Assessing the Relationship Between Democracy and Economic Growth in Emerging Markets: Evidence from the MENA Region Based on V-Dem Indicators

تقييم العلاقة بين الديمقراطية والنمو الاقتصادي في الأسواق الناشئة: أدلة من منطقة الشرق الأوسط وشمال أفريقيا استناداً إلى مؤشراتV-Dem

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Abstract:

This research investigates the impact of democracy on economic growth in emerging markets (15 MENA countries) from 1983 to 2022, using a novel measure of democracy based on Varieties of Democracy (V-Dem) definition, missing data imputation, and applying various estimation techniques including static and dynamic panel data analysis. The results of dynamic panel analysis indicates a positive impact of the participatory democracy index on economic growth, while the egalitarian and the deliberative democracy indexes found to be negative and insignificant. Moreover, the institutionalized autocracy index is negatively and significantly affecting economic growth in the region.

Keywords: democracy; economic growth; panel data analysis.

Jel Classification Codes : P16, O47, C23

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I- Introduction :

In the recent decades, nations have experienced several political movements as it was attributed that countries are prosperous because of their political system and institutions. The roots of this debate is back to Adam Smith's work about the effect of political institutions on economic development which investigates what makes economic agents feel protected and profitable; thus, a corpus of literature has examined the linkage between political variables and economic development, as democracy is the most critical political-economic determinant. This factor has captured the interest of many scholars, thus its impact was considered in many studies and different fields (e.g., Huntington, 1968; Cuberes & Jerzmanowski, 2009, Patti & Navarra, 2009; Colagrossi et al., 2020; Saidi et al., 2020; Baklouti & Boujelbene, 2021; Chen et al., 2021; Aghion et al., 2007; Wang et al., 2021; Nguea et al., 2023; Opoku & Acheampong, 2023). The relationship between democracy and economic growth remains vague despite the great number of studies on this topic (e.g., Kuznets, 1955; Lipset, 1959; Barro, 1991; Papaioannou & Siourounis, 2008; Paldam & Gundlach, 2012; Mohammadi et al., 2023), Araee (2016) mentioned that causality, data selection, and robustness are key issues in this research area. In terms of causality, Heo and Tan (2001) along with Narayan and Smyth (2011) have stated the existence of a two way causality direction between democracy and growth. However, Acemoglu et al. (2008) explained this finding as a result of the absence of any adjustment for nation heterogeneity. Hence, the impact from economic growth to democracy, including time and country-fixed effects, vanishes. In this regard, Ghardallou and Sridi (2020) pointed out that existing studies on the impact of democracy on growth revealed positive, negative and non-effects. The conceptualization and measurement of democracy is a second problem that researchers have come across, which is demonstrated by researchers' efforts to provide a reliable definition and scale (Knutsen, 2010; Cheibub et al., 2010; Bühlmann et al., 2012; Lindberg et al., 2014; Skaaning, 2018). In the context of robustness, Levine and Renelt (1992) performed a thorough analysis of the previous cross-country growth regression studies which were found to be weak. Meantime, De Haan and Siermann (1996) found that applying robustness analysis converts the positive impact to a negative impact. Brunetti (1997) pointed out that previous studies were found to have selection bias and modelling flaws, as well as Knutsen (2012) who explained this controversy as due to statistical loopholes. Hence, adopting their findings may result in conflicting perspectives. Moreover, Eberhardt (2022) highlighted the significant impact of this issue on results through focusing on heterogeneity and the robustness of the empirical findings to substantial changes to the sample.

In the late 1970s and early 1980s, emerging countries viewed democracy as a process of demilitarization that coincided with the beginning of a new period of sustained economic growth (Ferree & Singh, 2006). The MENA region has recently experienced a wave of democratization, but its impact remains controversial and contributions in this regard are limited. The region witnessed straining fiscal balance and increasing national debt since the acute political movements started in 2011 (Arayssi et al., 2019). As a result, a critical problem may arise over whether to invest more on political institutions, or on institutions that assist economic development, such as industry establishment, human capital development, education, diversification…etc.

I.1. Research Problematic: Does democracy have an impact on economic growth in emerging markets in the Middle East and North Africa region?

I.2. Hypothesis: Democracy has no significant impact on economic growth in emerging markets within the MENA region.

Democracy has a significant impact on economic growth in emerging markets within the MENA region

I.3. Research Aims: Research Aims this study is to examine the impact of democracy on economic growth in emerging markets within the Middle East and North Africa (MENA) region, using data derived from the Varieties of Democracy (V-Dem) database. The study aims to determine whether democratic governance contributes to enhancing economic performance, and to identify the direction and magnitude of this relationship through empirical econometric analysis.

The rest of the paper is organized as follows: Section 2 provides a brief review of related literature. Section 3 outlines methods, results and discussion. Conclusion and implications are in Section 4.

