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An Econometric Study of the Role of the Political Stability on the Relationship between Democracy and Economic Growth

Summary: This article examines the nexus between democracy and economic growth while taking into account the role of political stability, using dynamic panel data model estimated by means of the Generalized Method of Moments (GMM) over the period 1998 to 2011 for 17 Middle East and North Africa (MENA) countries. Our empirical results showed that there is a bidirectional causal relationship between democracy and economic growth. Moreover, it was found that the effect of democracy on economic growth depends on the political stability. The results also indicated that there is important complementarity between political stability and democracy. In fact, political stability is a key determinant variable of economic growth. Eventually, democracy and political stability, taken together, have a positive and statistically significant effect on economic growth. This finding suggests that, if accompanied by a stable political system, democracy can contribute to the economic growth of countries. Thus, the MENA governments should use policies to promote political stability in the region.

Key words: Political stability, Democracy, Economic growth, MENA countries.

JEL: C33, F68, O11, O43, P16, P26.

Until today, the interactions between stability, the nature of the political regimes, and economic growth have been enigmatic. According to Walt Whitman Rostow (1990), an economic takeoff would require the existence of a strong regime or political stability, which is a prerequisite for economic growth. However, it turned out that the presence of political instability and poor governance create negative conditions in terms of economic sustainability. Thus, political stability is deemed not to be systematically related to democracy in countries with high levels of growth in the presence of political stability and absence of democracy. This article contributes to the literature by identifying the relationship between democracy and economic growth, and the role that political stability can play in this relationship. This study is intended to contribute to the existing literature by highlighting the major aspects of this relationship. First, democracy and political stability act as complements in their impact on economic growth. Second, treating this type of relationship within the Middle East and North Africa (MENA) region context is itself a contribution of our analysis.

This article is structured as follows. Section 1 depicts the theoretical context and then Section 2 presents the data and the model specification. The empirical results are discussed in Section 3. Finally, the results, which are accompanied by some recommendations, are presented in Section 4.

1. Literature Review and Background

Institutional and economic development studies have focused on the question of the capacity of institutions to promote economic growth. Since the work of Douglass C. North (1991), there has been an effective institutional environment that develops economic transactions and minimizes uncertainties. The main areas of analysis are institutional factors that could have an influence on the occurrence of uncertainty. Concerning the existence of a correlation between the nature of political regime and development, the hypothesis states that democracy would have costs, in terms of growth, or be a stimulus, which does not seem obvious. As for the link between the stability of the political regime and development, several research studies have succeeded in obtaining more convincing results, but without leading to a deterministic political or economic scheme. Analyses often go hand in hand with the problem of endogeneity common for the political and economic variables. Although the observation of economic performances, regarding the political regimes and stability, may suggest some political determinism, an explanatory scheme based on an inverse causality can also be envisaged, as evidenced by the endogeneity problem of the political and economic variables encountered in the cross-sectional analyses. Several arguments, sometimes contradictory, are put forward to describe the impact of the political regime on development. Although the development of individual freedom stimulates growth by encouraging entrepreneurship, it creates a negative effect by exacerbating conflicts in the distribution of income and wealth. A multiparty system favoring clientelism is reflected in demands for redistribution. The results of the influence of political instability on economic growth are less indecisive than those on the role of democracy. Although it can "accompany" the development process, instability has negative effects on the dynamics of economic growth. On the other hand, political alternation has a much less clear influence on the economic performance of a country. As a normal game of democratic institutions, it certainly behaves like the democratic variable (with the uncertainty implied in terms of its impact on economic performance). However, as a factor of potential instability, it is likely to be detrimental to growth. Because this aspect has been little studied (especially in the context of the development of the industrialized countries), we find it necessary to emphasize the development of the economic literature concerning the violent manifestations of political instability. In fact, political instability can affect a country's economic performance in several ways. It can be detrimental to the production activity when it directly leads to breaks in the process of wealth creation, a case that may arise during revolutions, coups ... Less political instability may not enable institutions to effectively secure private property rights, thereby increasing transaction costs and preventing the country from realizing its productive potential. Any improvement of the stabilizing quality of the institutions brings the economy closer to its optimum production and enables it to record growth gains.

A second possible impact of political instability, which is more indirect, is the efficiency of the accumulation of factors of production. Indeed, contrary to what is assumed in Robert M. Solow's (1956) model, investment and accumulation of human capital are not exogenous data, but ultimately depend on the institutional framework that conditions them. Augustin K. Fosu (1992) points out that in the presence of political instability, the risk of capital loss increases, which reduces the volume of investment actually undertaken. An unstable country then sees domestic and foreign investors turning away from the opportunities offered by the national economy. The consequences for growth, such as declining investment, deteriorating export performance, can be serious difficulties in financing private and public projects. Fosu (1992) makes the symmetric assumption of a leak of human capital under similar conditions. Finally, in the context of a political instability, the government, whether democratically appointed or not, may be tempted to resort to a policy based on the establishment of clientelistic allegiances and the corruption of groups likely to support it for conservation of power (police, army, administration, economic circles, etc.). This type of argument has been the subject of theoretical development: work on the rent seeking activities published by Kevin M. Murphy, Andrei Shleifer, and Robert W. Vishny (1991). Similarly, governments with a short time horizon are not prompted to respect their commitments, nor are the rules and principles which, in principle, must regulate economic activity (property rights, contract law, taxation, etc.). This problem of the rule of the law was developed by Christopher Clague et al. (1996).

