **$NR^2$** | 29.0470 | 28.4129 | 35.5199 | 37.8674 | 42.9341 | 45.5329 | 48.7357 |
| | [0.0006] | [0.0125] | [0.0175] | [0.0623] | [0.0266] | [0.0719] | [0.1619] |

*Source: estimate by authors using data described in Appendix (Table 5).*

**Notes:** Values between parentheses "**(_)**" under the estimated coefficients are standard errors. While, these between brackets "**[_]**" are P values corresponding to t-statistic. **N** is the size of sample; $\overline{R}^2$ is the adjusted R-squared. **F** is the Fischer-statistic. **$NR^2$** represents White heteroskedasticity test. Whereas those below are P-values. Estimation method is "OLS: Ordinary Least Squares Method".

The regression results shows up in Table 3. Eq (1) is the simple Solow model or "exogenous growth model".

Eq (2) is the simple Mankiw, Romer and Weil model "or endogenous growth model". Eq (3) is the MRW model augmented by the openness indicator ((sum of (export + import) to GDP). We add a regional dummy for the MENA region in the regression equation (4). Furthermore, we control the openness-growth relationship with the institution's variable in Eq (5). In addition, in Eq (6), we add the regional dummy for the MENA region to equation (5). The last equation Eq (7) contains all variables of the study adding to these geographical dummies for MENA, and the OECD group.

Although the Solow variables could be important in many respects, we will not analyze their individual effects on per capita GDP growth because these variables have been used here as conditioning variables. However, the results indicate that in this sample, physical accumulation ie (LINV), has been an important determinant of growth, as has been the human capital accumulation

(LHC94), and population growth (as a proxy for labor force), (POPG). All Solow variables are significant at a 5% significance level and appear with the theoretically predicted signs.

Another important result is the existence of convergence (conditional convergence); therefore, countries with a low initial income level tend to grow more rapidly than countries with a high initial income level. We note that the initial level of the income coefficient (LRPCGDP94) in all growth regressions are negative and has a statistical significance (significant at all levels of significance (10%, 5%, 1%)), and this is what the neoclassical growth model assumes,

The openness variable (OPEN) enters into the growth equation (ie eq (3) to eq (7)) as an average for the period 1994-2018. The estimated coefficient in all growth regressions of the openness variable is positive and has a statistical significance (significant at 5% in all growth-openness regressions). These results are compatible with previous literature and applied studies that agree with the idea that openness supports growth, Therefore are consistent with (Edward, 1992), (Sachs and Warner, 1995a), (Yanikkaya, 2003), (Wacziarg and Welch, 2003).

Insert a dummy variable for the MENA region in regression (4) was useless, because we did not get results that reflect the region's possition. Thus, the MENA dummy is not significant at usual critical levels. Eq (5) shows up the positive impact of institutions on economic growth, 0.0017 (se=0.0008), and is statistically significant. Hence, there is a strong econometrics evidence that institution's quality support the good performance of economic growth.

Eq (7) contains all variables related to this work, including some geographical dummies such as DUMMENA, and another dummy variable for the OECD group. According to the empirical results, the model has no Heteroskedasticity problem, $NR^2$=59.34 (Pval=0.1619) this problem was present in some other regressions, especially in eq (1). Return to the coefficients estimated values; we note that the positive impact of openness to growth has not disappeared (positive and statistically significant). The estimated coefficient on institutions, 0.0018 (se=0.0367) is positive, so the hypothesis that institutions promote growth is correct.

## 5. Conclusion

Countries with high growth rates often enjoy great openness to international trade, which facilitates the international exchange of goods and services and ideas and Production techniques. More specifically, thought that trade is promote the efficient allocation of resources, facilitates the transmission of knowledge, and encourages technological progress.

In this research paper, we have re-investigated the empirical evidence on the openness- growth relationship over 1994-2018 for 115 countries worldwide. The descriptive study is interested in analyzing the performance of per capita real GDP growth, openness to trade and institutions in the world, and focused on the benchmarking of the MENA region's position with other geographical regions. The study relied on the neoclassical growth model of Mankiw, Romer and weil (1992), augmented by openness and institutional quality measures, to test the openness-growth relationship. The major findings of study revealed that trade openness and institutions have a significant positive influence on economic growth because the variables' estimated coefficients are positive and has a statistical significance, including the main variables in this study (openness and institutions variables).

Based on findings of this paper, we have form the subsequent suggestions:

Openness allows for the lifting of domestic imports of goods and services that contain modern technologies, and learning by doing allows the country to know technological progress, and therefore its production becomes more efficient and productivity increases. Furthermore, countries with large trade volume have the potential to grow faster. This is what the majority of studies has proved, (Yanikkaya, 2003) provides forceful evidence of the positive Trade barriers-Growth relationship, especially of developing countries (consistent with theoretical studies). So should reconsidering the trade policies followed in the MENA region by focusing on the productive sectors that add real economic values to the economy.