II Literature review

This section presents a variety of previous studies that are presented in an ascending order and focus on the following topics: released findings, adopted estimation techniques, and employed democracy measurements and scales.

Rachdi and Saidi (2015), which is considered as the first study in this regard in the MENA region, used the Polity index to measure democracy in 17 countries between 1983 to 2012. Based on fixed, random effects and GMM system approaches, authors pointed out that democracy cripples growth. Similarly, Song and Kim (2017) used the same measure to determine if democracy is the cause or the result of economic growth, and they showed that governments can succeed under a variety of regimes; hence, democracy is not required. However, Boese (2019) has criticized the use of Polity index in empirical research due to the following: missing theory behind the aggregation rule; absence of justification in aggregation; missing data where Interregnum takes 0, Interruption takes -66 and Transition takes -88. Furthermore, unclear differences between a polity's de facto and de jure components and how they affect democratic measures. Therefore, other studies were performed based on different scales. The application of the democracy index by Nayebyazdi (2017) in investigating the linkage between democracy and growth in 18 Muslim countries of the MENA region during 2008-2014 by applying spatial econometric approach revealed the existence of a geographical relationship. Adopting a new democracy measurements, the electoral democracy index, Nosier and El-Karamani (2018) employed a system of simultaneous equations using 3SLS to conclude that democracy has a non-monotonic effect in MENA countries. Acemoglu et al. (2019) employed both Polity and FHI metrics used to assess the effects of democracy in 175 nations between 1960 and 2010 using propensity score re-weighting methods and an instrumental-variables approach. The study showed that democracy have a statistically and economically significant positive influence on future GDP per capita. According to another metric, the Economic Intelligence Unit index (EIU), Li et al. (2019) found that democracy has an indirect, significant, and transient negative impact on economic growth. In the context of meta analysis, Colagrossi et al. (2020) examined this relationship through surveying 2047 models over 36 years. In addition, comparing between the effect of democracy and human capital on growth in a sample of 111 studies. Results showed a positive and direct effect of democracy on economic growth and that its impact is stronger in more recent papers. Moreover, the authors pointed out that the nexus democracy-growth is not homogeneous across world regions and decades. Rød et al. (2020) investigated the factors that influence

democratization and democratic survival through employing widely adopted democracy measures such as Democracy and Dictatorship (DD), Boix-Miller-Rosato (BMR), Polity, and V-Dem. By adjusting control variables, democracy measures, and sample time periods, the authors conducted sensitivity analysis on 67 potential drivers. Furthermore, they investigated the effect of theoretically motivated control variables on the sensitivity of income and Islam as major drivers in the research on democracy. Results showed that economic development may thrive the democratization process which has a lower chance in large Muslims populations. Chowdhury et al. (2020) explored the impact of different levels of democracy on economic development via classifying democracy into levels and than exploring the interconnections between number of variables. The findings revealed that high democracy levels nurtures economic growth than low and mid-level democracy levels. Examining the debate of causality direction, Baklouti and Boujelbene (2021) used the FHI definition through applying a probabilistic approach based on Bayesian networks. The study sample covers data from 11 countries in the MENA region. Findings show that in most countries the relationship between democracy and economic growth is not linear. Based on a robust fixed effect analysis, Zirari and Souar (2021) used the EIU democracy measure to delve into the impact of democracy. The study showed that democracy enhances economic growth through electoral pluralism index and hinders growth through the functioning of government index. Using different democracy measures, different estimation methods, and different sample periods, Sima and Huang (2023) examined impact of democracy on economic growth while addressing the effect of the initial economic development level during the democratic transition in 153 countries over the period 1960-2010. The study used a panel data fixed effect analysis and instrumental variables as well as threshold regression to establish the critical level of development that defines the impact of democracy. Findings revealed a positive impact of democracy on growth only in nations that have reached a significant rate of development during their democratic transition. Similarly, Fambeu and Yomi (2023) investigated the extant of democracy in reducing poverty in 40 Sub-Saharan African countries between 1999 and 2018. The authors used Generalised Method of Moments (GMM) and tested for the non-linear and interactive effects of democracy with other variables, such as economic growth and human capital. Results showed that democracy reduces poverty in countries with strong economic growth and human capital.