In what follows, we will first examine the relationship between democracy and economic growth in its two theoretical and empirical strands, and second, we will focus on the importance of political stability as a framework for a democratic action.

1.1 Democracy and Economic Growth

The nexus between economic growth and democracy has been the subject of several academic research studies elaborated over the past few decades. These studies can be categorized into two strands. The first examines the impact of democracy on GDP, whereas the second strand proposes to study the effect of economic growth on democracy. With respect to the first line of thought, proponents of this strand base their arguments on the important question of whether democracy does actually help promote economic development or not. In fact, controversial results have been reached as to the effects of democracy on economic performance.

We formulate the empirical framework used in this survey based on the following literature. The first strand of the literature shows that economic growth appears to depend highly on democracy along with some other variables (e.g. Dani Rodrik and Romain Wacziarg 2005; Torsten Persson and Guido Tabellini 2006; Elias Papaioannou and Gregorios Siourounis 2008; Daron Acemoglu et al. 2014; Fabrice Murtin and Wacziarg 2014; Jakob B. Madsen, Paul A. Raschky, and Ahmed Skali 2015; Shrabani Saha and Zhaoyong Zhang 2017). However, a distinct strand of literature is concerned with the reverse effect, that is, the causal relationship between economic growth and democracy. Such research studies were conducted by Acemoglu et al. (2008), Jess Benhabib, Alejandro Corvalan, and Mark M. Spiegel (2011), Benedikt Heid, Julian Langer, and Mario Larch (2012), Enrique Moral-Benito and Cristian Bartolucci

(2012), and Yi Che et al. (2013). Overall, our literature review suggests that the empirical results of the previous studies are inconclusive. A potential reason is that past studies have not considered the two-way linkage between democracy and economic growth, the joint dynamics of which can be simultaneously determined.

1.2 Political Stability and Economic Growth

The link between political instability and economic growth has been one of the most important topics in empirical research in economics over the last decade. Several studies (Alberto Alesina et al. 1996; Fosu 2001, 2003; Ari Aisen and Francisco J. Veiga 2008) suggest that political instability is detrimental to economic performance in developed as well as in developing economies. For example, Alesina et al. (1996) used the GDP *per capita* growth rates and the changes in government to measure political instability as a dependent variable. They examined a sample of 113 countries and found that political instability has a negative impact on GDP growth, whereas there is no dependency in the opposite direction. In a similar research framework on the African countries, Nauro F. Campos and Jeffrey B. Nugent (1999) found that political instability is the cause of slower economic growth. However, no relationship was found for any other group of countries. Supporting this reasoning, Muhammad Younis et al. (2008) examined the effects of different political instability factors on economic growth for selected Asian countries between 1990 and 2005. In fact, these authors found a close relationship between political stability and economic growth. Their results showed that the role of political stability is more important than economic freedom. Similarly, Aisen and Veiga (2013) used the Generalized Method of Moments (GMM) to estimate the dynamic panel data models on a sample of 169 countries over a period that extends from 1960 to 2004. They tried to identify the link between political instability and economic growth. Finally, they found that a lower growth is associated with a higher degree of political instability.

Specific country studies, such as that of Rafael Muñoz (2009), which used the Autoregressive Distributed Lag Model (ARDL) to study the link between political instability and economic growth for Venezuela from 1983 to 2000. He found that political instability negatively affects economic growth through investment. In the same vein, Dimitrios Asteriou and Simon Price (2001) studied this relationship for the United Kingdom over the 1961 to 1997 period using the GARCH model and found a negative effect of political instability on economic growth.

In another article, Aisen and Veiga (2013) empirically determined the effects of political instability on economic growth. Using the GMM system technique and a sample of 169 countries from 1960 to 2004, they argue that the highest levels of political instability are associated with a lower growth rate of GDP per inhabitant. Regarding the transmission channels, the authors also found that political instability negatively affects economic growth by lowering productivity growth through the accumulation of the physical and human capital. Finally, economic freedom and ethnic homogeneity are beneficial to economic growth, whereas democracy may have a small negative effect. Moreover, Hasan Kirmanoğlu (2003) studied the causal link between political instability and economic growth using Granger causality test for a sample of 19 countries. His findings suggest that there is no empirically significant relationship between

political instability and economic growth in 14 of the 19 examined countries. He reports that political stability actually increases economic growth only for 2 countries, whereas for the 3 remaining countries, he reports that the causality runs the other way.

Therefore, the literature seems to agree on the importance of political stability of economic growth in the way that it leads to the creation of the desired structure, the attraction of private investors and helps multilateral companies set the stage for economic growth, which leads to the implementation of long-term optimal macroeconomic policies.

