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Governance and Growth in MENA Region Evidence from Panel Data Analysis

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Abstract

Middle East and North Africa [MENA] region ranks the least in terms of overall governance quality when compared to countries with similar characteristics such as East Asia, Eastern Europe or Latin America, as well as with other developing countries. This paper attempts to show to what extent MENA countries' governance can be linked to its economic growth and what is the effect on GDP growth from a one point change in the governance measures. Using panel data analysis, this study illuminates the road ahead to policy makers in the sense of which areas of governance should the policy maker concentrate on. Prioritizing the governance reform agenda will set the stage towards concentrating the governance reform efforts where it is most likely to yield the most results in the sense of improved growth. If we take into consideration the fixed effect of unobservable differences in the dependent variable specific to individual countries, dimensions of governance affect growth through different paths. For example, government effectiveness and rule of law matter more for per capita GDP growth. This magnifies the role of government and fiscal policies of MEMA region to stimulate growth. However the excessive practice of rule of law is linked negatively to per capita GDP growth. Regulatory quality and rule of law are of interest to explain the annual GDP growth. A lesser rule of law practice is associated with one point increase in annual GDP growth. While the relationships between governance and growth have been extensively tested for other regions of the world, research is lacking for the MENA region. This paper attempts to fill this gap.

Keywords: Middle East and North Africa [MENA], Governance, Growth, Panel Data.

1. Motivation and Outline

According to the World Bank report, "Better Governance for Development in the Middle East and North Africa" (2003), the Middle East and North Africa [MENA] region ranks the least in terms of overall governance quality when compared to countries with similar characteristics such as East Asia, Eastern Europe or Latin America, as well as with other developing countries. The lack of sound governance limits governments to create more jobs and to provide better social services. Economic growth, consequently, is restrained by slow-moving private investment and public investment is not available to where it is needed the most. Accordingly, MENA suffers from poor growth performance. So, this paper attempts to answer two questions: 1) to what extent can MENA countries' governance be

linked to its economic growth and, 2) what is the effect on GDP growth from a one point change in the governance measures.

To examine these two questions, we conduct panel data analysis to examine the effect of the change in governance variables of interest on the growth. Panel data analysis endows regression analysis with both a spatial and temporal dimension. The spatial dimension pertains to a set of cross-sectional units of countries. The temporal dimension pertains to periodic observations of a set of variables characterizing these cross-sectional units over a particular short time span.

The results of this paper pertains many vital policy implications. This paper sheds light on the relationship between governance and growth. Accordingly, this study illuminates the road ahead to policy makers in the sense of which areas of governance should the policy maker concentrate on. Prioritizing the governance reform agenda will set the stage towards concentrating the governance reform efforts where it is most likely to yield the most results in the sense of improved growth. While the relationships between governance and growth have been extensively tested for other regions of the world, research is lacking for the MENA region. This paper attempts to fill this gap.

The paper is organized as follows: section two covers the literature review of governance and growth, following by section three which demonstrates the data and empirical model used by the study. The empirical results are shown in section four while section five concludes the main conclusions of the study.

2. Literature Review

The assumption of the good governance as an important prerequisite of growth is confirmed by many studies. However, two questions may be provoked: first, what do we mean by good governance, and second, how do we measure good governance? The World Bank (1994) defines good governance as the "manner in which power is exercised in the management of a country's economic and social resources". Further, the IMF in its Interim Committee meeting (1996), defines it as "promoting good governance in all its aspects, including ensuring the rule of law, improving the efficiency and accountability of public sector, and tackling corruption' as the key for economic efficiency and growth of the countries". The UNDP (1997) report observes that the result of good governance is development that "gives priority to poor, advances the cause of women, sustains the environment, and creates needed opportunities for employment and other livelihood"'. Thus, we see that the concept of good governance is many-sided, and covers different elements of the state and the society. Regarding the second question about how to measure good governance, in a pioneering study, Kaufmann et al (1999a, 1999b, 2002) proposed different dimensions of governance measures. They measured good governance in terms of six aggregate indicators corresponding to six basic governance concepts, namely, voice and accountability, political stability and violence, government effectiveness, regulatory burden, rule of law, and corruption control. Their study indicates a strong causal relationship running from good governance to an increasing level of per capita income and other social outcomes.