The controversy of the findings through using different democracy measurements highlights that conceptualize democracy in sufficient detail is a necessary need in this research area. Thus, the question of accurately measuring democracy has been fiercely debated. Wahman et al. (2013) claimed that dataset selection is likely to influence the findings of empirical studies significantly. Therefore, Boix et al. (2013) have updated metrics that focus on only one dimension to dichotomous indices based on both electoral and participation. In this regard, Lindberg et al. (2014) revealed that Varieties of democracy (V-Dem) aims to attain clarity, accuracy, and realistic uncertainty estimations for each data point. Therefore, Boese (2019) considered V-Dem as the most fitted dataset in empirical research for the following: Firstly, V-Dem was created by academics who profited from earlier datasets' limitations, cautions, and issues. Secondly, the Bayesian component in the Varieties of Democracy dataset enables it to evolve into the new standard for measuring democracy and adapt to future problems. In addition, Coppedge Edgell et al. (2022) reported that Varieties of Democracy project introduced new methods to conceive and assess democracy, resulting in a global data collection on democracy that is now extensively utilized by scholars, activists, and governments.

The literature section shows the significance effect of the adopted democracy measurements in influencing the outcome and drawn conclusions of studies in this research area.

III Data and Methodology

The study sample is made up of 15 MENA nations from 1983 to 2022 including, Algeria, Bahrain, Egypt Arab Republic, Iraq, Iran, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, and Tunisia. Data were collected from five open sources: The World Bank Development Indicators (WDI), the Penn World Table (PWT), the World Bank Governance Indicators(WGI), Polity5 from The Integrated Network for Societal Conflict Research (INSCR), and the Varieties of Democracy (V-Dem). Table 01 presents the data description of variables with definitions and sources.

Table 1. Data description and sources

Variable	Label	Definition	Source
Economic growth	GROWTH	GDPC annual growth.	WDI/PWT
Trade	TRADE	The total of goods and services imported and exported, divided by GDP.	WDI
Government final consumption to GDP	GOVTSIZE	The revenue that reflects government spending on goods and services.	WDI
Population growth	POP	The annual total growth of population.	WDI
Political stability index	PST	Takes values from -2.5 to +2.5 depict a conventional normal distribution, with -2.5 being the most unstable scenario and +2.5 indicating the most stable.	WGI
Participatory democracy index	PARTIPDEM	The citizens' active engagement in all political processes, including electoral and non-electoral.	V-Dem
Deliberative democracy index	DELIBDEM	The democratic deliberative principle is concerned with how decisions are made in a society.	V-Dem
Egalitarian democracy index	EGALDEM	The degree to which social groups have equal access to resources, authority, and guaranteed rights and freedoms.	V-Dem
Institutionalised Autocracy	AUTOC	The restricted competitive political participation and regularised the chief executive selection process.	Polity5

For investigating the impact of democracy on economic growth, we employ a number of estimation techniques such as Ordinary Least Square (OLS) pooled regression, Fixed Effect (FE), Two Stage Least Squares (2SLS) method, Anderson and Hsiao's instrumental variable, and difference and system GMM estimation. Using these multiple estimation

methods is due to the type of data and the issues mentioned in the previous sections, mainly endogeneity and biased estimates in previous literature. According to Hsiao (1986), the OLS technique would generate biassed and inconsistent results due to the deletion of the time invariant component. Hence, a lagged GMM estimator has been proposed (Anderson & Hsiao, 1982). This estimator outperforms Anderson and Hsiao's instrumental variable in terms of asymptotic efficiency and consistency, due to more moment restrictions. Anderson and Hsiao's instrumental variable is intended to address issues including missing variables, simultaneous equations bias, and endogeneity (Angrist & Imbens, 1995). Finally, to ensure robust estimates through considering the country-specific effect a system GMM was applied. The impact of democracy on economic growth is investigated by using the following baseline model:

$$GROWTH_{it} = \beta_1 INF_{it} + \beta_2 TRADE_{it} + \beta_3 GOVTSIZE_{it} + \beta_4 POP_{it} + \beta_5 DEMOCRACY_{it} + \beta_6 AUTOC_{it} + \beta_7 PST_{it} + \varepsilon_{it}$$

INF refers to inflation (consumer price index) which has been shown to have a detrimental effect on economic growth, therefore a negative coefficient is predicted. TRADE is Import plus export divided to GDP, a positive score is expected. POP is the growth rate of the total population, lower GDP per capita growth results from higher population increases. As a result, a negative coefficient is predicted. GOVTSIZE is the ratio of government final consumption to GDP, a negative coefficient is expected. For democracy, it is described by the following three macro-level indices as they best depict democracy in this sample: deliberative democracy index, egalitarian democracy index, and participatory democracy index, a negative impact is expected; however, the participatory democracy index might reveal a positive impact. PST is the Political instability index that includes violence and terrorism. It was included in the model as it regarded as one of the most important subjects in economic study (Baklouti and Boujelbene, 2020). A negative coefficient is anticipated because increased instability makes future economic policies more unpredictable and, as a consequence, results in less economic growth. AUTOC is the institutionalized autocracy which denotes the chief executives' chosen process, a negative impact is expected. As Drury et al. (2006) disagreed with prior research on using investment in growth models, the investment variable is not employed in the model as the reality is that investment is endogenous so controlling for its impacts is incorrect.

