

Institutional Quality and Economic Growth (An Empirical Analysis on MENA Region)

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Abstract

This research aims to investigate the influence of institutional quality on Economic growth in MENA region. The sample covers 23 MENA region countries for the period 1996-2018. Governance indicators are used as a proxy for institutional quality. Results suggest that the model adopted by Abou-Ali and M. Abdelfattah (2013), in which they use the Resource Curse Hypothesis model and the Environmental Kuznets Curve model simultaneously while taking into consideration the institutional quality, is best fitted to the data, so the research apply the methods of testing that used panel data approach of causality, and fixed and random effect model. Furthermore, findings of the research indicated a positive and significant effect of institutional quality on economic growth in high and middle-income countries in MENA region, so policymakers In MENA countries should reinforce the quality of their institutions by adopting good practice of governance and regulations. As the study prove that the proper rule of law enhances the business environment and hence improves foreign direct investment and help in promoting economic growth.

Keywords: institutional quality, Governance indicators, economic growth, MENA region. Mixed effect model.

JEL Classifications: O11, O43, O57, E02

1. Introduction

Recent years have seen a remarkable and exciting revival of interest in the empirical analysis of how a broad set of institutions affects economic growth. It has been argued that institutions and institutional mechanisms for development provide the —missing link that can explain differences in growth rates and development paths across developing and developed countries as well as the difficulties encountered in the transition process of the former socialist countries (Jütting,2003). The slow growth performances in many developing countries, especially Middle East and North African (MENA) countries, have been disappointing over the last decade, Institutions are enough to explain the missing link between economic growth rates and development paths in both developed and developing countries (Jutting ,2003).Since the second half of the 1980's, growth and development studies have started to shed the light on the importance of improving institutions of governance on economic growth. (Emar2016).This research reviews the evidence on the impact of institutions on growth in the MENA region. So the researcher aims to empirically examine the impact of institutions on economic growth in MENA region during (1996-2018) using mixed effects model, highlighting those, institutions affecting economic growth rate the most, and The Middle East and North Africa is very rich in having human capital, natural resources and entrepreneurial endowments; however, it is characterized by the existence of low growth rates, high levels of unemployment and general underdevelopment. (Global Competitiveness report,2012). The region is under studied and needs much empirical work specially during the past decade. Accordingly, this research give much

attention and focused on explaining the region, mainly; trying to describe its classifications, growth status-within the region itself and in comparison with other regions worldwide- in addition to presenting growth determinants.

Researcher poses the following questions: What is the impact of institutions on economic growth in the MENA region? Which institutional quality variables would have the largest effect on economic growth and promote it further?

2. Institutions definitions and measures of institutional quality

2.1. Institutions definitions

There are different views of what is considered proper definition of institutions, several researchers such as Menard (1990) and Charles and BjÖrn (1997) consider organization as institution. They regard institutions as firms, universities, state agencies and markets .Another group of scholars have adopted sociological meaning of institutions as things that pattern behavior, such as routines, norms, morals and property rights. Veblen who is considered as the initiator of the word “Neoclassical economics” claimed that the behavior is built on the concept of habits. He argues that institutions work as the rules that are embedded in habits and behavior. However, this doesn’t mean that behavior and habit are the same. (James,1892; Veblen,1899; Dewey,1922; Joas ,1993, 1996; Kilpinen ,2000). However, North (1990) introduced several definitions of institutions that are more comprehensive than neoclassicists. He defined institutions as the rules of the game in society; also, they are the humanly devised constraints that help in shaping the human interaction. They consist of formal institutions and informal constraints. Formal constraints (rules, laws, constitutions) while informal constraints (norms of behavior,

convention, and self-imposed codes of conduct). Acemoglu, Johnson, and Robinson (2003) provided another definition of institutions; they defined institutions as the mechanisms through which social choices are implemented. Greif (2006b) defines an institution as “a system of social factors that conjointly generates a regularity of behavior”. —by “social factors,” he means, “man-made, nonphysical factors that are exogenous to each person they influence,” including “rules, beliefs, norms, and organizations.” (Alesina, Alberto, and Paola, 2015).

2.2. Measures of institutional quality

Some of the most commonly used measures of institutional quality are, The governance indicators of the World Bank, The polity IV measures, Ibrahim Index of African Governance, and Bertelsmann Transformation Index (BTI).

2.2.1 -The Governance Indicators of the World Bank: The Worldwide Governance Indicators report on six broad dimensions of governance for over 200 countries over the period 1996-2018

Voice and Accountability: measure the extent to which the ability of a country’s citizens to be engaged in selecting their governments as well as freedom of association and expression

Political Stability and Absence of Violence: capture the perceptions of the likelihood of the destabilization of a government or the overthrow that is caused by unconstitutional or violent means, including politically-motivated violence and terrorism.