Good governance is a product of effective public institutions. A country's public institutions enable governments to create more jobs and to provide better social services. A state outfitted with operative governance is a state which creates a constructive environment for capital accumulation and growth. According to Rodrik (2000) the role of public institutes is to: protect private property and contract environment; moderate some business activities; support macroeconomic stability; provide social insurance and protection; and manage social conflict. Under such an environment, the countries initiate their economic policies to sustain economic growth rates and to embark upon a higher standard of living

On a theoretical level, New Institutional Economics (NIE) and the new endogenous theory of growth conjecturably outline the role of institutions to enhance the economic performance in general and particularly growth. The empirical work, mainly in the form of cross-sectional analysis, examines the relation between governance and quality of institutions on one hand and economic growth on the

other. Following the failure of exogenous growth models to explain a stable growth, new models of growth emerged specifying the necessary conditions to guarantee a long run growth, known as endogenous growth. In general, the endogenous growth models try to explain the variation of growth among countries as indicated by the empirical data analysis. Hall and Jones (1999) show that the typical growth variables like the intensity of physical capital and the education level explain slightly the variation in the levels of output per worker through countries. On the empirical level, there is a wide empirical literature connecting the governance and the institutions as a determining factor of growth and development. This literature appears in the form of cross section studies of the growth across countries. The purpose of this approach is to test the hypothesis of a positive correlation between the quality of governance and the growth.

The income per capita or the growth rate is regressed on several governance indicators such as civil freedoms, rules of laws, property rights, political stability, and global indicators of governance. Acemoglu, Johnson and Robinson (2004) showed that the variation of growth between rich and poor countries is mainly due to the difference in the guarantee of the property rights in these countries. Rodrik, Subramanian and Trebbi (2002) confirm the notion that the guarantee of property rights accelerates the growth. Kaufmann, Kraay and Mastruzzi (2004) use an indicator of the rule of laws to show that good governance exerts a positive effect on growth. They find a strong and positive correlation between this indicator and the income level. Mauro (1995) tests three indices made by the International Business (IB); namely, an index of corruption, an index of bureaucratic quality and an index of political stability. Easterly and Levine (2002) use the global index of governance of Kaufmann, Kray, Zoido-Lobation (2002) to show that the governance affects growth positively and significantly.

The empirical literature has also demonstrated that governance has a strong influence on the levels of incomes. These studies confirm a strong, positive and significant correlation between good governance and economic performances. Recent research, however, has questioned the robustness of the linkages to growth. In the very long-term there seems to be a clear correlation (although causality remains in question). But policymakers are concerned with the short to medium-term (the next 5-20 years) where the correlations are weak. Some countries with weak governance have achieved good, and even spectacular, growth. And the feasibility of implementing a full reform agenda is open to doubt. Several studies, including the World Bank report on Low-Income Countries under Stress, have called for increased selectivity and realism in the plans for reform that donors propose. For example, Barro (1991) and Londregan & Poole (1992) found that political instability and violence generate a weak growth. Also, Alesina and Perotti (1996) and Svensson (1998) note a negative effect of political stability on investment.

3. Data and Empirical Model

Our model specification is to estimate the fixed effects (FE) model, which allows us to take into consideration the unobservable differences in the dependent variable specific to individual countries. In this estimation all the intercepts differ across cross section units (countries) by estimating different estimates for each unit. In this model, the estimation is done by subtracting the "within" mean from each of the indicators and then estimates the model. The FE estimation is the most intuitive way to control for unobservable effects specific to individual states in the panel data model. The key assumption of this model is that the state specific effects do not vary over time, residuals are cross section heteroskedastic and that they are contemporaneously uncorrelated with other regressors. Therefore, the empirical model is as follows:

$$y_{it} = \alpha + \beta_1^{'} X_{1it} + \beta_2^{'} X_{2it} + e_{it}; \quad e_{it} \approx (0, \sigma^2)$$

where: X_{1it} is governance variables of interest, X_{2it} is controlling variables related to typical growth model, *i* denotes country index, t denotes time index. We examine the sign, magnitude and significance of $\beta_1^{'}$. For instance, we expect positive signs and high significances. The error term represents the effect of omitted variable that are peculiar to both the individual periods and time periods. We assume

it can be characterized by *iid* random variable with mean zero and constant variance. The subscription i indicates the cross sectional countries which include 20 countries of MENA, while the subscription t indicates the time.