IV Empirical analysis

IV .1 Descriptive statistics

Table 02 shows the distribution of the variables. Based on the descriptive statistics results, the economic growth showed that the mean GDP is 3.695 % with a standard deviation of 9.354. In addition, the descriptive statistic for the government final consumption to GDP shows that the average GOVTSIZE for the entire sample is (mean = 3.801) with a standard deviation of 8.605. For the INF in the sample the result reveals that the mean is 13.987 % with a standard deviation of 40.064. Also the TRADE in the sample result shows that the mean is 76.020% with a standard deviation of 36.545. For the POP in the sample the result reveals that the mean is 2.702% with a standard deviation of 2.247. Also the PST in the sample result shows that the mean is -0.5237 % with a standard deviation of 1.248. As well as, the PARTIPDEM in the sample result shows that the mean is 0.094% with a standard deviation of 0.074. For the DELIBDEM in the sample the result reveals that the mean is 0.15% with a standard deviation of 0.119. Also the EGALDEM in the sample result shows

that the mean is 0.168% with a standard deviation of 0.083. Finally, the AUTOC shows that the mean is 1.263 % with a standard deviation of 19.839.

Table 2. Descriptive statistics of variables

Variable	Mean	Std.	Min	Max	Observations
GROWTH	3.695	9.354	-64.047	82.800	585
GOVTSIZE	3.801	8.605	-27.513	40.268	585
INF	13.987	40.064	-66.646	448.500	585
TRADE	76.020	36.545	0.021	210.161	585
POP	2.702	2.247	-4.533	17.512	585
PST	-0.5237	1.248	-3.180	2.451	585
PARTIPDEM	0.094	0.074	0.012	0.492	585
DELIBDEM	0.150	0.119	0.008	0.715	585
EGALDEM	0.168	0.083	0.044	0.633	585
AUTOC	1.263	19.839	-88	10	585

IV .2 Data analysis

Data analysis was performed using R software in order to ensure data reliability; hence, enabling future researchers to explore the impact of democracy on growth in various contexts. As a first step, a diagnostic analysis was performed to explore the collected data and check the readiness of variables for the study. Figures 01 and 02 shows that the dataset have 93.3% as present values and 6.7% as missing data.

Fig 1. Percentage of missing values for each variable

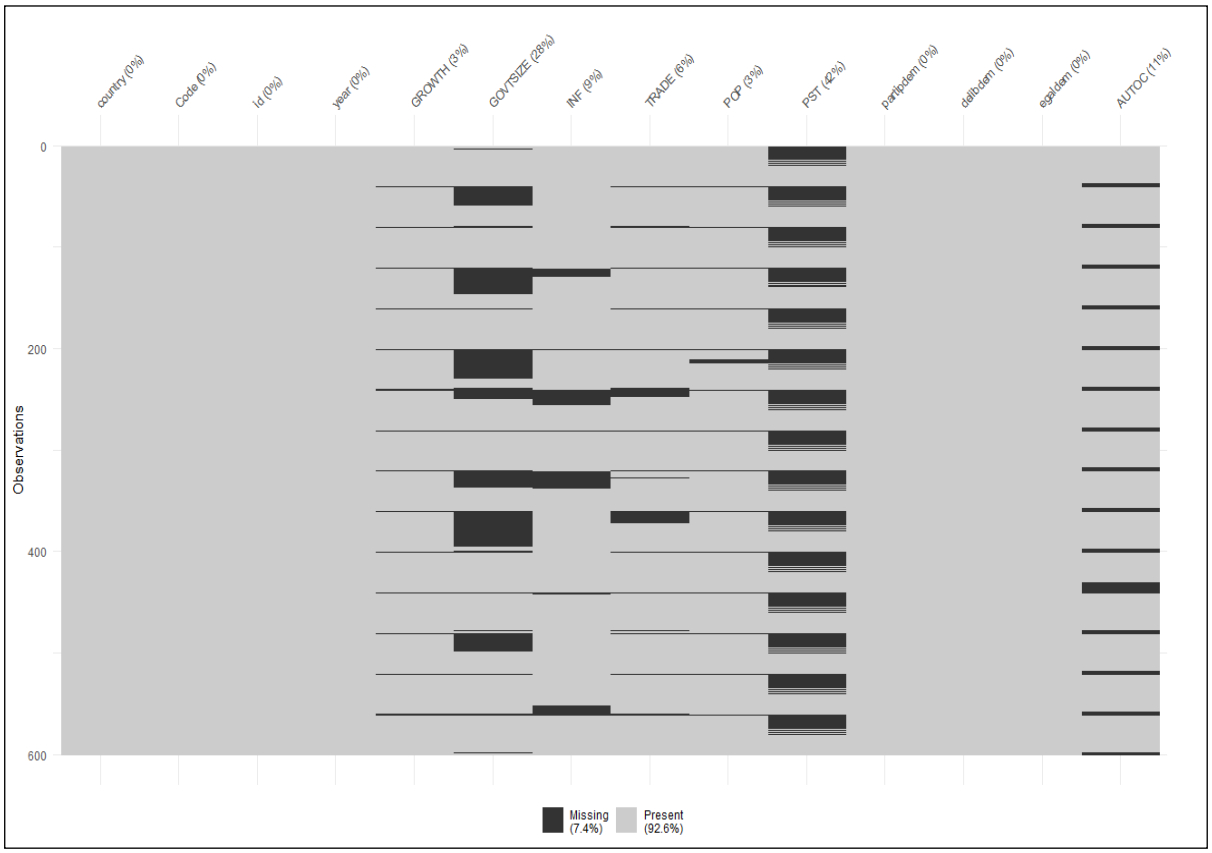
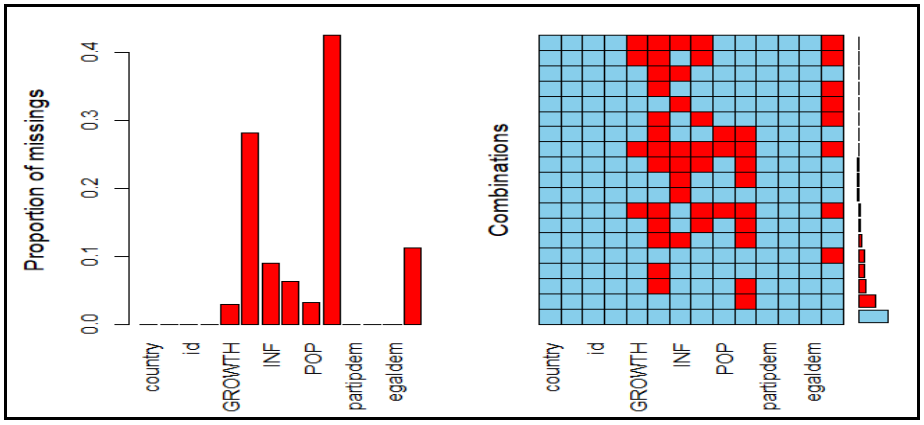