1.3 Political (In)Stability as a Framework of Democracy

The theoretical examination of the concepts of democracy and economic growth detects many studies that compete on the nature of the positive or negative relationship between the 2 phenomena. This proves the nonexistence of a consensus on this issue. In fact, more arguments are in favor of the important role that democracy would play in the process of economic growth, whereas others stress its limitations compared with the authoritarian regime. Moreover, democracy would have the effect of ensuring investors against the existence of discretionary behavior and predators and minimizing the risk of political instability.

Actually, political stability does not appear to be systematically related to democracy, the stylized facts to appear relatively high levels of growth in the presence of political stability and absence of democracy. Thus, the good macroeconomic performance of a number of nondemocratic Asian countries (Hong Kong, Singapore, Taiwan, and China) contradicts the idea supporting good economic facts of democracy. Moreover, a growth level of 4.5% per year achieved by the precursor of the Arab Spring countries, Tunisia, during 23 years of dictatorial regime, challenges the idea of the economic benefit of democracy. Democracy can have greater negative effects on the economy if social demands turn into strikes and manifestations that disrupt the business activity and force entrepreneurs to stop their activities and leave the country. Demonstrations and continuous strikes may even discourage foreign direct investment inflows.

Democracy would also ensure investors against the existence of discretionary and predatory behavior and minimize the risk of political instability. Thus, the existence of a set of rules, laws, and counter-powers would help to avoid the risk of arbitrary decisions, so that democracy would be synonymous with long-time horizons and optimal economic choices. Similarly, democracy in a political instability does not promote growth. However, the combined effect of democracy and political stability could support economic growth.

The results of the theoretical work suggest that political (in)stability can influence the nature of the effect of democracy on growth. Sule Özler and Tabellini (1991) report that political instability reduces the time horizon not only for the investors but also for the policy makers. Therefore, great reforms are necessary to avoid these effects which are particularly noticed in weak democracies in which the partisan system is highly fragmented. In addition, short-term governments can adapt bad economic policies, which can induce their successors to failure.

Furthermore, according to Clague et al. (1996), short-term governments are not encouraged to respect their commitments or the rules and principles which must, in fact, control and monitor the economic activity (property rights, contract law, taxation, ...). On the other hand, Yi Feng (1997) supports the idea that democracy offers a stable political environment, because it reduces the unconstitutional changes of governments in the political system and creates conditions that are conducive to sustainable economic growth. On this part, Richard Jong-A-Pin (2009) found that high levels of political instability reduce economic growth. Similar arguments are put forward by Ranmali Abeyasinghe (2004) who argues that democracy and political stability have significant effects on the economic growth of the developing countries. The study of Alesina and Roberto Perotti (1996) showed that political instability creates an uncertain political and economic environment, which raises risks and reduces investments. Political instability also leads to a higher inflation, as it is evidenced by Aisen and Veiga (2006) who also added that political instability shortens the perspectives of governments, disrupts the long-term economic policies, which are conducive to better economic performance.

The experiences of several countries that have undergone a change of political regime, particularly, the Arab Spring countries (Tunisia, Libya, and Egypt), showed that the transition to a more democratic political system may be accompanied by political instability that affects economic growth. The lesson from these experiences is that the stabilization of the political situation seems to be an imperative for countries weakened by a long period of transition. For example, Tunisia is currently in a dominant economic focus. Therefore, the impact of democracy on economic growth depends on the political stability.

2. Data and Model Specification

The present study applies data extracted from the World Development Indicators (World Bank 2011)[1], covering the 1998 to 2011 period with the exception of democracy and corruption-related variables, which are respectively extracted from the sites Freedom in the World Index (Freedom House 2011)[2] and Transparency International (2011)[3].

The objective of this article is to analyze the causality between democracy index and economic growth using the production function where the GDP depends on endogenous variables, including democracy index. This extended production function provides a meaningful framework to explore the 2-way linkage between these 2 variables. These dynamic simultaneous-equation models are also constructed on the basis of the theoretical and the empirical insights from the existing literature. A major and lasting propose for economists and political scientists is the relationship between democracy and economic growth. Some researchers such as Seymour Martin Lipset

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[1] **World Bank.** 2011. World Development Indicators.
https://datacatalog.worldbank.org/dataset/world-development-indicators (accessed April 14, 2011).
[2] **Freedom House.** 2011. Freedom in the World 2011.
https://freedomhouse.org/report/freedom-world/freedom-world-2011 (accessed April 18, 2011).
[3] **Transparency International.** 2011. Corruption Perception Index. https://www.transparency.org/ (accessed April 18, 2011).

(1959), Robert J. Barro (1996, 1999), Papaioannou and Siourounis (2008), among others, included corruption index, democracy index, capital stock, labor force, human capital, foreign direct investment and the size of the governmental variables in their empirical models to study the impact of these variables on economic growth. Thus, our proposed model, which seems to be consistent with the broader literature on the determinants of economic growth cited above, takes the following form:

$$GDP = f(CPI, DEM, H, K, L, SIZE, DEM*PS, FDI). \tag{1}$$

This clearly shows that economic growth is a function of the corruption perception index (CPI), democracy index (DEM), human capital (H), capital stock (K), labor force (L), government size (SIZE), the term of interaction between democracy and political stability (DEM*PS) and foreign direct investment (FDI).