So, the data for governance variables (X_{1it}) is collected from the data set of Kaufmann D., A. Kraay, and M. Mastruzzi, (2008) published on the World Bank's website. Their data set covers nine years which are: 1996, 1998, and 2002 and from 2003 to 2007. These six governance indicators that will be used in our work are as follows:

1. *Control of Corruption (CC):* measuring the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interest;
2. *Government Effectiveness (GE):* measuring the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies;
3. *Political Stability (PS):* measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism;
4. *Rule of Law (RL):* measuring the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence;
5. *Regulatory Quality (RQ):* measuring the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development;
6. *Voice and Accountability (VA):* measuring the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

On the other hand, the following table summarizes the controlling variables (X_{2it}) of typical growth model that were found to be significant in previous studies:

Table 1: Control Variables of Growth Model

Control Variable	***Proxy***	***Related Literature***
• Initial GDP level (GDP90)	$Ln(GDP_{1990})$	Kriechaus (2006), Gyimah-Brempong and Comacho (2006) and Barro (1997)
• Measure of human capital (*HUMCAP*)	secondary school education	Kriechaus (2006), Gyimah-Brempong and Comacho (2006) ,
• Measure of workers health (*HELTH*)	ln(life expectancy)	Kriechaus (2006)
• Average population growth (*POPGRWTH*)	average family size	Kriechaus (2006)
• Government size (*GOV*)	government spending as a percent of GDP	Kriechaus (2006) Barro (1991), Makinw et al (1992), Del Monte and Papagin (2001), Ehrlich and Lui (1999),
• Openness (*TRADE*)	Ratio of exports and imports of good and service as a percent of GDP	Kriechaus (2006) Feder (1983), Bolassa (1978)
• Capital (*CAPFORM*)	Ratio of capital formation as percent of GDP	Gyimah-Brempong and Comacho (2006), Barro 1991, Levine and Renelt (1991), Caselli, Esquivel and Lefort (1996)

The appendix following this paper shows the statistics of governance indices in detail. However, it is worthy to mention in this place some important aggregate statistics of the variable included in this study during the period covered by the study. For example, table (2) shows that the annual growth of GDP averages 4.72% and ranges from -10.08% to 20.84% for the region.

Table 2: Statistics of the Variables of the Study

Variables	Mean	Median	Max	Min	StdDev	Obs.	Cross sections
GDPGRWTH	4.72	4.80	20.84	-10.08	3.28	180	20
GROWTH	2.27	2.51	14.92	-13.84	3.30	180	20
TRADE	90.85	85.51	194.76	29.30	35.09	180	20
CAPFORM	22.99	21.97	50.35	8.79	7.06	180	20
HEALTH	4.27	4.28	4.38	3.92	0.09	180	20
GOV	19.27	17.57	50.35	10.37	6.38	180	20
POPGRWHT	2.25	2.04	6.82	0.51	1.15	180	20
GDP90	23.41	23.27	25.69	20.31	1.32	180	20
HUMCAP	15.42	13.92	44.46	1.36	8.20	180	20
VA	27.54	24.70	92.80	1.90	20.03	180	20
PS	37.64	32.95	98.60	1.90	25.33	180	20
GE	49.41	54.50	88.20	6.60	24.39	180	20
RQ	45.67	49.55	87.30	2.00	25.02	180	20
RL	53.08	55.70	91.90	7.60	21.28	180	20
CC	53.79	56.05	90.30	11.70	22.26	180	20

Per capita GDP growth ranges from -13.84% to 14.92% and averages 2.27%. With regard to governance indices, voice and accountability index averages 27.55% out of 100% and ranges from 1.90% in Libya to 92.80 in Malta. Political stability averages 37.64% and ranges from 1.90% in Algeria to 98.60% in Malta too. Government effectiveness also averages 49.41% and ranges from 6.6% in West Bank and Gaza Strip to 88.20 in Malta. Regulatory Control index ranges from 2.00% in Libya to 87.30% in Malta. Rule of Law also ranges from 7.60% in Yemen to 91.90% in Malta. Finally, the control of corruption index ranges from 11.70% in West Bank and Gaza Strip to 90.30% in Israel. In general, Mata and Israel have higher scores of governance indices compared to other MENA countries.