Government Effectiveness: tackles the quality of public services, the quality of the civil service and the degree to which government is independent of political pressures as well as policy formulation quality and its implementation, and the extent to which the government is credible and committed to such policies.

Regulatory Quality: tackles the likelihood of the government ability to formulate and implement sound policies and regulations that help in improving private sector development.

Rule of Law: captures perceptions of the likelihood of crime and violence besides capturing the confidence of agents in abide by the rules of the society specifically; the contract enforcement quality, property rights and the courts.

Control of Corruption: explains the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

There are two ways to report the six aggregate indicators: an estimate, ranging from approximately -2.5 to 2.5, and a percentile rank terms from 0 to 100. Higher values correspond to better outcome.

2.2.2 -The polity IV measures

Marshall (2009) developed the polity IV index. Data is available on the integrated network for social conflict research (INSCR) for 167 countries, covering the period (1800-2018). The score constitutes three components:

Executive recruitment that contains three indices: regulation of chief executive recruitment, competitiveness of executive recruitment, and openness of executive recruitment.

Independence of executive authority: contains only one index, which is executive constraints that measure decision rules.

Political competition and this contains two indices; regulation of participation, and competitiveness of participation. (Baten, 2017).

The polity score is computed by subtracting the Autocracy score from the Democracy score; the resulting unified polity scale ranges from -10 (strongly autocratic) to +10 (strongly democratic). Polity 5 index is an updated underdevelopment version of Polity IV index; it suggests that scores can be categorized into three categories, autocracies if the score ranges from (-10 to -6), Anocracies if it was from (-5 to +5 ; -66; -77 and -88), Democracies (+5 to +10).

2.2.3 Ibrahim Index of African Governance

(IIAG) published in 2007 by Mo Ibrahim Foundation and aims to enhance and measure the quality of governance in 54 African countries. It assesses the policy outcomes in African countries. Data is available for the latest 10 years.

The updated version of the index is more comprehensive and involves new sub-categories; Anti-Corruption, Sustainable environment and Inclusion and Equity.

IIAG results are reported in the form of ranks, scores and trend. This index contains four different categories, ; Security and Rule of Law, Participation Rights and Inclusion, Foundation of Economic Opportunity and Human Development. These 4 categories contain 16 sub-categories that results into having 79 indicators. And finally transform those indicators to a common scale, scores range from 0 to 100; where 100 is the best score and zero is the worst one. (IIAG, 2020).

2.2.4 Bertelsmann Transformation Index (BTI)

The transformation index constitutes two dimensions; Economic and political. Data is reported for every two years. Moreover, it focuses on analyzing the processes of transformation towards a market economy and democracy. It reports 49 individual scores covering 17 criteria for 137 countries to regional and intraregional calibration. That results in reporting 2 indexes; the Status Index-contains the political and the economic transformation dimension-and the governance index that aims to

assess the political leadership that is crucial for the transformation process. Scores range from 1 (the lowest value) to 10 (the highest value).

3. Literature Review

3.1 Theoretical Evidence

Many historical evidence shows that the countries' economic growth has been associated with the establishment of a sound institutional framework. The current interest in the role of institutions derives from the inability of the production function approach of Solow (1956), Romer (1986, 1990) and followers to figure out the "deeper" determinants of economic growth. Three possible explanations determine differences in income and growth rates across countries, The most common explanation in the literature takes the production function approach based on Solow (1956), The second approach which is established by North (1990); sheds the light on the role of institutions in explaining differences in income and growth between countries. A third type of explanation, supported by Sachs (2003), points to the importance of geography and location as causes of economic growth. The introduction of the concept of institutions goes back to Douglass North in the late 1970s. He develops a new way of understanding of the process by which economies change. He argues that economic performance is determined largely by the kind and quality of institutions that support markets. North (1990) argues that political and economic institutions are crucial determinants for the long-term potential growth for any economy. Economic institutions are more likely to exist in countries with high openness to trade, investment and financial inflows, The institutional approach to growth is based on the idea that both the availability and productivity of resources are influenced by the institutional and policy environment. In order to promote economic growth, governments must not only support secure property rights and freedom of exchange, they must also make

credible commitment that policies will be maintained in the future. Nunnenkamp (2005) gives three possible explanations for the disappointing growth performance in the Arab world. namely: an insufficient reform of governments, counterproductive policy recipes and institutional deficiencies that prevail in various developing countries.

3.2 Empirical Evidence

Numerous researchers have quantitatively analyzed the role of institutions in economic development. From the point of view of analysis, one of the major contributions of the recent literature on institutional determinants of national long-run macro-economic performance is the development of explicit models and the testing of the hypotheses generated.

