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Institutional Quality and Growth

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Abstract: ***The purpose of this article is to highlight the nonlinear relationship between governance and growth. We have tried to construct an aggregate indicator to understand the quality of governance in the region MENA. Using panel data; we found a positive relationship between governance and growth in 21 countries of the region Middle East and North Africa (MENA) over the period between 1996 and 2013.***

Keywords: governance, growth, panel data..

1. Introduction

During the 80s, the per capita average growth in the region of the Middle East and North Africa (MENA) is about 0.9% that is lower than their homologue sub-Saharan Africa. This delay in growth is explained mainly by differences in terms of governance (World Bank, 2003). The need to improve institutional quality becomes crucial for growth to achieve the development. Also governance indicators are used as criteria to grant aid for the development and investment choices. This pushes many governments to take policy measures to increase their governance scores.

Several studies have been conducted on the relationship between institutional quality and growth. The most common study is done by Rodrick (1997, 2003) that suggests that one of the most important reasons for the differences in growth rates between the Asian countries is institutional quality. Also, the new current institutional economics considers that the institutions among the factors that foster long-term growth. Institutions with well-protected property rights, a functioning judicial system and a low level of corruption are favorable for capital accumulation and growth. Nevertheless, non-effective institutions favor the creation of a market for non-productive activities and increase transaction costs. Thus, institutions improve growth because they affect investment and therefore reduce transaction costs. The objective of this work is to study the relationship between governance and economic growth. To answer our problem, we opted for the following approach:

- Study the impact of governance on economic growth.
- Determine an aggregate index in order to apprehend governance.
- Study the nonlinearity between governance and economic growth.
- Determine the level of governance that maximizes growth.

2. Literature Review

The relationship between institutional quality and growth were the subject of theoretical and empirical controversy. At the theoretical level, the limits of the Solow model in the explanation of growth, and those of Lucas (1988), Romer (1986), and Mickinnon Show (1973), Barro (1989), Roubini and Sala -I-Martin (1995) in the analysis of endogenous growth. This work studies the proxy growth factors in order to understand the determinants of growth. Thus, these models fail to explain the gap in terms of accumulation and innovation among nations. Several authors have attributed this difference in terms of growth in the institutional quality. Indeed, Barro (1996) attaches importance to democracy, Alessina and Perrotti (1994) provide a major important for the political instability and Rodrik (1999) argues that good governance is important to improve economic results.

The work of North (1981.1990) and Rosenberg and Birdzell (1986) show the existence of an interaction between institutions and growth. This idea was supported by Rodrik (1997.2003), which explains the differences in growth between the Asian countries are due to institutional quality. Also, informal institutions promote growth.

The empirical literature gives crucial interest to the institution in promoting economic development. Empirical studies in cross sections covering several countries. They explain the GDP per capita by many several institutional variables such as civil liberties, the rules of law, property rights, political stability and global governance indicators.

Similarly, Scully (1998), Grier and Tullock (1989), Barro (1996), Helliwell (1994) and Isham, Kaufmann and Pritchett (1997) show the existence of a positive relationship between civil liberty and growth. Kaufmann, Kraay and Mastruzzi (2004) suggest that good governance is a stimulant for economic growth. Other studies have reached the same result as Acemoglu, Johnson and Robinson (2004) .These last explained the difference in growth between rich and poor countries by the degree of protection of property rights.

For Rodrick, Trebbi and Subramanian (2002) assume that a well-established property rights are supportive of economic growth. Barro (1991) and Poole and Londregan and conclude that instability and political violence reduce growth. Easterly and Levine (2002) used the overall index of governance developed by Kaufmann, they found that governance stimulates growth. In addition, Mauro (1995) used three indices to measure the institutions based on the International Business such as: corruption, bureaucratic quality index and the index of political stability. He managed these three indicators are positively and significantly correlated with the economic growth.

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3. Method of Analysis

Before proceeding to the construction of our econometric model that links governance to growth, first of all, we construct our composite indicator that is the weighted sum of six governance indicators developed by Kaufman, Kraay Mastruzzi (KKM).

3.1 The construction of an aggregate indicator of governance

Several indicators used to measure the quality of governance in a country. For example, ICRG as a measure of governance based on private rating system in order to assess the financial, economic and political risk, and to make the comparison between countries over time. For their assessment in financial and economic risks based on objective measures. While political risk assessment depends on the subjective interpretation of the ICRG's experts of predetermined risk components with equivalent weights for all countries to make comparisons over time and between the countries. For the World Bank, the quality of governance should be taking into account six indicators including:

Control of Corruption (CC) capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption

Voice and accountability (VR), which measures political, civil and human rights.