Because our study is a panel data study, Equation (1) can be written in a panel data form as follows:

$$GDP_{it} = \alpha GDP_{it-1} + \beta_1 \ln H_{it} + \beta_2 \ln L_{it} + \beta_3 \ln K_{it} + \beta_4 CPI_{it} + \beta_5 \ln SIZE_{it} + \beta_6 DEM + \beta_7 FDI + \mu_{it}, \tag{2}$$

where i represents the country (in our study, we have 17 countries[4]); t represents the time (our time frame is 1998-2011). To note, annual real GDP data (percentage of GDP growth rate) is used as a proxy of economic growth. The corruption perception index (CPI) represents the index of the perceived corruption published by Transparency International (2011), and the index ranking countries on a scale from 10 to 0, according to the perceived level of corruption. A score of 10 represents a reputedly total corrupt-free country, while a zero indicates that the country is perceived as completely corrupt. Concerning the democracy index (DEM), which was been designated by Freedom House (2011), is a construct of the average of the political rights and civil liberties. This variable is rescaled in such a way that its value ranges from 1 (the most democratic) to 7 (the least democratic). The (PS) is an index for political stability compiled by the World Bank (2011). This index measures the likelihood that the government in power is destabilized by unconstitutional means, including domestic violence and terrorism. This index captures the idea that the likelihood of changes in government can affect the quality of its governance and therefore the continuity of its policies. To study the impact of the policy of institutional quality, we have taken the political stability index with a value between -2.5 and 2.5. We have added the term "DEM*PS" because as political instability plays an important role in the relationship between democracy and economic growth and can create political uncertainty (instability and violence policies) and therefore a risk associated with this uncertainty. This certainly undermines the credibility of the country's laws and policies. According to José Tavares and Wacziarg (2001), one of the characteristics of democracy is the "transparent rules for the alternation of political forces in power" which discourages uncertainty. They also suggest that the political regime's indirect effect on economic growth is taken into account by political stability, low levels of corruption and high accumulation of human capital. Human capital (H) is measured by gross enrolment in high school, the physical

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[4] Tunisia, Algeria, Libya, Morocco, Egypt, Kuwait, Iran, Saudi Arabia, Jordan, Bahrain, Lebanon, Oman, Qatar, Syria, United Arab Emirates, Yemen, Iraq.

capital stock (K) as a proxy gross capital formation (% of GDP) because it takes into account the change in stocks, and labor capital (L) measured by the rate of participation in the total active population (% of total population aged 15 years and older). The government size is measured by the final consumption expenditure of general government (% of GDP) and (FDI) the foreign direct investment (% of GDP). The 2-way link between democratization and growth is empirically examined by making use of the following 2 equations:

$$GDP_{it} = \alpha GDP_{it-1} + \beta_1 \ln H_{it} + \beta_2 \ln L_{it} + \beta_3 \ln K_{it} + \beta_4 CPI_{it} + \beta_5 \ln SIZE_{it} + \beta_6 DEM + \beta_7 FDI + \beta_8 PS + \beta_9 DEM * PS + \mu_{it},$$
(3)

$$DEM_{it} = \alpha' DEM_{it-1} + \delta_1 GDP_{it} + \delta_2 \ln INDUST_{it} + \delta_3 \ln ENERG_{it} + \delta_4 \ln LIFE_{it} + \varepsilon_{it},$$
(4)

where DEM_{it} is the degree of democracy for country i in period t; DEM_{it-1} is the lagged democracy variable used to account for the persistence of democracy over time. Equation (4) essentially states that democracy is a function of economic growth (Edward L. Glaeser, Giacomo A. M. Ponzetto, and Shleifer 2007; Acemoglu et al. 2009), industrialization, energy ownership and life expectancy at birth (Barro 1999). Fuel export equivalent is used as a proxy for the natural resources (ENERG). The level of industrialization (INDUST) that captures the industrialization variable of the modern theory. Unlike Lipset (1959), who used the percentage of men in agriculture and energy consumption per person and considered the given problem in the sample of the MENA countries, we used the value added of the industrial sector percentage of GDP (industry, value added (% of GDP)) to measure the level of industrialization in the region. LIFE is measured by life expectancy at birth, total (years) of the database of the World Bank (2011). The mean descriptive statistics and the standard deviation (std. dev.) of these variables are reported below in Table 1.

Table 1 Descriptive Statistics

Variables	Mean	Std. dev.
GDP	4.624	3.067
Democracy	5.544	0.827
Industrialization	3.612	0.391
FDI	3.422	4.164
Human capital	4.426	0.213
Capital stock	3.149	0.310
Labor capital	3.919	0.153
Energy ownership	9.910	2.633
Life expectancy at birth	4.285	0.827
PS	-0.481	0.911
Government size	2.785	0.346
Corruption	3.898	1.106

Notes: These statistics are based on annual data relevant to the years ranging from 1998 to 2011.

Source: Authors' calculations.