The quality of institutions is an important factor in enhancing productivity and is a factor that affects economic performance by affecting the corruption level and burdens and the benefit from

them (Vaal and Ebben, 2011). Therefore, the growth economic can be encouraged in the MENA region by improving the poor quality institutions and governance, and that by improving the performance of the six indicators (earlier mentioned).

In terms of academic research, it might be interesting to study and analyze the relation openness-growth by dividing the sample countries according to the income level, and studying the growth-openness relationship as the income level changes, and using different measures of trade openness (measures for trade volume and measures for trade barriers). Furthermore, applying more accuracy econometric methods such as the Panel Data and GMM, to deal with the heterogeneity problem.

**Referrals and references:**

Books.

*Steven N, Durlauf. Paul A, Johnson,* and *Jonathan R. W. Temple* (2005), Growth Econometrics, *Chapter 8 in Handbook of Economic Growth*, Volume 1A, Edited by Philippe Aghion and Steven N. Durlauf, PP. 556-677, Elsevier B.V.

*Leamer, Edward E,* (1988), Measures of openness, *Chapter 6 in: Robert E, Baldwin, ed, Trade policy issues and empirical analysis*, University of Chicago.

Journal article.

*Albert de Vall and Wouter, Ebben,* (2011), Instituntions and the Relation between Corruption and Economic growth, *Review of Development Economic,* Vol, 15, issue 1, 99.108-123.

*Andrew, Berg and Anne, Krueger,* (2003), Trade, Growth and Poverty: A Selective Survey, *International Monetary Fund,* WP/03/30, 2003.

*Andrew, M. Warner,* (2003), Once more into the breach: Economic reform and global integration. Reproduced: Center for Global Development, Washington DC.

*Ann, Harrison,* (1996), Openness and Growth : A Time Series, Cross-country Analysis for Developing Countries, *Journal of Development Economics*, Vol. 48, PP. 419-447, Elsevier Science B.V.

*Barro, Robert J,* (1991), Economic Growth in a Cross Section of Countries, *the Quarterly Journal of Economics*, Vol .106, No .2, PP. 407-443, the MIT Press.

*David, Dollar, and Aart Kraay* (2002), Trade, growth, and poverty. *Economic Journal* Vol 114, Issue493: F22-F49.

*David, Dollar, and Aart Kraay,* (2003), Institutions, trade, and growth, *Journal of Monetary Economics*, vol. 50, issue1, 133-162.

*David, Dollar,* (1992). Outward-oriented developing economies really do grow more rapidly: Evidence from 95 LDCs, 1976-85, *Economic Development and Cultural Change* 40 (3): 523-544.

*Feenstra, Robert C., Robert Inklaar.* and *Marcel P. Timmer* (2015), "The Next Generation of the Penn World Table" *American Economic Review*, 105(10), 3150-3182.

*Francisco, Rodriguez.* (2007), Openness and Growth: What Have We Learned? Economic and Social Affairs, UN/DESA *Working Paper* No .51, United Nation/Department of Economic and Social Affairs, New York, USA.

*Gene M. Grossman.,* and *Elhanan, Helpman,* (1990), Trade, Knowledge Spillovers and Growth" NBER Working Papers Series, *Working Paper* No .3485, Cambridge, MA.

*Halit, Yanikkaya,* (2003), Trade Openness and Economic Growth: A Cross-country Empirical Investigation, *Journal of Development Economics*, Vol. 72, PP. 57-89, Elsevier Science B.V.

*James E, Anderson, and J. peter Neary,* (1992), A New Approach to Evaluating Trade Policy, *WP* 1022, Vol. 3.

*Jeffrey, A. Frankel.,* and *David, Romer*, (1999), Does Trade Cause Growth? , *The American Economic Review,* Vol .89, No.3, PP .379-399.

*Jeffrey, D, Sachs,* and *Andrew, Warner* (1995). Economic reform and the process of global integration. *Brookings Papers on Economic Activity* 1995 (1): 1-118.

Kyrre Stensnes (2006) "Trade Openness and Economic Growth, Do institutions matter?"Norsk Utenrikspolitisk Institutt No.702-2006.

*N. Gregory, Mankiw., David Romer, and David N. Weil,* (1992), A Contribution to the Empirics of Economic Growth, *the Quarterly Journal of Economics*, Vol. 107, No. 2, PP. 407-437, the MIT press.

*Pritchet, Lant,* (1991), Measuring Outward-Orientation in LDXs: can it be done ? *World Bank Working Paper Series*, 566.

Pritchett, Lant, (1996). Measuring outward orientation in LDCs: Can it be done?, Journal of Development Economics, Elsevier, vol. 49(2), pp 307-335.

*Rizvi, Sayyid, S, Muhammad Khalid K, S Haider Mustaf,* (2010), Openness and Growth in South Asia A Research Journal of South Asian Studies, Vol. 25, No. 2, pp.419-428

*Romain, Wacziarg,* and *Karen, H. Welch* (2003). Trade liberalization and growth: New evidence. *NBER Working Paper* 10152, National Bureau of Economic Research, Cambridge, MA.