Political stability (SP) which measures the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism

Regulatory quality (RQ) which measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

The government effectiveness (EG) which measures the jurisdiction of the quality of public services, the quality of the development and implementation of policies and the credibility of government commitment.

The rule of law (ED), which measures the degree of law enforcement.

In our study we will try to construct an aggregate of governance indicator by combining the six governance indicators developed by Kaufman, Kraay Mastruzzi (KKM). The principal component analysis permits to extract a single principal component. One of the advantage of composite indices that can summarize all information on a multidimensional phenomenon (such as governance in our case) in order to help decision making. Also, it classifies the country and it assesses their changes over time. Thus the composite index is the linear combination of governance indicators.

Contribution (Fact1) =0,902 *Cor+0,968* ED+0,937 *EG+0,891*QR+0,793*SP+0,873*VR

After the construction of the composite index we can identify the relationship between institutional quality and economic growth. This is the subject of the next section.

3.2 The econometric model

After studying the theoretical point of view the relationship between institutional quality and growth, we will include these two components with the aim to empirically study the effect of institutional quality on growth for a sample of 21 countries MENA's region. For this, we will use a model in which we regress GDP per capita in terms of governance, while controlling other factors that affect growth. So to test the relationship between governance and growth, we will use the technique of panel data. Among the advantages of this technique it takes into account the heterogeneity between individuals and takes into consideration the effect unobserved characteristic. Our model is as follows:

$$y_{it}=\alpha_i+\beta_1 gov_{it}+\beta_2 gov_{it}^2+\beta_3 ide_{it}+\beta_4 cr\acute{e}d\ priv\acute{e}_{it}+\beta_5 inf_{it}+\beta_6 ouv_{it}+\beta_7 ch_{it}+\beta_8 conspub_{it}+\varepsilon_{it}$$

Where y denotes the domestic product per capita in country i at time t, α_i individual effects or the heterogeneity factor, (IDE) is the FDI to GDP, (private Cred) is the private credit GDP ratio which is a measure of financial development, (inf) is the inflation rate as measured by the index of consumer prices, (open) denotes the degree of openness that is the sum of import and export to GDP, (c.) is the human capital that is measured by the secondary school enrollment rates, (conspub) final consumption expenditure of public administrations as a percentage of GDP. β_j : j= (1, 2…7) are parameters to be estimated and ε_it: the error term that takes into account the unobservable factors affecting domestic product growth per capita.

3.3 Data source

Our variable of interest, governance indicators that are derived from the «World Wide Governance Indicators" developed by Kaufman, Kraay and Mastruzzi (K KM). For other variables (FDI% of GDP, GDP per capita, the private credit as a ratio to GDP, index of consumer prices, trade openness and human capital) are taken from the World Bank.

With regard to governance, we use six governance indicators published by the World Bank. They are between -2.5 and 2.5; high value implies good governance while a low value involves poor governance. Our series from 1996 to 2013, a period of 17 years.

3.4 The determination of threshold

The existence of non linearity between governance and growth allows us to determine the threshold. This threshold is determined by incorporating into our model the square of the variable governance. We will determine the optimal threshold of governance in order to maximize growth. The calcul of threshold is obtained by deriving the governance in our equation for the growth

$\frac{d(Y)}{d(gov)}=0\ \beta_1+2\beta_2 gov=0$

$gov=-\frac{\beta_1}{2\beta_2}$

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3.5 The results and their interpretations

Table 1: Descriptive statistics

Variable	Obs	Mean	Std.dev	Min	Max
Lgdppar	255	3.70788	.5588402	2.862326	4.780247
G	316	-.2173622	.7766748	-1.980239	1.312129
g2	316	.6569241 .	7447755	0	3.921
log1ide	333	.4766637	.4096956	-2.699	1.539
Lcrdit	316	1.508266	.4101587	.103	2.126
Linf	306	.561549	.4331994	-1.244	1.726
Louv	322	1.924929	.1543074	1.467	2.276
Lch	270	1.869933	.1747134	1.055	2.06
Lconspub	333	1.24003	.1440525	.759	1.519

Table 1 summarizes the statistical properties of the variables used in our study. In the total sample, the average growth rate of GDP per capita over the period 1996-2013 is around 3.70; the minimum value of GDP per capita growth rate is recorded in Yemen (2,862) in 2011, while the maximum value is recorded in Qatar (4,780) in 2011. This relates to governance, Malta has the best quality of governance (1,312) in 2008, while the Irac has poor quality of governance (1980) in 2004.