Regarding the correlation matrix results, they are reported in the following table (Table 2). It is worth noting that the correlation coefficients suggest that the reported

regression models would not be seriously distorted by multicollinearity. The correlation analysis helps indicate that economic growth seems to be positively correlated with foreign direct investment, government size, life expectancy at birth, corruption perception index, labor capital as well as with human capital. Besides, the GDP seems to be negatively correlated with democracy, capital stock, energy consumption, along with industry. Furthermore, democracy appears to be positively correlated with the human capital, energy consumption, life expectancy at birth, and industry, whereas it is negatively correlated with the other variables.

Table 2 Correlation Matrix

	Variables	1	2	3	4	5	6	7	8	9	10	11	12
1	GDP	1.0000											
2	DEM	-0.1967	1.0000										
3	CPI	0.0641	-0.1495	1.0000									
4	Ln(H)	0.1553	0.5298	0.1373	1.0000								
5	Ln(K)	-0.1451	-0.3016	-0.2559	-0.1862	1.0000							
6	Ln(L)	0.2424	-0.1116	-0.0465	-0.4615	-0.1966	1.0000						
7	Ln(ENERG)	-0.0266	0.7423	-0.4183	0.3959	-0.1357	0.1278	1.0000					
8	PS	-0.5195	-0.1133	0.1205	-0.2392	0.2206	-0.5292	-0.3086	1.0000				
9	Ln(FDI)	0.3498	-0.1684	0.1734	0.2881	-0.0084	-0.3212	-0.3549	-0.1063	1.0000			
10	Ln(SIZE)	0.0862	-0.4424	0.6129	-0.1348	0.3170	-0.0448	-0.6440	0.1281	0.1517	1.0000		
11	Ln(LIFE)	0.3125	0.2249	0.3432	0.5953	-0.0364	-0.1773	-0.1201	-0.2180	0.5543	0.3447	1.0000	
12	Ln(INDUST)	-0.0707	0.5762	-0.2623	0.3226	0.0728	0.0553	0.8417	-0.2526	-0.3233	-0.2967	-0.1413	1.0000

Source: Authors' calculations.

Equations (3) and (4) were estimated simultaneously by means of the Generalized Method of Moments (GMM), which is the estimation method the most commonly used in models with panel data and in the two-way linkages between some variables. This method uses a set of instrumental variables to solve the endogeneity problem. It is well known that the GMM method provides consistent and efficient estimates in the presence of arbitrary heteroskedasticity. Moreover, most of the diagnostic tests discussed in this study can be cast in a GMM framework. The Sargan test was used to test the overidentifying restrictions to provide some evidence of the instrument validity which is tested using Sargan's test according to which the null hypothesis of overidentifying restrictions cannot be rejected. In other words, the null hypothesis of the instrument appropriateness cannot be rejected.

On the other hand, the Durbin-Wu-Hausman test is used to test the prevalence of any endogeneity problem. The null hypothesis would then be rejected, suggesting that the ordinary least squares estimations might be biased or inconsistent, and that the instrumental technique variables need to be implemented.

As the data have a time series dimension, we conduct the Fisher type unit root test on the data, the results of which are reported in Table 3. The null hypothesis of this test is that all the panels contain a unit root and the alternative hypothesis is that at least 1 panel is stationary. We report the ADF-chi squared statistics which apply to finite samples. The p-values reported between parentheses are all below 0.01, strongly

rejecting the null hypothesis of nonstationarity at 1% level of statistical significance for all the data series. The PP chi-squared statistics gave similar results.

Table 3 Unit Root Tests

Variables	Fisher's type test: ADF chi-squared
GDP	501.10 (0.00)
Democracy	316.10 (0.00)
Log industrialization	510.52 (0.00)
FDI	427.12 (0.00)
Log human capital	612.06 (0.00)
Log capital stock	510.0 (0.00)
Log labor capital	610.12 (0.00)
Log energy ownership	638.15 (0.00)
Log life expectancy at birth	583.01 (0.00)
PS	324.42 (0.00)
Log government size	621.83 (0.00)
Corruption	364.15 (0.00)

Notes: Fisher type test - Ho: all panels contain unit roots and Ha: at least one panel is stationary. Lag length selected according to AIC.

Source: Authors' calculations.

3. Analysis and Results

It is worth recalling that our objective consists in investigating the economic growth trend and democracy in 17 MENA countries. The results are tested using different estimation methods, including fixed-effects estimation to account for country level time invariant unobservable influences on the dependent variable, and a dynamic simultaneous-equation panel data estimation to correct any potential endogeneity bias. A Hausman test indicates that the fixed effects model is more reliable than the random one. Therefore, the results are reported for panel fixed effects estimation. Manuel Arellano and Stephen Bond (1991) GMM estimator has been applied to model the dynamic simultaneous-equation panel data. Based on the diagnostic tests, the estimated coefficients of Equations (2), (3) and (4) are provided in Tables 4, 5 and 6 below. As can be noticed, the AR(2) tests show no evidence of autocorrelation at conventional levels of significance for each of the estimates. As for the Durbin-Wu-Hausman test, it indicates that the endogenous repressors effects on the estimates prove to be meaningful, and that the instrumental variables techniques seem imposed. The instrument validity will be tested through Sargan's test, whereby the null hypothesis, which is relevant to overidentifying restrictions, cannot be rejected, that is, the null hypothesis stipulating the instrument validity should be retained.