4. Empirical Results

In this section we demonstrate the coefficient estimates of our empirical model mentioned above. However, we found it is important for the purpose of comparison to start with pooled estimate; which does not take into consideration the unobservable differences in the dependent variable specific to individual countries. Table (3) shows four different model estimates. M(1) and M(2) are for per capita GDP growth as dependent variables while M(3) and M(4) are for GDP annual growth as dependent variable.

Table 3: Pooled Least Squares Estimates

Dependent Variable	Per Capita GDP Growth		GDP Annual Growth	
Independent Variable	**M(1)**	**M(2)**	**M(3)**	**M(4)**
C	-3.72 (-0.37)		-11.18 (-1.03)	
TRADE	0.00 -0.08		-0.01 (-0.93)	
CAPFORM	0.07 (2.58)***	0.12 (5.19)***	0.11 (3.36)***	0.14 (5.45)***
HEALTH	2.58 -0.75		5.22 -1.56	
GOV	-0.17 (-4.79)***	-0.10 (-3.75)***	-0.15 (-5.05)***	-0.10 (-3.18)***
POPGRWHT	-0.89 (-3.24)***	-0.74 (-2.58)***	0.25 (-0.96)	

Table 3: Pooled Least Squares Estimates - continued

GDP_90	-0.10 (-0.40)		-0.30 (-1.34)	
HUMCAP	-0.02 (-0.82)		-0.04 (-2.02)**	
VA	-0.03 (-2.06)**	-0.02 (-2.76)***	-0.03 (-3.05)***	-0.04 (-3.52)***
PS	-0.02 (-1.128)		0.0003 (-0.30)	
GE	-0.01 (-0.31)		0.00 -0.11	
RQ	0.02 -1.32		0.03 (1.68)*	
RL	-0.03 (-1.48)		-0.03 (-1.68)*	
CC	0.06 (2.61)***	0.07 (5.74)***	0.06 (2.78)***	0.08 (6.79)***
R-squared	0.31	0.24	0.29	0.23
Adjusted R-squared	0.26	0.22	0.23	0.22
Cross section Countries	20	20	20	20
Total pool (balanced) observations	180	180	180	180

***, **, and * indicate significance at 1%, 5% and 10% significance levels, respectively. Values in brackets are t-value

Models M(1) and M(3) show the estimated coefficients if all variables of growth and governance are included while M(2) and M(4) shows the estimated coefficients of the variables which indicated as significant in the empirical model. The coefficient test of omitted variables based on likelihood ratio is conducted to confirm that these significant variables are only variables matter in our regression.

If we consider per capita GDP growth as dependent variable, M(2) shows that only capital formation as percentage of GDP, government expenditure as percentage of GDP and population growth are indicated as significant variables among growth determinant variables. The last two variables however, are linked to the per capita GDP growth negatively as expected. The negative sign of government expenditure might indicate that the most of expenditures is not directed to the productive activities that can lead to the growth while a rate of population growth greater than the per capita growth rate may eat up any improvements in growth. The only variables of governance matter in this regression are voice and accountability and control of corruption since they are indicated as highly significant at 1% significance level. Voice and accountability, however, is linked to per capita GDP growth negatively while control of corruption is positively linked to it. It can be concluded from this result that in general, more voice and accountability (which measuring the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media) can be associated with lower per capita GDP growth. On the other hand, more control of corruption (measuring 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 interest) can be associated with high per capita GDP growth. However, a caution should be taken into consideration since this result is related to a pooled cross section specification that does not show the effect of the unobservable differences in the dependent variable specific to individual countries. With regard to the annual growth of GDP as dependent variable, M(4) shows similar results to that shown in M(2). Voice and accountability and control of corruption are the two variables that matter. Voice and accountability is linked negatively also while control of corruption is linked positively to annual growth of GDP.