These empirical studies can be classified into three groups, first group prove that the causality between economic growth and institutional quality was exist (Kaufmann,2002), using sample from Latin America and Caribbean region during (2000-2001), (Chang,2002) using sample from 55 countries during (1972-1995). (Avram, Gro ,sanu, Răchi ,san and Gavriletea,2018) , using sample from World wide countries,(2006–2015), (Wilson,2016) using sample from Chinese provincial level data covering 20 years of the post-Mao reform era.

The second group of studies find a one way relationship, Weber (1968), Acemoglu and Robinson (2001), Rodrik, Subramaniam and Trebbi (2004), -Dixit, 2004; Glaeser & Shleifer, 2003), (Grindle, 2004, 2007; Rodrik, 2007), Nawaz, Iqbal and Kahan (2014), Stojanovi´c, Ateljevi´c, Stevi,2016. Third group of studies found that Good governance (institutions) has no effect on economic growth like (Brinkerhof and Goldsmith,2005).

Therefore, this research aims to empirically examine the impact of institutions quality on economic growth in MENA region, as this region is under studied specially in the last decade, and due to the heterogeneity of the region, the research used mixed effects model, which did not use in previous studies that estimated the effect of institutional quality on economic growth.

MENA region outlook

The Middle East and North Africa is very rich in having human capital, natural resources and entrepreneurial endowments; however, it is characterized by the existence of low growth rates, high levels of unemployment and general underdevelopment. (Global Competitiveness report,2012), Economically, MENA should not be treated as a homogeneous group, even though many dependencies and complementarities inhibit a clear separation. In this section, many classifications are provided for the MENA region. Income Classification Low income economies: Syria and Yamen, Lower-middle income economies: Djibouti, Egypt, Morocco, Tunisia, Gaza, Upper-middle income economies: Algeria, Iran, Iraq, Jordan, Lebanon and Libya, and High income: Bahrain, Israel, Kuwait, Malta, Oman, Qatar, Saudi Arabia and United Arab of Emirates.

According to the World Bank MENA countries can be classified into three different groups, which are, **RPLA** (resource-poor, labor-abundant economies): Djibouti, Egypt, Jordan, Lebanon, Morocco, Tunisia, West Bank and Gaza, **RRLA** (resource-rich, labor-abundant economies): Algeria, Iran, Iraq, Syria, Yemen, and **RRLI** (resource-rich, labor-importing countries): Bahrain, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the UAE.

another classification also exists which combines two classifications (oil and non-oil exporters, resource classification) together, by dividing the countries into five subgroups: Oil rich

labor importing states (Bahrain, Kuwait, Oman, Libya, the United Arab Emirates, Qatar, and Saudi Arabia) , Oil rich labor abundant states (Algeria, Iran, Iraq, Syria), Oil poor labor abundant (Egypt, Morocco), Oil poor limited natural resource states (Israel, Tunisia, West Bank and Gaza, Jordan, Lebanon) , and Natural resource poor states (Sudan, Yemen) .

4.1. Economic Growth in MENA region:

It has been argued that the economic structure of the MENA region –from the late 1970s till early of 1990s- can be characterized by an Import Substituting Industrialization regime, in which it includes strict quantitative controls on international trade, overvalued exchange rates, and severe rationing in foreign exchange and credit markets. In the early of 1970, the oil prices increased dramatically resulting into an improvement in the growth and development indicators in the MENA region. The sudden increase in investment and growth rates in the oil-exporting countries spread to the rest of the world through increasing the worker remittances, and capital flows. Financial savings were accumulated led to an expansion in the euro-dollar market through the recycling of petro-dollars. (Dahi,2008). So the main driven of growth in MENA region has been the fluctuations in the international oil prices.

On the contrary, there has been a high volatility of GDP growth since 1970: the average volatility of GDP growth in the region as a whole has been twice that of developing country average and twice more volatile in the oil-rich economies than the rest of the region (Abed and Davoodi, 2003; Hirata, Kim and Kose, 2004). This volatility was due to the high dependence on oil revenues. In addition to GDP growth volatility, the fiscal policy in the oil rich countries is also volatile. On the other hand, the oil-poor labor abundant countries are also oil price sensitive because a large part of their economies depends on worker remittances, in addition to development aid and tourism revenues from the oil-rich labor poor countries.