Table 4 Equation (2) Relevant Results

Dependent variable: economic growth	Fixed effect		GMM	
	Coefficient	*p*-value	Coefficient	*p*-value
(GDP)$_{t-1}$			9.424**	0.035 (4.47)
DEM	-0.017	0.597(0.033)	0.621***	0.000 (0.12)
CPI	-0.051**	0.029(0.023)	-0.062***	0.000 (0.09)
FDI	0.023***	0.000 (0.310)	0.205**	0.022 (0.01)
Ln(SIZE)	-0.285***	0.001(0.084)	-0.923***	0.001 (0.26)
Ln(H)	0.390***	0.000(0.084)	3.066***	0.000 (0.39)
Ln(K)	0.174**	0.004(0.058)	1.376***	0.000 (0.29)
Ln(L)	-0.557	0.143(0.377)	-0.351	0.376(0.87)
Number of observations	127		221	
Hausman test	0.0000			
Sargan test			61.840	0.235
DWH test			28.014***	0.000
AR(2) test			-0.240	0.814

Notes: The bracketed values represent the standard errors. Sargan test refers to the over-identification test for the restrictions appearing in the GMM estimation. DWH test is the Durbin-Wu-Hausman endogeneity test. The AR(2) test is the Arellano-Bond test relevant to the existence of the second-order autocorrelation in first differences. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' calculations.

Table 5 Equation (3) Relevant Results

Dependent variable: economic growth	Fixed effect		GMM	
	Coefficient	*p*-value	Coefficient	*p*-value
(GDP)$_{t-1}$			16.270***	0.000(4.26)
DEM	-0.001	0.963(0.032)	-0.502***	0.000(0.13)
CPI	-0.046**	0.040 (0.022)	-0.095**	0.027(0.08)
FDI	-0.041**	0.053(0.049)	0.035**	0.030(0.01)
Ln(SIZE)	-0.280***	0.001 (0.082)	-1.093***	0.000(0.24)
Ln(H)	0.411***	0.000(0.083)	1.555*	0.068(0.37)
Ln(K)	0.170***	0.004(0.057)	1.376***	0.000(0.26)
Ln(L)	-0.417	0.262 (0.370)	-0.348	0.349(0.85)
PS	0.027**	0.054 (0.013)	1.335***	0.007(0.49)
DEM*PS	-0.042***	0.000(0.008)	-0.310***	0.001(0.09)
Number of observations	127		221	
Hausman test	0.0000			
Sargan test			63.05	0.459
DWH test			28.014***	0.000
AR(2) test			-0.51	0.611

Notes: The bracketed values represent the standard errors. Sargan test refers to the overidentification test for the restrictions in GMM estimation. DWH test is the Durbin-Wu-Hausman endogeneity test. The AR(2) test is the Arellano-Bond test for the existence of the second-order autocorrelation in first differences. ***, **, and * indicate a significance at 1%, 5%, and 10% levels, respectively.

Source: Authors' calculations.

Table 6   Equation (4) Relevant Results

Dependent variable: democracy	Fixed effect		GMM	
	Coefficient	*p*-value	Coefficient	*p*-value
(DEM)$_{t-1}$			-18.192***	0.001(5.70)
GDP	-0.434***	0.004(0.150)	-0.206**	0.014(0.07)
Ln(ENERG)	0.195***	0.000(0.026)	0.177***	0.000(0.03)
Ln(INDUST)	0.082	0.744(0.253)	0.675	0.386(0.20)
Ln(LIFE)	11.272***	0.000(2.331)	5.293***	0.000(1.18)
Number of observations	71		221	
Hausman test	0.0000			
Sargan test			33.600	0.117
DWH test			36.766**	0.025
AR(2) test			-0.620	0.535

Notes: The bracketed values represent the standard errors. Sargan test refers to the over-identification test for the restrictions in GMM estimation. DWH test is the Durbin-Wu-Hausman endogeneity test. The AR(2) test is the Arellano-Bond test for the existence of the second-order autocorrelation in first differences. ***, **, and * indicate a significance at 1%, 5%, and 10% levels, respectively.

Source: Authors' calculations.

The analysis of the interactions between the nature of the political regime, stability, and economic development has often given perplexed results as to the existence of a correlation with the direction of causality. On the one hand, there is a correlation between the nature of the political regime and development, that is, the assumption that democracy would cost in terms of growth or a stimulant would not seem obvious. One the other hand, for the link between stability of the political regime and development, the research managed to generate stronger results without leading to a politically or economically strong deterministic pattern. Therefore, it is legitimate to test the combination of democracy and political stability for economic growth.