For panel data estimation, table (4) demonstrates empirical results for fixed effect estimates. M(5) and M(6) models are for per capita GDP growth as dependent variable. M(5) includes all variables of governance and growth determinants while M(6) excludes all insignificant variables. The

coefficient testing is conducted also to confirm that none of omitted variables can improve the quality of the estimates.

As M(6) indicates, the capital formation is linked positively to per capita GDP growth. Health index (measured as natural log of life expectancy in a country), government expenditure as percentage of GDP, and population growth are associated to per capita GDP growth negatively. The negative relationship between the health index and growth can be justified since the longer the life expectancy the more of unproductive sector of population out of employed work force and hence the lower per capita growth. Government expenditures also is linked negatively to the per capita growth if such expenditure is directed to unproductive activities of the economy. This specification shows also that only government effectiveness and rule of law matter for per capita GDP growth. One point increase in per capita GDP growth can be explained by 0.04 point of government effectiveness. This result magnifies the role of government and fiscal policies of MEMA region to stimulate growth. However the excessive practice of rule of law (measuring the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence) is linked negatively to per capita GDP growth. A lesser 0.06 of rule of law can be associated to one point increase in per capita GDP growth.

The last two columns of table (4) display the empirical results for our empirical model where the annual GDP growth is the dependent variable. M(7) includes the estimates of coefficients if all variable of growth determinants and governance indices are included. M(8) however, excludes all insignificant variables and focuses only on the significant ones. As it shown in M(8), still capital formation and government expenditures are the most important determinants of GDP growth. Capital formation as percentage of GDP is linked positively while government expenditure as percentage of GDP is linked negatively for the reason mentioned above. Only regulatory quality (measuring the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development) and rule of law are of interest to explain the annual GDP growth. One point increase in annual GDP growth can be explained by 0.10 point of improvement of regulatory quality while 0.08 lesser rule of law practice is associated with one point increase in annual GDP growth.

Table 4: Fixed Effect Least Squares Estimate

Dependent Variable	**Per Capita GDP Growth**		**GDP Annual Growth**	
Independent Variable	**M(5)**	**M(6)**	**M(7)**	**M(8)**
C	221.78 (1.23)	86.37 (2.39)**	240.09 (1.24)	5.94 (2.4)**
TRADE	0.00 (-0.18)		0.005 (0.45)	
CAPFORM	0.14 (4.15)***	0.15 (3.61)***	0.12 (3.50)***	0.14 (4.01)***
HEALTH	-14.32 (-1.65)*	-18.05 (-2.25)**	-11.60 (-1.43)	
GOV	-0.31 (-3.63)***	-0.35 (-4.75)***	-0.25 (-2.98)***	-0.21 (-3.43)***
POPGRWHT	-1.06 (-2.14)**	-1.16 (-2.4)**	-0.37 (-0.73)	
GDP_90	-6.51 (-0.83)		-7.78 (-0.94)	
HUMCAP	-0.11 (-0.95)		-0.09 (-0.8)	
VA	0.0007 (-0.11)		-0.01 (-0.38)	
PS	0.02 -0.56		0.03 (-0.9)	

Table 4: Fixed Effect Least Squares Estimate - continued

GE	0.04 (1.68)*	0.04 (1.71)**	0.03 (1.12)	
RQ	0.06 -1.40		0.07 (1.68)*	0.09 (2.16)**
RL	-0.09 (-1.99)**	-0.06 (-1.88)**	-0.10 (-2.09)**	-0.08 (-2.74)***
CC	0.0008 -0.07		-0.01 (-0.20)	
R-squared **Adjusted R-squared** **Cross section Countries** **Total pool (balanced) observations:**	0.43 0.30 20 180	0.41 0.31 20 180	0.39 0.26 20 180	0.38 0.28 20 180

***, **, and * indicate significance at 1%, 5% and 10% significance levels, respectively.

Worth mentioning at this point is that in all specifications the human capital policies related to life expectancy and population growth are linked to per capita GDP growth not annual GDP growth and outweigh human capital policies like secondary education. Also, trade as percentage of GDP and initial GDP at 1990 are not significant variables in all specifications of our empirical model.