Fig 2. Missing values pattern before imputation



Yiran and Peng (2013) stated that missing data may substantially impact quantitative research, leading to erroneous parameter estimates, information loss, lost statistical power, increased standard errors, and reduced generalizability. Therefore, it is agreed that a dataset with less than 5% of missing values is acceptable for research indicating that imputation is required to deal with missing data and ensure a robust analysis. The study used the interpolation technique to impute missing values based on the data pattern. Since our data indicates a monotone trend, the "mice" package in the R program was used to impute missing data using a regression approach "monotone REG" (see Fig. 3). Moreover, outliers analysis for PST was performed before running the empirical analysis due to the significant imputation values compared to the rest of the variables. Results are presented in Figure 04.

Fig 3. Missing data pattern after imputation

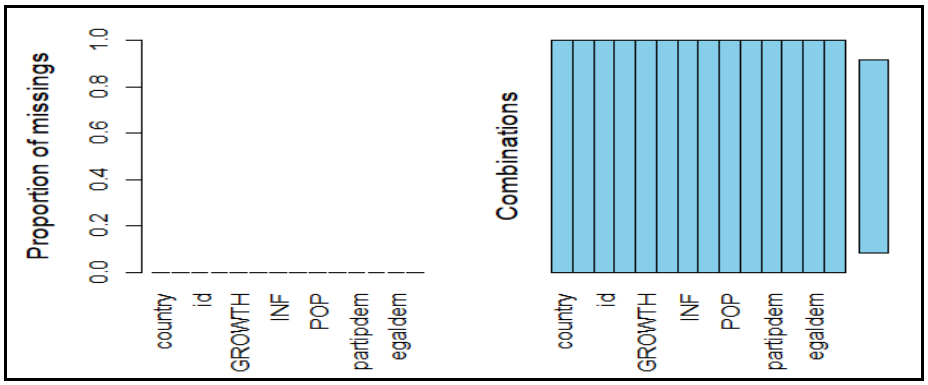
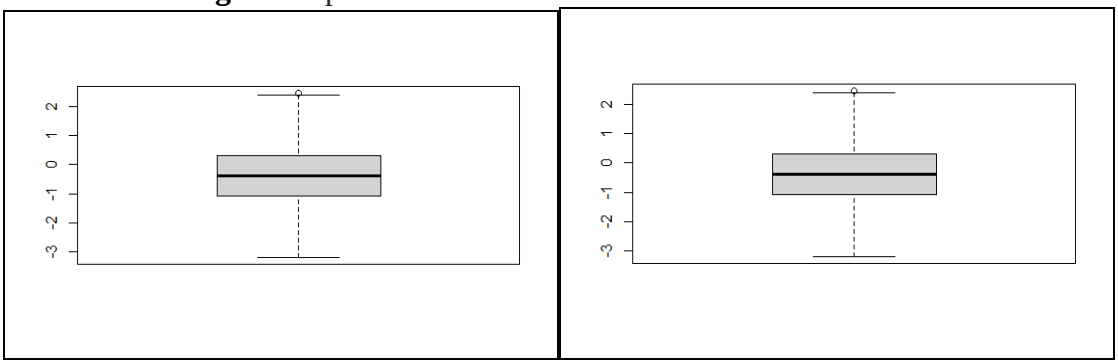