Table 1. Economic Growth in MENA Regions Countries, 1996-2019 (Percent per Year, Period Averages)

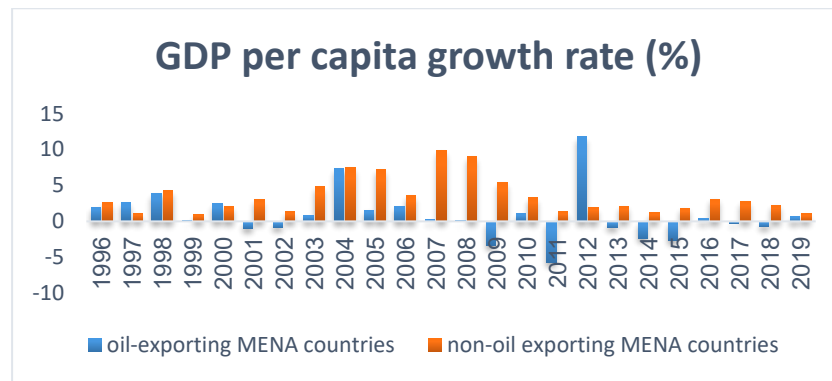
Country	1996-2007	2008-2019
Oil-exporting MENA countries' average	4.42	3.60
Algeria	4.09	2.95
Bahrain	4.09	4.28
Iran	3.33	2.8
Iraq	10.16	5.78
Kuwait	5.37	2.04
Libya	3.76	4.07
Oman	2.44	4.34
Qatar	5.25	6.26
Saudi Arabia	4.21	4.3
UAE	5.90	3.77
Yamen	1.32	-0.28
Non-Oil Exporting MENA Average	3.36	2.8
Egypt	4.48	4.19
Jordan	5.10	3.72
Lebanon	2.68	4.31
Morocco	3.88	4.07
Syria	1.27	-4.56
Tunisia	4.81	2.70
West Bank and Gaza	1.16	5.59

Source: World Bank. ,Table is developed by the researcher.

MENA countries vary significantly in their economic performance. Table (1) summarizes the trends of economic growth rate in MENA region during the period 1996-2019, and figure (1) summarizes the trends of per capita growth rate(%) in MENA region during the period 1996-2019, as shown in figure (1), is mainly linked to the global slowdown that result in a depression in oil production and prices; along with the continued political uncertainties in the region. Oil prices declined since

August 2011 when doubts started growing about the recovery in high-income countries. Economic growth in MENA region also experience a large decline in 2017, this is due to large oil production cuts in oil exporting countries. On the other hand, non-oil exporting countries are expected to have an increase in economic growth rates as a result of reforms; that help in building and boosting consumer confidence.

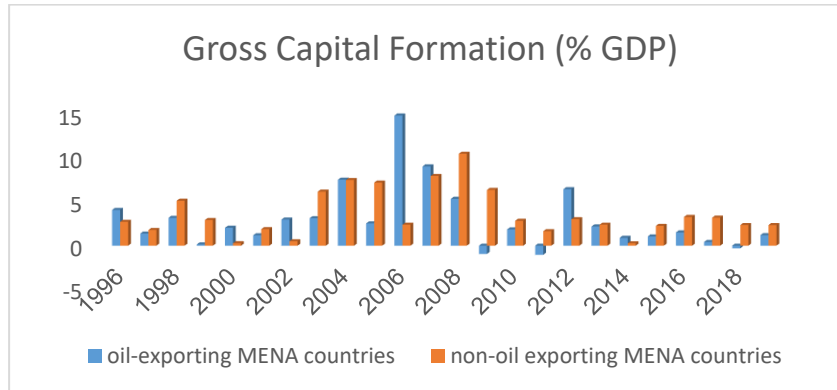
Figure 1 – GDP per capita growth rate in MENA region (%)



Source: World Bank. Graph is developed by the researcher

figure (2) summarized Gross fixed capital formation (% GDP) during the same period. Gross fixed capital formation rates differ across the MENA region for instance in 2006 investment in oil-exporting countries is so high compared to non-exporting countries, reason behind this can be that during that time oil-exporting countries are applying reforms; resulted into pushing its average rate to above 19 percent. (World bank 2003,2011)

Figure 2 – Gross fixed capital formation (% GDP)



Source: World Bank. Note: graph is developed by the researcher

4.2. Institutions in MENA region:

Using World Bank Governance indicator as a measurement of institutional quality in MENA region, we can report that Good governance in MENA region can be characterized and analyzed mainly using two values; inclusiveness and accountability. Governance is inclusive in other words if it gives the channels and mechanisms through which rule of law and protection of property rights are achieved. Along with guaranteeing that government is treating people in the society equally without any discrimination. In addition to providing equal access to services provided by the government equally, The second value is accountability; it constitutes of two main pillars: knowledge and information. Accountability can be internal or external. External is for example when people can select their president.