5. Conclusions

While the relationships between governance and growth have been extensively tested for other regions of the world, research is lacking for the *MENA* region. This paper attempts to fill this gap. This paper attempts to answer two questions: 1) to what extent can governance growth be linked to the economic growth for MENA countries and, 2) what is the effect on GDP growth from a one point change in the governance measures. To examine these two questions, we conduct panel data analysis to examine the effect of the change in governance variables of interest on the growth.

The preliminary investigation of the growth in MENA region shows that the annual growth of GDP averages 4.72% and ranges from -10.08% to 20.84% for the region. Per capita GDP growth ranges from -13.84% to 14.92% and averages 2.27%. With regard to governance indices, voice and accountability index averages 27.55% out of 100% and ranges from 1.90% in Libya to 92.80 in Malta. Political stability averages 37.64% and ranges from 1.90% in Algeria to 98.60% in Malta too. Government effectiveness also averages 49.41% and ranges from 6.6% in West Bank and Gaza Strip to 88.20 in Malta. Regulatory Control index ranges from 2.00% in Libya to 87.30% in Malta. Rule of Law also ranges from 7.60% in Yemen to 91.90% in Malta. Finally, the control of corruption index ranges from 11.70% in West Bank and Gaza Strip to 90.30% in Israel. In general, Mata and Israel have higher scores of governance indices compared to other MENA countries.

For the purpose of comparison, the pooled cross sectional analysis shows that the per capita GDP growth and annual growth of GDP as dependent variables are linked to both voice and accountability and control of corruption. Voice and accountability is linked negatively while control of corruption is linked positively to both per capital GDP growth and annual growth of GDP. If we take into consideration the fixed effect of unobservable differences in the dependent variable specific to individual countries, dimensions of governance affect growth through different paths. Government effectiveness and rule of law matter more for per capita GDP growth. One point increase in per capita GDP growth can be explained by 0.04 point of government effectiveness. This result magnifies the role of government and fiscal policies of MEMA region to stimulate growth. However the excessive practice of rule of law is linked negatively to per capita GDP growth. A lesser 0.06 of rule of law can be associated to one point increase in per capita GDP growth. On the other hand, regulatory quality and rule of law are of interest to explain the annual GDP growth. One point increase in annual GDP growth

can be explained by 0.10 point of improvement of regulatory quality while 0.08 lesser rule of law practice is associated with one point increase in annual GDP growth.

It is noted in all specifications that the human capital policies related to life expectancy and population growth are linked to per capita GDP growth not annual GDP growth and outweigh human capital policies related to secondary education. Also, trade as percentage of GDP and initial GDP at 1990 are not significant variables in all specifications of our empirical model. Capital formation is a vital stimulus for higher growth while the expansion of government expenditures is a disincentive for growth.

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Appendix (1)

Statistics of Corruption Control Index

	Mean	Median	Maximum	Minimum	Std. Dev.
ARE	79.89	81.60	85.40	63.10	6.98
BHR	72.46	73.80	82.00	58.30	6.42
DJI	30.71	31.60	40.10	21.40	6.54
DZA	33.31	33.50	41.10	22.30	6.74
EGY	44.02	42.70	59.70	35.70	7.12
IRN	37.73	37.40	48.10	20.40	7.75
ISR	81.80	83.00	90.30	74.80	4.78
JOR	61.56	62.60	68.40	52.90	5.10
KWT	79.76	81.10	85.00	72.00	4.75
LBN	40.06	40.80	51.00	23.30	8.89
LBY	22.03	21.80	25.70	18.40	2.34
MAR	56.57	54.90	63.60	51.00	4.44
MLT	79.88	82.50	86.90	65.50	7.54
OMN	75.10	74.30	83.00	60.20	6.79
QAT	76.13	78.20	82.10	54.40	8.51
SAU	60.33	59.70	70.90	35.90	10.44
SYR	31.32	32.50	48.50	18.80	9.14
TUN	62.11	61.70	70.40	54.90	5.48
WBG	19.46	16.00	40.80	11.70	8.72
YEM	31.53	30.60	44.70	20.40	6.29
ALL	53.79	57.30	90.30	11.70	1.92