Table 4 depicts the estimated results relevant to Equation (2). Indeed, the impact of the one-period lagged values of real GDP on the dependent variable turns out to be positive and significant. Similarly, it appears that democracy has a positive and statistically significant impact on economic growth at a rate of 1%. Noteworthy, the proxy DEM, which is used as a democracy measure in our model, will be inversely related to the second, that is, an increase of DEM would necessarily denote an increase of autocracy and, therefore, the country is dubbed as less free. In other words, the more we approach the authoritarian regime, the more economic growth improves. Then, we can say that a relatively low level of democracy in the countries of the MENA region is a determinant of a better economic performance. This was affirmed by Barro (1996), Tavares and Wacziarg (2001), Paresh K. Narayan, Seema Narayan, and Russell Smyth (2011), Aisen and Veiga (2013), Murtin and Wacziarg (2014), and Nedra Baklouti and Younes Boujelbene (2018). Such a result, however, stands in contrast with those of John Gerring et al. (2005) suggest that there is a positive effect of democracy on growth.

In fact, maintaining a more or less authoritarian practice is considered essential for the preservation of strong economic growth for the country to benefit from greater prosperity and stability. This result corroborates that of David Booth et al. (2015) who stated that nondemocratic countries can achieve economic growth. This is also

consistent with the work of Barro (1996) who found that democracy has a negative effect on economic growth after considering the empirical link for 100 countries between 1960 and 1990. The finding of Barro (1996) suggest that "too little" and "too much" of democracy disadvantages economic growth as it reduces the rate of accumulation of physical capital and increases public spending.

Moreover, democracy cannot help implement measures to increase investment, because it forces people to reduce their consumption levels. Under the democratic regime, people with low incomes, who are mobilizing, recommend the application of income redistribution policies that hinder the accumulation of profits and, hence, investment. However, autocratic regimes have a capacity to withstand populist pressures and provide a stable business environment where trade union action is relatively ineffective. Moreover, proponents of this view argue that democracies are often unable to limit public social spending to stimulate growth distribution dealing with pressures (Stephan Haggard 1990). Furthermore, democracy undermines property rights of security by enabling some groups that have political power to make wealth of property owners. Therefore, this process leads to economic uncertainty and reduces economic growth. In addition, North (1991) assumes that in a democratic country, if the government adapts an inappropriate regulation of the economy, the electoral mechanism provides the opportunity for citizens to dismiss it. Thus, this mechanism may expel politicians, using their power to enrich themselves. Besides, the form of government adapted by the countries of the MENA region may be particularly favorable to economic growth. This reduced the overall impression of a strong confidence in the democratic institutions of these countries, and a search for stability and economic growth through authoritarian regimes.

A striking example of successful economies and accelerated economic growth without prerequisite democratic regimes is the case of the Asian countries, such as China and Singapore, which stand as a proof of our empirical result validity, sustaining the hypothesis of a positive contribution of authoritarianism. The MENA countries could usefully learn from the example set by a number of Asian countries not only to find their proper paths to economic progress but also to stop thinking that the absence of democracy constitutes an obstacle impeding their own development, overall growth, and prosperity.

Table 5, which provides the results of Equation (3), shows that with the introduction of the term interaction "DEM*PS", the partial effect of democracy on economic growth becomes negative and significant. Therefore, this impact is conditional and that poor economic performance of the developing countries is because of the presence of unstable political institutions. Our result shows that political stability can affect the nature of the relationship between the political regime and economic growth. In other words, with the introduction of the "political stability" variable, the impact of democracy on growth turns to be negative, which is the opposite of what we have shown earlier, because the freer a country is the more economically prosperous it becomes. This means that it is essential to have a stable political situation in which democracy is a stimulant of economic growth. Furthermore, political stability can be a channel through which democracy affects economic growth (Feng 1997). Political instability greatly reduces the time horizon not only for the investor but also for the

political decision maker (Rodrik 1999; Jong-A-Pin 2009; Aisen and Viega 2013). In addition, taking into account the experiences of 3 countries, such as Tunisia, Libya and Egypt (as mentioned above), this led some researchers to reconsider arguments that demonstrate and prove that when democracy and political instability are taken together, they have a negative and significant effect on growth.

Indeed, political stability plays an important role in the relationship between democracy and economic growth, because it can create uncertainty at the political level (instability and political violence), and therefore, risk is associated with the uncertainty. These certainly harm the credibility of the country's laws and policies.

With reference to the work of North (1991) and Nathan Rosenberg and L. E. Birdzell Jr. (2008), it was found that the increase of economic activity is accompanied by a good institutional quality. Furthermore, a healthy institutional environment helps to minimize uncertainties (corruption, political violence, forced nationalization, the denial of contracts, political instability, the weakness of the rule of the law and the absence of Civil Liberties); transaction costs contributes to the effective and fair application of the necessary government regulations. In case the quality of governance is poor, the lack of political stability marked by the presence of social events and major changes in politics through coups reduces the time horizon and discourages democracy to meet its commitments, its rules, and principles, which must, in fact, control the economic activity. This suggests that it is through political stability that democracy has an indirect impact on economic growth since the main characteristics of political stability are identified as the legitimacy of the effectiveness of conflict management mechanisms and sustainability of the exploited system. With stable political regimes, citizens perceive institutions and leaders to have reached this status through a legitimate manner acceptable to the majority.