Fig 4. Boxplot of PST before and after control for outliers



V. Results and Discussion

The estimation results are presented in Table 03, which reports the output of the static and dynamic panel data analysis, including Pooled regression, Within Fixed Effect (FE), Anderson Hsiao, first difference and system GMM estimation. The discussion is based on the system GMM estimation since it produces robust results and address the pre-mentioned issues in this research area.

Table 3. Regression results of the Pooled regression, Fixed Effect, Anderson Hsiao, Difference and System GMM.

Variable	Pooled Regression	Fixed effect	Anderson Hsiao	Difference GMM	System GMM
GROWTH					
L1.	-0.045		-0.064	-0.130	-0.217
D1.		.95144516***			
D2.		-.31665446***			
L2.		-0.127		-0.088	
GOVTSIZE	.26363071*		.26901136*	.23539448*	.28682443**
INF	-0.003		-0.002	0.006	0.033
TRADE	-0.019	-0.030	0.009	-0.012	-0.045
POP	.98217093**	1.144773**	.92264545***	1.4329184***	1.5038185***
PST	.77548491*	1.4313556*	-0.168	1.7050422*	1.279
PARTIPDEM	9.600	-38.96522**	8.300	-29.291992*	48.816955**
DELIBDEM	1.653	16.580	0.452	6.248	-14.468
EGALDEM	-7.805	7.204	-5.472	14.008	-11.209
AUTOC	-0.008	-0.025	-0.022	-0.051	-0.051*
year	-0.058	0.006	-.07902026***	-0.073	-.08774283*
GOVTSIZE					
D1.		-0.001			
INF					
D1.		-0.009			
PST					
D1.		-0.029			
PARTIPDEM					
D1.	24.939		49.595		17.685
DELIBDEM					
D1.	-6.948		20.596		83.265

EGALDEM D1.	-10.828	-59.203		-159.281
AUTOC D1.	0.009	0.063		0.013
_cons	118.215	-8.368	158.94082***	178.77719*

Significance level: * p<0.05; ** p<0.01; *** p<0.001.

The findings of the system GMM estimation indicates that a one unit increase in the participatory democracy index increases economic growth by 48.81 units. On the other hand, with each unit rise in the institutionalized autocracy index coefficient, economic growth decreased by 0.05 units. These findings provide clear evidence of the existence of a significant relationship between democratization and economic growth. However, determining whether democracy is the appropriate regime for ensuring stability and high growth rates requires a careful and thorough analysis. In this regard, scholars have linked both the negative and positive effect of democracy on growth in the region to several factors. For instance, researchers reported that democracy hinders economic growth for the following: Firstly, the quality of democratic institutions and the level of democracy differs between nations, with some countries having a high level of democracy and others classed as non democratic regimes (Rachdi and Saidi, 2015). Secondly, oil countries with substantial oil earnings may not need a democratic regime to preserve economic stability. Meantime, non-oil nations, rely largely on taxation revenue to fund their spending, demanding a more democratic ways to engaging their constituents (Nayebyazdi, 2017). Thirdly, democracy is perceived as a consumption regime that results in increased government expenditure (Ghardallou and Sridi, 2020). On the other hand, the favourable impact of democracy on growth interpreted as a result of human rights protection, income redistribution equality, and civil liberties. These conflicting outputs are the result of using different democracy measurements and estimation techniques as mentioned in the literature section. Therefore, through the use of the V-Dem dataset and system GMM estimation, we demonstrated that, in addition to the previously mentioned arguments, the revealed positive impact of the participatory democracy index in these countries is due to the significant impact of political participation. According to the V-Dem codebook, the participatory democracy index is composed of four indicators: civil society participation index, direct popular vote index, local government index, and regional government index. These indicators represent citizens participation in their governments through civil society, democratic institutions, and organizations. Since most of the MENA countries have experienced long duration corrupted systems, citizens in these countries were influenced by the wave of democratization in Europe and hence they adopted some democratic forms mainly the political participation as a mean to change the system and ensure better living standards. This process has opened opportunities for the elites participation that were neglected under the autocratic regimes, particularity in countries like Algeria, Tunisia, Egypt, and Lebanon. As a consequence, various reforms and initiatives have been implemented by governments, resulting in the execution of successful economic policies and, hence, economic growth. The elimination of the elites in these countries has contributed in the economic prosperity of non MENA countries as immigrants. This can be attributed to a number of characteristics, such as a young population, high education levels, linguistic ability...etc. The beneficial effect of the participatory democracy index, with the negative non-significance effect of the egalitarian and the liberal democracy indexes, shows that democratic institutions are weak in these nations despite the significant governments investment and

