Evaluating indicators contributing to government effectiveness in 12 MENA regions between 2012 to 2022: employing a longitudinal data analysis

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Abstract. Examining government effectiveness has not been easy, as every country possesses its own specific framework, making it harder to assess effectiveness. therefore, the following paper aims to inspect several indicators contributing to government effectiveness. Despite previous papers investigating effectiveness, most of them utilized the aforementioned variable as an independent. Hence this article will evaluate factors that promote effectiveness rather than how effectiveness impacts them, while simultaneously focusing exclusively on the MENA region. Interestingly the region scores negatively according to the world bank development, particularly in government effectiveness, consequently making it a potential topic. A panel data was applied to the 12 selected MENA countries from the period of 2012 to 2022, just after two years of the Arab spring, therefore expecting some extent of development in several societal sectors. According to the results, GDP pc, RQ, and women in parliament (WIP) all have a significant positive effect at the level of p<3.42, p<0.495, and p<0.007, respectively. Similarly, the random effect model shows a significant positive value for GDPpc, RQ, and WIP, coinciding with fixed effect results. On the other hand, voice & accountability, and political stability reveal insignificant results, despite being positive. Moving to the OLS regression model, we included the control of corruption to check if the inclusion of the aforementioned factor increases government effectiveness in the MENA region, interestingly all variables increase government performance in the 12 MENA regions except voice and accountability, while a decrease in political stability (PV) affects government performance.

Keywords: Regional studies, Government effectiveness, MENA countries, panel data, Control of corruption, Women in parliament, regulation quality

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Introduction

ASSESSING GOVERNMENT EFFECTIVENESS HAS BEEN FREQUENTLY and widely researched by partitioners in public administration, public policy, and public management, especially since many countries have adopted reforms in the last twenty-five years (Ingraham and Moynihan, 2001). Likewise, citizens conceptualized the term effectiveness with the performance of public officials, subsequently forcing elected officials to better deliver further effectiveness and innovation in different sectors that affect citizens' perceptions positively. Several prominent authors examined government effectiveness, for example, Han et al., (2014) demonstrated that government effectiveness and other variables such as political stability, control of corruption, and regulatory quality have a stronger positive association with economic growth rather than the rule of law and accountability. Emara, Jhonsa, and Eric (2014) underlined factors responsible for the weak economic performance in the MENA regions, both authors deduced that MENA's poor policies cause distortion to resource allocation, while lack of transparency and political freedom causes an absence of accountability among public workers. (Huynh et al., 2009) have used a nonparametric method to analyse the relationship between governance and growth. Their findings indicated that three of six indicators of governance: voice and accountability, political stability, and the rule of law are significantly correlated with economic growth, while regulatory quality, control of corruption, and government effectiveness are insignificant. At the same time, other researchers found robust empirical evidence that shows how political stability and government performance promote economic development (Aisen and Veiga, 2013; Alesina et al., 1996), while other researchers in the same field discovered an inexistent association between political stability and growth (Goldsmith, 1987)

Despite the available studies that employed government effectiveness in their studies, scholars have used and assessed effectiveness as an independent variable affecting different governmental sectors. For example, (Kaufmann et al., 1999a) noted that effectiveness is related to literacy, income per household, and infant mortality, while (Globerman and Shapiro, 2002a) concluded, that government effectiveness is positively associated with the number of foreign investments that flows in the country, (Brooks et al., 2005) linked with environmental performance and health outcome, finally (Helliwell and Huang 2008; Dahlberg & Holmberg, 2012) analysed from the context of well-being and citizens' satisfaction with democracy.

Therefore, this paper aims to investigate factors responsible for increasing government effectiveness by utilizing the aforementioned indicator as a

dependent factor. We argue that effectiveness can't be established nor created at the national level unless several external factors stimulate this effectiveness. Furthermore, the only available papers on elements influencing government effectiveness are on a general level in which these authors employed more than 100 countries (Duho, 2020), hence this paper focuses strictly on 12 selected MENA countries from the period 2012 to 2021. It is well known that MENA countries are different from their western counterpart in the context of politics, democracy level, and regulatory function, consequently, we assume factors that could have a strong influence on western government performance might not provide the same outcome for the MENA countries. The current study will apply a longitude panel data method to assess which of the selected factors Gross domestic per capita purchase parity (GDPpc), regulation quality (RQ), political stability and the absence of terrorism (PV), voice and accountability (VA), women in parliament (WIP) and control of corruption (COC) contributes most to the Government effectiveness (GE) all the indicators and factors were collected from the world bank development. the results of the two models (Fixed effect, Random effect) indicate the same results for all variables, for instance, GDPpc, Regulation quality and women in parliament all have a significant positive effect on government effectiveness in which all three variables contribute to the performance of the government, on the other hand, political stability and control of corruption displays significant effect on the OLS model, while voice and accountability don't demonstrate any effect on government performance despite showing a positive value.