Noteworthy, the FDI variable has a positive and significant impact on the real GDP as shown in Table 3. The positive sign of this relationship is justified by the importance of foreign direct investment through the transfers of expertise and technology from foreign firms and through capital inflows for the host country and access to new markets, which stimulates economic growth. This result corroborates those of Samuel Adams (2009), Sajid Anwar and Sizhong Sun (2011) and Mounir Belloumi (2014).

Statistically, the corruption variable (CPI) has a significant and negative impact on economic growth in our sample. Indeed, the negative impact of the rising of corruption on economic growth may be due to the widespread corruption in the MENA region, which adversely affects a just and stable governance and leads to a lower quality of public services. This result strengthens the idea of Keith Blackburn and Rashmi Sarmah (2008), Rutbek Dzhumashev (2009), Sambit Bhattacharyya and Roland Hodler (2010) and Gil Avnimelech, Yaron Zelekha, and Eyal Sharabi (2011) who state that corruption leads to an increase of inflation, which, in turn, reduces capital accumulation and economic growth.

According to Equation (4) presented in Table 6, the sign of the coefficient for lagged democracy is negative and significant. Similarly, economic growth is negatively and significantly related to democracy at a rate of 5% (the DEM variable is inversely related to democracy). As expected, the coefficient of the real GDP is

significantly negative, with reference to the modernization theory advanced by Lipset (1959). The negative sign shows that with increasing economic growth, the DEM variable, which is inversely related to democracy, proves to be decreasing. This empirical finding reveals that the MENA countries' economic performance led to the strengthening of democratic principles, which has been made possible only after the initial development stage, as often asserted by the authoritarian regimes and states. In fact, this can be better illustrated through the statement put forward by Barrington Moore (1966) announcing "no bourgeoisie - no democracy", which confirms well what we have empirically shown.

Therefore, economic growth stimulates the democratization of the political regimes (Barro 1999; Acemoglu et al. 2009; Alexandra Papaioannou et al. 2009; Carles Boix 2011). This result was confirmed in several empirical studies (David L. Epstein et al. 2006; Glaeser, Ponzetto, and Shleifer 2007; Papaioannou and Siourounis 2008; Acemoglu et al. 2009; John R. Freeman and Dennis P. Quinn 2012), because a high level of economic development leads to a higher level of education and a more diverse society. Diversification leads to a greater demand for institutions supporting pluralism and education, which leads to pluralistic values and tolerance. These 2 factors (diversification and education) should increase the demand for democratic governance (Lipset 1959).

In fact, the countries of the MENA region are rich in natural resources, which represent an opportunity for the ruling class to purchase foreign and domestic support while blocking political reforms. A vast literature on political sciences stresses the negative impact of the natural resources on democracy (Naazneen H. Barma 2014). This is the reason why significant revenue resources can be a political incentive to undermine democracy. In this case, we can say that political violence and income from this wealth have been used by public policymakers to block the establishment of democracy (Nathan Jensen and Leonard Wantchekon 2004). In other words, the exploitation of the natural resources leads to annuities caught by policy makers who establish institutions interested in ensuring the expropriation of these annuities for their own profits at the expense of the whole society and perverse policy incentives. Therefore, the rich natural resource exacerbates competition for the taking of power.

According to the overall results, we can conclude that: first, there is a bidirectional causal relationship between economic growth and democracy. Second, the combination of democracy and political stability would help to sustain economic growth. Therefore, we can conclude that democracy can stimulate economic growth through political stability and decreases it by political instability.

4. Conclusion and Implications

This article is an investigation of the causes of back ambiguity of the relationship between economic growth and democracy. To find the condition in which democracy can prevent or stimulate growth, our estimation was to verify if the institutional quality and political stability could specifically impact the nature of such a relationship.

Through the dynamic simultaneous-equation panel data models, we, first, showed that democracy stimulates economic growth through political stability, that is to say, it is important to have greater visibility of the effects of democracy on economic

growth, and second, that economic performance in turn is a key factor for democracy. Democracy is a desirable objective that can be reached only after an economic and social maturation. It should be seen as the difficult realization of a long modernization process, which is faster and better led by the authoritarian regimes than by the democratic ones.

In fact, we tried to show that there is a two-way relationship between democracy and economic growth while taking into account the effect of political stability. Moreover, we try to demonstrate that the positive effects of democracy on growth can be realized only in the presence of a stable political framework. However, the increase of political stability and the reduction of conflicts can reduce the government revenue, reduce poverty, and decrease the education level. However, political instability is associated with the investor's uncertainty about the security of property rights, which reduce the economic growth rate. Unstable governments do not ensure the pursuit of medium-term and long-term economic policies that constitute bottlenecks to growth even under a democratic regime. Therefore, these results imply that economic growth, democracy, and political stability are complementary.

Finally, in terms of policy, our article has some implications. Our estimates indicate that an effort to improve democratic institutions and the support they provide for the political stability in the developing countries should therefore be the main priority for policy makers because there are gains to be made in terms of economic growth.

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