On the other hand, internal accountability occurs when the government supports public interest, constitutes rules to govern behaviors of different agencies to separate power and provide independent checks and balances. (World bank,2010)

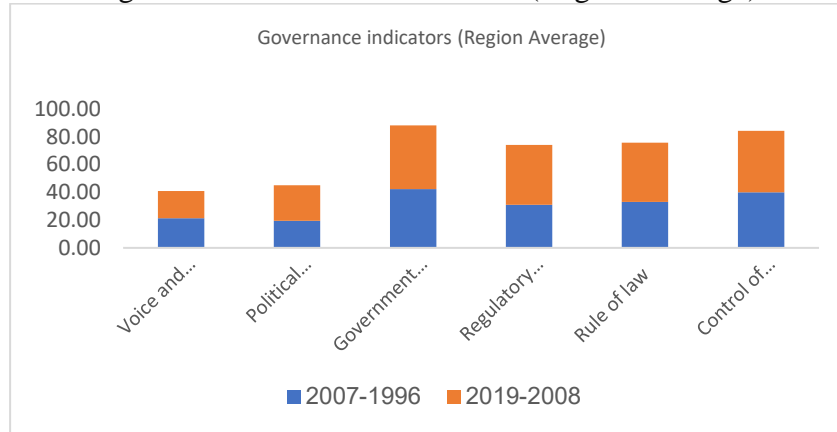
Governance plays a critical role at the sector and topical level. It considers to be a vital part of MENA region's strategy. In

MENA region strategy, good governance has many dimensions, which include political accountability: includes adequate transparency and disclosure of parliamentary votes, Checks and balances: concentration on separation of powers; that includes the independency and effectiveness of judiciary, A robust civil society and media: which considers to be an important part of good governance. Freedom of expression and open media are the key elements along with civil society organizations that monitor private and public agencies.

An effective private sector is needed and includes some mechanisms and agencies that range from business regulations, good public-private dialogue to collective business associations, Effective public sector management: this dimension focuses on results-oriented business administration and safe guards regarding assets, conflict of interest and financial management, and Decentralization and local participation: effective citizen participation helps in enhancing service delivery and better implementing government strategies and policies. (World bank,2014). The quantitative picture reveals a progression in the governance quality in MENA region, which reflects the region's diversity, and thus makes generalizations difficult.

It is obvious from figure (3), the quality of governance in the region increases in the given two periods (1996-2007 and 2008-2019). Unfortunately, when it comes to compare MENA region countries with countries that have similar incomes and characteristics; the MENA region ranks at the bottom on the index of overall governance quality. (World Bank, 2018)

Figure 3 – Governance indicators (Region Average)



Source: World Bank. Graph is developed by the researcher,

Table 2 represents the percentile rank of governance indicators in MENA region countries for the period 1996-2019. For the voice and accountability metric, most of the MENA countries ranked in the 30th percentile or lower and 3 countries ranked in the 20th percentile and lower. For the political stability metric, most of the MENA countries lie in the 40th percentile in 2008-2019 which is considered to be an improvement compared to period 1996- 2007. every country in 22 MENA region countries, one can tell that their performance is not uniform. Countries such as Lebanon, Morocco, Oman, Qatar, Saudi Arabia and United Arab Emirates performed better than the remaining region across all the indicators when comparing the given two periods (1996-2006) and (2007-2017). And this is reflected in their economic growth rates as shown in table 1, those countries experience an improvement in their economic growth rates; reflecting the direct association between governance and economic growth.

Regarding government effectiveness, 5 out of 23 countries ranked above 50th percentile in 1996-2008 while in 2007-2019, 7 nations ranked below 50th percentile. For the regulatory quality

metric, most of the MENA region nations ranked below 30th percentile while in 2008-2019 most of them ranked above 40th percentile.

Table 2- percentile rank of Governance indicators in MENA region countries, 1996-2019