*Sebastian, Edwards,* (1992), Trade orientation, distortions and growth in developing countries, *Journal of Development Economics*, 39, 31– 57.

*Sebastian, Edwards,* (1993), Openness, Trade Liberalization, and Growth in Developing Countries, *Journal of Economic Literature*, Vol.31, Issue 3, PP. 1358-1393, American Economic Association.

*Sebastian, Edwards,* (1998), Openness, productivity and growth: what do we really know? *Economic Journal* 108, pp 383– 398.

## Appendix

*Table 4: List of the Study Sample Countries:*

| | | | |
|---|---|---|---|
| -Albania. | -Dominican. | -Macedonia. | -Russian. |
| -Algeria. | -Ecuador. | -Madagascar. | -Rwanda. |
| -Angola. | -Egypt. | -Malawi. | -Senegal. |
| -Armenia | -El Salvador. | -Malaysia. | -Seychelles. |
| -Australia. | -Fiji. | -Mali. | -Sierra Leone. |
| -Austria. | -Finland. | -Malta. | -Slovak Rep. |
| -Bahamas, The. | -France. | -Mauritania. | -slovenia. |
| -Bangladesh. | -The Gambia | -Mauritius. | -South Africa. |
| -Barbados. | -Georgia. | -Mexico. | -Spain. |
| -Belgium. | -Germany. | -Moldova. | -Sri Lanka. |
| -Belize. | -Ghana. | -Mongolia. | -Suriname. |
| -Botswana. | -Greece. | -Morocco. | -Swaziland. |
| -Bulgaria. | -Guatemala. | -Mozambique. | -Sweden. |
| -Burkina Faso. | -Guinea. | -Namibia. | -Switzerland. |
| -Burundi. | -Hungary. | -Nepal. | -Tajikistan. |
| -Cameron. | -Iceland. | -Netherlands. | -Thailand. |
| -Canada. | -India. | -New Zealand. | -Togo. |
| -Central African Rep | -Indonesia. | -Nicaragua. | -Trinidad and Tobago. |
| -chad. | -Ireland. | -Niger. | -Tunisia. |
| -Chile. | -Italy. | -Nigeria. | -Turkey. |
| -China. | -Japan. | -Norway. | -Uganda. |
| -Colombia. | -Jordan. | -Pakistan. | -Ukraine. |
| -Congo,Rep. | -Kazakhstan. | -Panama. | -United Kingdom. |
| -Costa Rica. | -Korea, Rep. | -Paraguay. | -United State. |
| -Cuba. | -Kyrgyz Rep. | -Peru. | -Uruguay. |
| -Cyprus. | -Latvia. | -Philippines. | -Venezuela. |
| -Czech Republic. | -lithuania. | -Poland. | -Vietnam. |
| -Denmark. | -Lebanon. | -Portugal. | -Zimbabwe. |
| -Djibouti. | -Luxembourg. | -Romania. | |

*Table 5: Variables Definition and Data Sources:*

| **Variable** | Definition | **Source** |
|---|---|---|

| | | |
|---|---|---|
| **GROWTH** | Average growth rate of real GDP per capita during the period (1994-2018). it is measured by the purchasing power parity (PPP), and international constant prices (2011 base year). | **WDI2019** |
| **LRPCGDP94** | The initial per capita income, represented by the natural logarithm of per capita GDP in 1994. | **WDI2019** |
| **LHC94** | Initial level of human capital, Represented by the Natural logarithm of the gross secondary school enrolment in 1994. | **WDI2019** |
| **POPG** | Population growth rate calculated as in average over the period 1994-2017. Is calculated in the same way as GROWTH. | **PWT9.1** |
| **LINV** | The ratio Gross fixed capital formation to GDP. We calculated The natural logarithm of the average period 1994-2018. | **WDI2019** |
| **OPEN** | The mean of the share of trade to GDP over the period 1994-2018.Trade openness is the ratio of total exports and imports of goods and services to GDP. | **WDI2019** |
| **INTS** | The Governance Index that we calculated as an average of the six indicators in Kaufmann et al (2019) over the period 1996-2018. | **WGI 2019** |
| **CCOR** | Control of corruption -Average period 1996-2018- | **WGI 2019** |
| **GEFF** | Government effectiveness -Average period 1996-2018- | **WGI 2019** |
| **PSAV** | Political stability and absence of violence -Average period 1996-2018- | **WGI 2019** |
| **REGQ** | Regulatory quality is measured -Average period 1996-2018- | **WGI 2019** |
| **RLAW** | Rule of law -Average period 1996-2018- | **WGI 2019** |
| **VACC** | Voice and accountability -Average period 1996-2018- | **WGI 2019** |
| **DUMECA** | Regional dummy Middle East and North Africa. | **-** |
| **DUMOECD** | Regional dummy for the Organization for Economic Co-operation and Development. | - |