

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
loglide	333	.4766637	.4096956	-2.699	1.539
Lcrrdit	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 autocorrelation and hétéroscedasticité.

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 autocorrelation and the hétéroscedasticité.

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
loglide	-.0105947	.0225783	-0.47	0.639	-.0548473	.0336578
Lcrrdit	.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

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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