strategies to support them, implying that the positive effect is to be expected following the removal of corrupted administrations, which can occur in other regimes that provide better opportunities for their citizens; for instance, monarchies countries in the same region. Meantime, it is crucial to highlight that the efficacy of democratic changes and policies undertaken by elected governments can be subject to change with each new government administration. Furthermore, there is the possibility of higher corruption rates under new regimes, as democracy does not distinguish between people with good or bad intentions. Monarchies, on the other hand, may display higher performance and the ability to sustain reforms and successes, as well as more stable decision-making processes. In addition, crises such as COVID-19, the new economic perspectives, wars, as well as the international economic events also have performed as catalysts for hierarchical advancements in numerous disciplines inside the MENA countries that resulted in improving economic growth.

To sum up, despite the use of various models, datasets, and approaches, the effect of democracy on economic growth in the MENA region is still debatable; however, the elite political participation has helped in the economy advancement. Our study made use of the most relevant dataset (V-dem) and, which helps in understanding the impact of democracy.

VI. Conclusion

Diving into the impact of democracy on economic growth helps economists to determine the best economic development path; allows politicians to delve into the components of government stability and democratization process. Meanwhile, leads social scientists to strengthen interactions among individuals and ensure growth. The existing literature on the impact of democracy on economic growth shows a variety of findings on whether democracy has a positive, negative, or non-effect on growth. Therefore, this study seeks to investigate the impact of democracy on growth by addressing conceptual and empirical issues identified in previous studies. The study adopted the V-Dem conceptualization of democracy and used both static and dynamic panel data analysis to address empirical issues and ensure robust analysis. The findings show that a one-unit increase in the participatory democracy index increases economic growth by 48.81 units. This positive impact is well illustrated through the significant participation of neglected elites in the society; hence, the economic growth. This study contributes significantly by focusing on the fundamental issues that researchers have encountered in order to offer a clear picture of whether democracy is essential for growth. As limitations, this study focused only on the hypothesis that causality moves from democracy towards growth (Acemoglu et al., 2008). Future researchers could examine the relationship between democracy and economic growth through using insights and findings reported in this paper. Moreover, researchers should focus on empirical issues including robustness and heterogeneity; meantime, examines the impact of the interaction of democracy with variables such as human capital, institutions quality, and development levels.

VII. Appendices

Appendix 01. Pooled OLS regression results

GROWTH	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L	-.045	.116	-0.38	.707	-.294	.205	
GOVTSIZE	.264	.096	2.74	.016	.057	.47	**
INF	-.003	.011	-0.23	.821	-.027	.022	
TRADE	-.019	.012	-1.62	.127	-.044	.006	
POP	.982	.275	3.58	.003	.393	1.571	***
PST	.775	.332	2.33	.035	.062	1.489	**
partipdem	9.6	10.392	0.92	.371	-12.689	31.889	
delibdem	1.653	7.171	0.23	.821	-13.728	17.034	
egaldem	-7.805	8.161	-0.96	.355	-25.309	9.699	
Autoc	-.008	.015	-0.56	.583	-.039	.023	
year	-.058	.032	-1.84	.088	-.125	.01	*
Constant	118.215	63.167	1.87	.082	-17.264	253.695	*

Mean dependent var	3.715	SD dependent var	9.349
R-squared	0.150	Number of obs	585
F-test	145.686	Prob > F	0.000
Akaike crit. (AIC)	4203.090	Bayesian crit. (BIC)	4255.549

**** p<.01, ** p<.05, * p<.1*

Appendix 02. Within estimator fixed effect regression results

GROWTH	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L	-.064	.11	-0.58	.572	-.301	.173	
GOVTSIZE	.269	.097	2.78	.015	.062	.477	**
INF	-.002	.016	-0.10	.923	-.035	.032	
TRADE	-.03	.023	-1.30	.214	-.08	.02	
POP	1.145	.305	3.76	.002	.491	1.799	***
PST	1.431	.619	2.31	.036	.105	2.758	**
partipdem	-38.965	12.942	-3.01	.009	-66.723	-11.207	***
delibdem	16.58	13.898	1.19	.253	-13.227	46.388	
egaldem	7.204	12.626	0.57	.577	-19.876	34.284	
Autoc	-.025	.024	-1.07	.303	-.076	.026	
year	.006	.026	0.22	.832	-.051	.062	
Constant	-8.368	53.076	-0.16	.877	-122.206	105.469	