	Voice and accountability		Political stability		Government effectiveness		Regulatory Quality		Rule of law		Control of corruption	
	1996-2007	2008-2019	1996-2007	2008-2019	1996-2007	2008-2019	1996-2007	2008-2019	1996-2007	2008-2019	1996-2007	2008-2019
Algeria	18.9	20.8	9.9	14.1	27.7	35.0	28.7	10.4	23.9	22.7	28.8	31.2
Bahrain	19.6	15.8	11.0	17.2	30.1	50.2	29.6	42.3	25.5	46.8	29.0	45.1
Djibouti	19.7	16.3	11.4	26.3	30.2	30.0	28.7	19.8	25.5	22.1	29.4	30.0
Egypt, Arab Rep.	20.3	16.0	12.4	14.7	32.0	38.5	27.6	20.5	26.6	34.1	30.7	34.7
Ethiopia	20.1	19.7	12.3	14.1	32.7	36.3	25.8	19.8	26.6	33.3	31.3	39.3
Iran, Islamic Rep.	20.7	29.7	12.3	14.7	34.8	35.4	24.5	19.4	27.9	29.8	32.9	29.4
Iraq	20.8	21.5	12.1	12.3	34.8	29.4	23.1	22.3	27.8	19.9	33.3	26.1
Israel	21.3	46.1	12.6	22.6	35.2	70.4	21.5	64.8	27.6	61.2	34.8	64.2
Jordan	21.9	25.5	13.0	33.4	35.5	57.6	19.3	53.9	26.9	53.2	35.1	57.3
Kuwait	21.9	26.6	13.1	46.7	35.6	56.9	17.5	57.7	25.6	56.9	35.2	53.5
Lebanon	21.8	27.9	12.4	25.9	35.3	44.1	14.6	51.2	24.7	40.5	34.1	38.1
Libya	20.8	16.2	12.3	24.2	34.6	36.4	12.8	37.4	23.9	33.4	33.5	35.3
Malta	21.2	12.5	14.4	23.4	38.6	34.8	17.1	36.8	26.3	33.3	36.2	33.8
Morocco	21.3	12.4	14.3	22.8	39.4	34.7	16.7	36.8	26.3	33.3	36.5	33.5
Oman	21.2	22.2	16.8	56.5	43.3	65.0	23.0	68.2	30.5	68.0	39.5	65.9
Qatar	21.5	19.7	17.3	56.6	43.8	71.6	24.5	73.5	31.0	70.9	39.8	72.5
Saudi Arabia	21.2	15.4	21.5	34.8	47.9	66.4	32.1	62.6	35.1	62.5	43.5	65.3
Sudan	21.0	13.9	23.0	22.7	49.5	36.5	35.0	38.6	36.2	38.2	44.3	36.5
Syrian Arab Republic	21.9	11.8	28.1	17.8	53.9	35.8	43.1	38.1	40.8	33.1	49.2	33.4
Tunisia	22.6	10.1	34.7	15.3	58.2	34.3	50.9	36.6	46.8	32.5	54.1	32.4
United Arab Emirates	23.4	18.2	40.2	48.2	62.6	79.2	58.7	76.3	53.3	71.1	59.2	73.8
West Bank and Gaza	23.6	19.7	44.5	15.0	66.3	45.3	66.2	64.8	59.4	49.0	64.1	55.4
Yemen, Rep.	25.1	10.1	46.7	11.3	70.9	34.3	73.8	38.8	64.7	33.8	68.0	31.9

Source: developed by the researcher from WB tables.

Concerning regulatory quality indicator, most of the nations ranked below the 30th percentile in 1996-2007 compared to 2008-2019 where most of the nations ranked above the 50th percentile. Finally for the control of corruption metric most of the MENA countries ranked above 40th percentile in the given two periods.

4. Data and methodologies

5.1. Data

The data used is obtained from the World Bank covering 23 MENA countries. However, due to the unavailability of some data- as some countries do not have enough data for some variables and some years- Therefore, some countries have been removed from the primary database to improve the robustness of the data. Djibouti, Ethiopia, Libya and Yamen are excluded from the analysis due to data unavailability.

The data was divided according to the recent country classification by income level as defined by the World bank as shown in table3, High income: Bahrain, Israel, Kuwait, Malta, Oman, Qatar, Saudi Arabia and United Arab Emirates, Upper Middle income: Algeria, Iran, Iraq, Jordan, Lebanon and Libya, Lower Middle income: Djibouti, Egypt, Morocco, Tunisia and Gaza.

Table 3- income classification

Threshold	GNI/Capita (current US\$)
Low-income	< 996
Lower-middle income	996 - 3,895
Upper-middle income	3,896 - 12,055
High-income	> 12,055

Source: World Bank (2018-2019)

Note: Low-income group are excluded from the analysis due to data unavailability.

5.2. Methodology:

A panel data for the time span 1996-2018 is used to investigate the impact of institutional quality and other determinants of economic growth on economic growth of 23 MENA region countries through mixed effects model. They are a generalization of linear regression allowing for the inclusion of random effects rather other than those associated with the overall error term.

Mixed effect models don't assume independence among observations and there can be a correlated observations within a unit or cluster. In addition, it works for data with no missing values. Moreover, it works for many types of dependent variables such as categorical, ordinal, discrete and of course interval and ratio data.

The following model is estimated by including all the explanatory variables in addition to the governance indicators:

$$\begin{aligned}
 & \text{Economic growth} \\
 & = \beta_0 + \beta_1 \text{Initial level of GDP} \\
 & + \beta_2 \text{Institutional Quality}_{it} \\
 & + \beta_3 \text{Human Capital} \\
 & + \beta_4 \text{Resource intensity index} \\
 & + \beta_5 \text{Foriegn direct investment} \\
 & + \beta_6 \text{Terms of trade} + \beta_7 \text{Regional variables} \\
 & + \varepsilon_{it}
 \end{aligned}$$

This research is based on the theoretical framework developed by North, The current interest in the role of institutions derives from the inability of the production function approach of Solow (1956), Romer (1986, 1990) and followers to figure out the "deeper" determinants of economic growth..