Statistics of Government Effectiveness Index

	Mean	Median	Maximum	Minimum	Std. Dev.
ARE	75.83	76.80	79.10	70.60	3.30
BHR	71.09	72.00	77.70	65.90	4.12
DJI	17.99	15.20	30.80	11.80	6.12
DZA	31.74	36.00	45.50	10.00	11.86
EGY	42.66	39.80	59.70	33.60	7.93
IRN	30.81	31.30	43.60	22.30	7.12
ISR	82.68	83.40	87.20	77.30	3.68
JOR	62.30	63.00	66.40	58.30	2.82
KWT	64.51	65.40	68.70	61.60	2.44
LBN	47.02	46.40	65.90	29.40	10.29
LBY	15.21	14.70	23.70	10.40	4.52
MAR	55.34	55.90	58.80	49.30	2.70
MLT	79.58	82.50	88.20	49.30	11.78
OMN	70.78	69.70	79.60	66.80	3.72
QAT	70.81	72.50	74.90	58.30	5.08
SAU	47.82	47.90	53.10	41.70	4.08
SYR	18.90	14.20	54.00	10.40	13.42
TUN	70.44	70.10	74.40	67.30	2.14
WBG	11.47	10.40	19.40	6.60	4.45
YEM	21.13	21.80	31.80	13.30	6.24
All	49.41	51.90	88.20	6.60	3.44

Statistics of Rule of Law Index

	Mean	Median	Maximum	Minimum	Std. Dev.
ARE	75.12	77.60	80.00	65.70	5.69
BHR	69.34	69.50	78.10	59.00	5.20
DJI	29.92	27.10	47.10	19.00	8.57
DZA	23.80	29.00	31.90	11.40	8.61

EGY	52.86	52.40	56.70	50.50	1.75
IRN	31.18	34.80	42.40	16.20	9.08
ISR	77.04	73.80	87.10	72.40	5.35
JOR	62.50	62.40	64.80	59.50	1.67
KWT	71.59	71.40	74.30	69.50	1.42
LBN	43.92	46.20	49.00	30.00	6.47
LBY	25.97	27.10	40.00	9.50	8.76
MAR	53.92	53.30	58.60	51.00	2.97
MLT	87.19	90.50	91.90	64.30	8.72
OMN	74.41	72.90	80.50	69.00	3.87
QAT	71.04	70.50	80.00	57.10	7.42
SAU	59.83	58.60	65.20	57.10	2.81
SYR	40.49	42.40	46.20	28.60	5.60
TUN	56.41	56.20	61.00	49.50	3.79
WBG	41.93	43.80	54.30	21.90	9.57
YEM	13.02	12.90	18.10	7.60	2.95
All	53.07	54.75	91.90	7.60	2.77

Statistics of Regulatory Control Index

	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**
ARE	72.69	71.80	82.90	64.90	5.33
BHR	75.03	75.60	80.50	65.40	4.77
DJI	24.57	21.00	53.20	13.20	11.52
DZA	23.83	25.40	30.70	15.60	5.66
EGY	38.94	37.10	55.60	33.70	6.84
IRN	7.68	6.80	14.60	3.90	3.20
ISR	80.44	79.50	85.90	75.60	4.07
JOR	61.70	62.10	67.30	57.10	3.31
KWT	58.72	63.90	70.20	38.00	10.78
LBN	45.57	46.30	49.80	38.00	3.70
LBY	7.43	5.40	17.50	2.00	4.60
MAR	49.23	50.20	52.20	42.90	2.79
MLT	84.29	84.90	87.30	79.00	3.01
OMN	65.70	70.70	73.70	47.30	9.54
QAT	61.22	62.00	67.50	54.60	3.83
SAU	47.77	50.20	54.10	29.30	7.80
SYR	14.09	13.20	20.00	8.30	3.85
TUN	56.44	56.60	68.80	51.20	5.27
WBG	15.21	15.60	22.40	6.80	4.45
YEM	22.74	22.40	27.30	17.60	3.60
All	45.67	50.20	87.30	2.00	2.60