Mean dependent var	3.715	SD dependent var	9.349
R-squared	0.170	Number of obs	585
F-test	82.665	Prob > F	0.000
Akaike crit. (AIC)	4173.947	Bayesian crit. (BIC)	4222.035

**** p<.01, ** p<.05, * p<.1*

Appendix 03. 2SLS regression results

GROWTH	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
D	.951	.032	30.13	0	.89	1.013	***
D	-.001	.019	-0.03	.975	-.039	.038	
D	-.009	.009	-0.99	.324	-.027	.009	
TRADE	.009	.007	1.28	.201	-.005	.022	
POP	.923	.099	9.35	0	.729	1.116	***
PST	-.168	.235	-0.72	.474	-.627	.292	
partipdem	8.3	6.335	1.31	.19	-4.116	20.717	
delibdem	.452	4.899	0.09	.927	-9.15	10.053	
egaldem	-5.472	6.579	-0.83	.406	-18.366	7.423	
Autoc	-.022	.012	-1.82	.069	-.046	.002	*
D2	-.317	.018	-17.64	0	-.352	-.281	***
D	-.029	.334	-0.09	.931	-.683	.625	
D	24.939	25.258	0.99	.323	-24.566	74.443	
D	-6.948	16.042	-0.43	.665	-38.39	24.493	
D	-10.828	22.897	-0.47	.636	-55.705	34.048	
D	.009	.02	0.44	.66	-.03	.047	
year	-.079	.021	-3.82	0	-.12	-.039	***
Constant	158.941	41.328	3.85	0	77.939	239.942	***

Mean dependent var	3.652	SD dependent var	9.237
R-squared	0.719	Number of obs	585
Chi-square	1460.579	Prob > chi2	0.000

**** p<.01, ** p<.05, * p<.1*

Appendix 04. Difference GMM regression results

GROWTH	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L	-.13	.131	-0.99	.336	-.408	.148	
L2	-.127	.067	-1.90	.077	-.269	.015	*
GOVTSIZE	.235	.086	2.75	.015	.053	.418	**
INF	.006	.018	0.31	.761	-.032	.043	
TRADE	-.012	.032	-0.39	.701	-.08	.055	
POP	1.433	.282	5.08	0	.831	2.034	***
PST	1.705	.661	2.58	.021	.296	3.114	**
PARTIPDEM	-29.292	13.001	-2.25	.04	-57.003	-1.581	**
DELIBDEM	6.248	11.902	0.52	.607	-19.121	31.616	
EGALDEM	14.008	15.705	0.89	.387	-19.468	47.483	
AUTOC	-.051	.037	-1.41	.18	-.129	.026	
D	49.595	47.614	1.04	.314	-51.891	151.081	
D	20.596	26.578	0.77	.45	-36.053	77.244	
D	-59.203	50.558	-1.17	.26	-166.964	48.558	
D	.063	.047	1.35	.196	-.036	.163	
year	-.073	.038	-1.91	.076	-.154	.009	*

Mean dependent var	3.694	SD dependent var	9.233
Number of obs	585	F-test	.

**** p<.01, ** p<.05, * p<.1*

Appendix 05. System GMM regression results

GROWTH	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L	-.217	.128	-1.70	.112	-.491	.057	
L2	-.088	.097	-0.92	.375	-.296	.119	
GOVTSIZE	.287	.085	3.37	.005	.104	.469	***
INF	.033	.025	1.32	.21	-.021	.087	
TRADE	-.045	.037	-1.24	.237	-.124	.033	
POP	1.504	.284	5.29	0	.895	2.113	***
PST	1.279	.842	1.52	.151	-.526	3.084	
PARTIPDEM	48.817	15.529	3.14	.007	15.51	82.124	***
DELIBDEM	-14.468	28.995	-0.50	.626	-76.656	47.72	
EGALDEM	-11.209	36.548	-0.31	.764	-89.597	67.18	
AUTOC	-.051	.026	-1.95	.072	-.107	.005	*
D	17.685	74.986	0.24	.817	-143.143	178.514	
D	83.265	51.516	1.62	.128	-27.225	193.756	
D	-159.281	96.262	-1.65	.12	-365.743	47.181	
D	.013	.04	0.33	.747	-.073	.1	
year	-.088	.034	-2.55	.023	-.162	-.014	**
Constant	178.777	68.233	2.62	.02	32.432	325.122	**

Mean dependent var	3.652	SD dependent var	9.237
Number of obs	585	F-test	54.007

*** $p<.01$, ** $p<.05$, * $p<.1$

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