Our estimation is done using Stata statistical software 11. First, it is important to check if there are individual effects in our data. The null hypothesis assumes that there is no individual effect (Uniformity) .In contrast, in the opposite case, that is to say, when we reject the null hypothesis, the individual effects must incorporate in the model. In our case it is an individual effect because F (8,100) = 11.43> 0.

So there is a problem of heterogeneity in our data. Then, the Hausman test is a test of specification which specify between the fixed effects model and the random effects model. In the case where the probability of this test is less than 5% then it accepts the fixed effect model. Otherwise, we selected a random effects model. In our case the MCG is used. To ensure the robustness of our results, it is useful to verify the existence of heteroscedasticity and autocorrelation problems. These two problems are frequently encountered in the data, it is necessary to detect and to correct. To test heteroskedasticity in random effect model we will use the test of Breush Pagan. The idea of this test is to verify whether the residues of the square can be explained by the model variables. For the autocorrelation test errors Wooldridge (2002), tests the errors of autocorrelation model of the impact of institutional quality on growth. In our case we are dealing with a problem of autocorélation and héteroscédascticité.

So we corrected these two major problems to ensure the robustness of our results. Table 2 of the MCG estimate taking into account the correction of the autocorélation and the héteroscédascticité.

Table 2: Estimation Result

Lgdppar	Coef	Std. Err.	Z	P>|z|	[95%Conf.	Interval]
G	.0647061	.0211478	3.06 *	0.002	.0232571	.106155
g2	-.0341247	.0144575	2.36 **	0.018	.0057886	.0624608
log1ide	-.0105947	.0225783	-0.47	0.639	-.0548473	.0336578
Lcrdit	.2465662	.0645748	3.82 *	0.000	.1200019	.3731306
Linf	-.0402055	.0161325	-2.49 **	0.013	-.0718247	-.0085863
Louv	.3991177	.0958161	4.17*	0.000	.2113215	.5869138
Lch	.991018	.1379123	7.19 *	0.000	.7207148	1.261321
Lconspub	-.0728618	.1099701	-0.66	0.508	-.2883992	.1426756
Cons	.7197182	.3309156	2.17	0.030	.0711354	1.368301

* Significant at 1%, ** significant at 5%.

As shown in Table 2 above, the variable governance is positive and significant at the 5% .Thus, increased governance of 1 point increases real GDP per capita growth of around 0.064 points. This result seems to be similar to the results found by Zayati, M and Gaaliche, M (2013) that suggest that improving the quality of governance of 1 point has a long term positive effect of 2,811 on the growth in the Tunisian economy versus 0.0079 point in the short-term spot.

The coefficient of inflation is negative and statistically significant at the 5% .This implies that the increase of 1 point in inflation reduces growth by 0.04 points. This result confirms the work of Adama and Kako Nukubukpo Combey (2010) that suggest that the increase of inflation from a value of 10.4% growth that negatively affects the short term and long term in the l'UEMOA countries.

The variable of private credit as a ratio to GDP is correlated with growth. Indeed the Increase of one percentage points of the financial system indicator improves growth of 0.24 points. This result corroborates the study of Ang (2008) which is based on a study in Malaysia and supports that developed financial system helps to achieve a high growth rate.

Moreover, the variable trade openness has a positif effect on economic growth. This demonstrates that increase a point of percentage of ratio of trade openness increases the GDP per capita growth of 0.39 points. This result corroborates the

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prediction of neoclassical and endogenous theories that assume that trade liberalization promote growth.

The human capital variable is positive and statistically significant at the 1% .In fact, the increase of 1 point of secondary school enrollment contributes to improving growth by 0.99 year. This result confirms the endogenous growth theory, which suggests that the increase of human capital allows increasing in the long-term growth by acting on the entire labor productivity and their ability to master new technologies. And well-trained human capital allows the MENA countries to benefit from technology transfer.

4. Conclusion

Empirical studies on the relationship between governance and growth are not conclusive .Certain found a positive relationship between governance and growth, while others have not. Since governance is complex and multidimensional measurement .Our study is exceptional since we studied a nonlinear relationship between governance and growth in 21 countries of MENA .All we have tried to construct an aggregate index to apprehend governance based on six indicators of governance developed by kaufman and Kraay and Mastruzzi. Then, using the panel technique, we found a positive relationship between governance and growth. In other words, improving the quality of governance in 1 point increased 0.06 point growth.

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