Statistics of Voice and Accountability Index

	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**
ARE	26.22	26.00	33.20	19.10	4.34
BHR	24.04	25.50	30.30	13.90	5.66
DJI	22.63	24.00	28.40	15.90	4.46
DZA	18.31	18.30	26.40	9.60	5.79
EGY	18.97	20.20	25.50	11.50	4.76
IRN	14.00	12.50	22.60	8.20	5.08
ISR	68.02	67.80	71.30	64.40	2.50
JOR	32.46	31.70	42.30	25.00	5.63
KWT	37.79	38.50	41.80	33.00	3.02
LBN	34.86	35.90	40.90	26.40	4.55
LBY	3.04	2.40	5.80	1.90	1.48
MAR	33.28	30.80	42.80	28.40	5.50

MLT	88.96	88.50	92.80	86.10	2.02
OMN	25.24	26.90	30.80	19.20	4.26
QAT	29.64	29.30	35.60	21.50	4.11
SAU	7.06	7.20	10.60	4.30	1.94
SYR	6.57	6.70	8.70	4.80	1.21
TUN	21.48	22.10	28.40	13.00	5.40
WBG	18.11	18.30	27.80	10.10	5.64
YEM	20.08	20.20	25.50	15.40	2.98
ALL	27.54	24.75	92.80	1.90	1.53

Statistics of Political Stability Index

	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**
ARE	70.51	72.10	74.50	64.90	3.74
BHR	40.04	37.00	51.90	20.70	10.43
DJI	32.43	33.20	51.00	14.40	11.00
DZA	7.84	4.80	16.80	1.90	5.76
EGY	22.71	21.60	34.10	15.90	5.85
IRN	19.43	17.30	31.70	11.10	7.36
ISR	15.39	13.90	23.60	9.60	5.26
JOR	37.52	37.50	48.60	26.00	7.29
KWT	52.41	50.00	64.90	43.30	7.42
LBN	18.63	19.70	28.40	3.80	9.34
LBY	37.29	38.50	63.90	6.70	19.66
MAR	34.14	34.60	49.50	25.00	7.02
MLT	96.02	95.70	98.60	92.80	2.40
OMN	70.83	71.60	76.90	58.70	5.71
QAT	73.62	76.00	83.70	54.80	8.86
SAU	29.59	27.90	46.60	15.90	8.97
SYR	27.57	25.50	38.00	19.70	6.39
TUN	51.56	51.00	57.20	47.10	3.66
WBG	5.70	6.30	7.20	2.90	1.51
YEM	9.57	9.10	14.40	5.30	2.53
All	37.64	33.90	98.60	1.90	3.99

Appendix (2)
Correlation Matrix of the Variables

	GDPGrwth	Growth	Trade	CapForm	Helth	Gov	PopGrwht	gdp_90	HumCap	VA	PS	GE	RQ	RL	CC
GDPGrwth	1.00														
Growth	0.88	1.00													
Trade	0.11	0.05	1.00												
CapForm	0.18	0.08	-0.08	1.00											
Helth	0.22	0.18	0.31	-0.09	1.00										
Gov	-0.33	-0.37	0.03	-0.03	-0.21	1.00									
PopGrwht	0.11	-0.29	0.12	0.10	0.04	0.08	1.00								
gdp_90	0.18	0.20	-0.45	0.14	0.38	-0.26	-0.07	1.00							
HumCap	-0.12	-0.13	-0.08	0.32	0.18	0.13	0.09	-0.08	1.00						
VA	-0.01	0.06	0.46	-0.04	0.33	0.19	-0.21	-0.20	-0.09	1.00					
PS	0.19	0.12	0.64	-0.09	0.39	-0.09	0.00	-0.20	-0.23	0.43	1.00				
GE	0.27	0.25	0.52	-0.08	0.59	-0.04	-0.11	0.15	-0.19	0.61	0.61	1.00			
RQ	0.23	0.21	0.62	-0.15	0.52	0.06	-0.05	0.00	-0.23	0.68	0.61	0.91	1.00		
RL	0.18	0.12	0.56	-0.14	0.66	0.08	0.04	0.05	-0.05	0.60	0.69	0.85	0.87	1.00	
CC	0.30	0.23	0.52	-0.07	0.55	0.03	0.02	0.13	-0.23	0.58	0.66	0.90	0.90	0.87	1.00