The previous model is adopted by Abou-Ali and M. Abdelfattah (2013), in which they developed an empirical framework following the approach of Costantini and Monni (2008).

- Variable description

Dependent Variable: Growth rate of real GDP and it is used as a proxy for economic growth rate.

Independent Variables:

- *Initial level of GDP*: contains a one year lagged value of real GDP
- *Net barter trade*: as a proxy for terms of trade, is calculated as the percentage ratio of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000.
- *Life expectancy* a proxy for human capital; indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
- *Foreign direct investment*: are the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor.
- Institutional quality variables: 1. Governance indicators 2. Voice and accountability 3. Regulatory quality 4. Political Stability 5. Rule of law 6. Government effectiveness

- Over all governance: is an average of the six governance indicators.

- Dummy variables: Income level (high, higher middle and lower-middle), Oil, and Non-oil exporting countries.

5.3. Hypotheses

Table 4 - hypotheses of the model

	Expected sign
1. Proposition 1: The Effect of Overall Governance on Economic growth	+
2. Proposition 2: The Effect of a one-year Lag real GDP on economic growth	May be + or – *
3. proposition 3: The Effect of FDI on Economic growth	+
4. proposition 4: The Effect of trade:	+
5. proposition 5: The Effect of Human Capital on Economic Growth:	+
6. proposition 6: The Effect of Voice and Accountability on Economic Growth:	+
7. Proposition 7: The Effect of Regulatory Quality on Economic Growth	+
9. Proposition 9: The Effect of Rule of Law on Economic Growth: Proposition 9: The Effect of Rule of Law on Economic Growth:	+
10. Proposition 10: The effect of Political Stability on Economic Growth:	+

These hypotheses are developed based on the introduced literature.

* Some claimed that initial GDP has a positive effect on economic growth such as Blomstrom (1996) while Barro (1997) found a negative impact of initial GDP on economic growth

5. Results

Results of mixed effects model with robust standard errors - as shown in (table 5) - indicate that this model doesn't suffer from heteroscedasticity and serial autocorrelation problems.

The results of the estimated model (table 5) reveal that all macro variables have a positive effect on economic growth. Specifically, the results suggest that FDI, life expectancy, and the existence of terms of trade affects positively economic growth in MENA region at 5%. The estimated coefficient of FDI equals 0.314 significant at the 5% level indicating that a 1 percent increase in the FDI flows leads to a 0.314 percent change in the growth. As its p-value is less than 0.05 and this is consistent with the findings of several previous empirical studies Mahmoud (2015) , Wang (2009) and Xu (2000).

Regarding overall governance, its estimated coefficient equals 1.61 it has a highly positive significant impact on economic growth in MENA region with p-value less than 0.05. An interference for this might be the lack of governance from which the region, in general, suffers compared to the economic achievement therefore we can conclude that governance in MENA countries is a binding constraint, as it was suggested by Lahouij (2016) and Emara and Jhonsa (2014).

Table 5 – Model estimation

Mixed-effects regression		Number of obs = 437					
Group variable: i		Number of groups = 19					
		Obs per group: min = 23					
		avg = 23.0					
		max = 23					
		Wald chi2(8) = 218.64					
		Prob > chi2 = 0.0000					
Log pseudo likelihood = -982.45736		(Std. Err. adjusted for 19 clusters in i)					
<i>GDP growth rate</i>	<i>Coef.</i>	<i>Robust std.error</i>	<i>z</i>	<i>p> z </i>	<i>[95% Conf. Interval]</i>		
<i>Initial GDP</i>	0.3203129	0.0566105	5.66	0.000***	0.2093584	0.4312675	
<i>NBterms</i>	0.0063456	0.0033402	1.90	0.057*	-0.000201	0.0128923	
<i>FDI</i>	0.3140902	0.0952152	3.30	0.001***	0.1274718	0.5007086	
<i>Governance</i>	1.610858	0.3923152	4.11	0.000***	0.8419345	2.379782	
<i>Life expectancy</i>	0.1506655	0.0509836	2.96	0.003***	0.0507395	0.2505914	

<i>Oil</i>	0.9566716	0.5376463	1.78	0.075*	0.0970958	2.010439
<i>High</i>	1.659723	0.6328014	2.62	0.009***	0.4194549	2.899991
<i>Middle</i>	0.6211958	0.4415129	1.41	0.159	0.2441535	1.486545
<i>_Cons</i>	12.86845	3.767906	3.42	0.001***	5.483493	20.25341
<i>Random-effects Parameters</i>	<i>Estimate</i>		<i>Robust std.error</i>		<i>[95% Conf. Interval]</i>	
<i>var(fdi)</i>	0.0414676		0.0436838		0.0052603	0.3268907
<i>var(governance)</i>	0.0191319		0.1535559		2.82e-09	129915.4
<i>var(Residual)</i>	7.683889		1.490026		5.25436	11.23679

Source: Researcher Calculations using STATA output

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Moreover, our results also suggest that the all macroeconomic variables such as one year lagged GDP, life expectancy, and net barter terms are significant at 5%, however for the dummy variables middle income is found to be insignificant. The effect of income dummies in the model help in providing a better picture concerning the performance of MENA region countries of each income group with regard to the relationship between governance and economic growth rate. All income dummies have the same coefficients signs; in which they are positively correlated with economic growth rate and significant except for the middle income group. Also for the oil dummy, it has a positive and significant effect on economic growth rate. The lower part of table 5 shows the estimates of variance components It indicates the random effects parameters –FDI and overall governance- the estimated σ^2 of u equals 7.68.

In mixed models, R-square cannot be estimated directly as in the case of OLS regression. Alternatively, two ways can be used to measure the goodness-of-fit of the suggested model. One way is to compare log Likelihood values of the two models. The first one is the base model which does not include any explanatory variable in which it includes the dependent variable only (GDP growth rate). And the other model includes all the suggested predictors along with the inclusion of the dependent variable.

Goodness-of-fit Log Likelihood:

Results suggest that value of the log likelihood of the suggested model increases compared to the log likelihood value of the base model. So this indicated that suggested model is better.

Table 6 – log likelihood values

Log likelihood values	
Base model with dependent variable only	-1100.8803
Suggested model with all predictors	-982.45736

Source: Researcher Calculations using STATA output

- AIC & BIC:

AIC and BIC are used to estimate the quality of each model relative to the other model and help in the selection of the econometric model. Both of them calculate the relative amount of the lost information in a given information: so the less lost information, the better is the quality of the model. Frank , Sergio , Svetlozar and Bala (2014).

Table 6 – AIC and BIC values

AIC and BIC values

Model	Obs	AIC	BIC
Base model with dependent variable only	418	2205.761	2213.832
Suggested model with all predictors	418	1988.915	2036.782

Source: Researcher Calculations using STATA output

The following table (7) provides a summary on the direction and significance of each index in the governance indicators on economic growth rate in MENA region.

Table 7 – the effect of each index of WGI on economic growth

The effect of each index of WGI on economic growth

Index	Coefficient	P > z	Sign
Voice and Accountability	0.6698	0.016**	+
Political Stability	0.4772	0.007***	+
Government Effectiveness	1.0547	0.009***	+
Rule of law	0.9934	0.022**	+
Regulatory Quality	1.3782	0.000***	+
Control of Corruption	0.9257	0.019**	+

Source: Researcher Calculations using STATA output

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

As shown in table (7), Each indicator in the WGI shows a positive and significant impact on economic growth separately. However, out of the provided six indicators; regulatory quality is the most influential.

6. Conclusion and policy implication:

This research aims to identify the effect of institutional quality on economic growth in MENA region, Results have proved that institutions enhance the economic growth in MENA region, specifically, in the high and middle-income categories for the periods 1996-2019. From the mixed effects model, the results from the analysis are significant and support the theoretical and empirical evidence provided by (North 1990) North (1993), Jutting (2003), and J. Smelser and Swedberg(2005) , Chang (2010) in which governance indicators have an important role in promoting economic growth along with initial level of GDP, net barter terms, life expectancy and FDI.

Out of all the governance indicators, regulatory quality is the most influential. This research has presented the common structural problems in the institutional settings in MENA region. Also, Policies may generate serious instabilities-especially when these policies are designed to liberalize the economy. These dangerous instabilities can occur without the elimination of the previous existing policies

Therefore, MENA countries should reinforce the quality of its institutions by adopting good practice of governance and regulations. In fact, the proper rule of law enhances the business environment and hence improves foreign direct investment and help in promoting economic growth. Results also indicate that other things being equal, dummy variables such as oil exporters and high income countries would be expected to have higher economic growth rates. Our next step in this research is to include more control variables in the MENA regression model and we hope that, by doing this, we can have a better qualitative prediction outcome on the link between governance and growth in this region.

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List of Abbreviations

Abbreviation	Keyword
NIE	New Institutional Economics
OIE	Old Institutional Economics
INSCR	Integrated Network For Social Conflict Research
WGI	Worldwide Governance Indicators
RPLA	Resource-Poor, Labor-Abundant Economies
RRLI	Resource-Rich, Labor-Importing Countries
BTI	Bertlesmann Transformation Index
IIAG	Ibrahim Index of African Governance
IMF	International Monetary Fund
WB	World Bank