Review of previous works

Government effectiveness

Effectiveness can be interpreted as how public administration performs and carries out specific tasks under a particular situation, and how these people affiliated with the public sector perform adequately to deliver considerable services (Rainey and Steinbauer, 1999). Government effectiveness can be seen as a project on how the state responds and serves its citizens while ensuring greater public sector accountability (Huther & Shah, 1998). Lipset (1959) concludes that the performance of a political system depends on the extent of efficiency of bureaucracy and the decision-making system; hence a breakdown of this effectiveness will endanger the state's stability and weaken its authority and trust in the context of functioning and delivering basic needs.

Terman & Feiock (2015a); Terman et al. (2016b) evaluated government effectiveness from a different direction, their measurement evaluated

government effectiveness through the lens of educational performance in several U.S school districts and British municipalities, other studies have examined government effectiveness in terms of tax collection (Petrovsky, N., & Avellaneda, C. N, 2014a) coverage of service delivery (Avellaneda, 2016b) while (Avellaneda, 2009c) examined Latin America government effectiveness by investigating total educational enrolment and literacy rate. (Levi, 1996) identified several factors that can be related to government performance; his indexes were composed of the policy process, a pronouncement of policy, and implementation of this policy. according to him, the first index encompassed cabinet stability, information sharing, services, and budget promptness; the second index involved investing in legislation that is friendly and accommodates innovation, undergoing reforms whenever particular legislation doesn't work; the last index was about collecting industrial instruments, increasing the spending capacity in the sectors that generates revenues such as agriculture, investing in housing and urban development, and ameliorating boreoarctic responsiveness.

Through literature, we notice a particular way of conceptualizing and measuring government effectiveness; however, this is useful only in some domains and purposes (Behn, 2003). Therefore, collecting effectiveness measurement index should be selected carefully while keeping in mind the sensitive characteristics they provide to help scholars achieve their ultimate goal (Behn, 2003). For this reason, this study will use the World government indicator as a dependent variable (Government effectiveness), while employing its other indicators as independent variables, including other notable indexes from world bank development. effectiveness has been used as an attempt to capture a state's ability (Kurtz & Schrank, 2007), for instance, (Kaufmann et al., 1999a) employed effectiveness to assess infant mortality, literacy, and per capita income, (Globerma & Shapiro, 2002) selected the aforementioned indicator to analyse if it has an effect on generating investment flows, (Brooks et al., 2005; Holmberg et al., 2008) utilized government effectiveness in the environment and health sectors, meanwhile, others treated it as a determinant for wellbeing (Helliwell and Huang, 2008); while others employed as an indicator that increases democracy and satisfaction among citizens (Dahlberg, & Holmberg, 2012). Despite scholars considering government effectiveness as the ultimate centre in all models, relatively few have been utilized as a dependent variable.

GDP

Many researchers demonstrated that government or institutional effectiveness is one of the major determinants of FDI attractiveness as this will not only make investors believe and regard the country as reputable, and

responsible but will likely ensure the long-term investment flows in the country such as the case of Singapore (Kraipornsak, 2018). on the other hand, a country that is characterized by poor governance and unsatisfactory performance in the context of effectiveness cannot guarantee investment protection, which will increase uncertainty and discourage investors (the case of Libya), Mlambo and Dlamini (2019). As seen from the studies of (Guisan et al., 2006), industry and foreign trade will increase the development of services and other non-industry sectors while having a positive effect on government performance as this will force the government to adopt friendlier policies while simultaneously easing trade barriers and increasing services system in the country to boost trade effectiveness. Interestingly this strategy of investing in trade and prioritizing trade economic growth through bilateral and multilateral trade agreements indirectly affects government effectiveness by boosting their level of performance.

Furthermore, the increase in imports and exports of goods and services such as net remittances, foreign investment, and credit from abroad have their own effect on other economic sectors and social capital, and by social capital, we refer to government quality and social values (Khouya and Benabdelhadi, 2020). Fernández-Arias and Hausmann (2000) studied the effect of government indicators on capital inflow, their result showed that institutional quality, regulatory quality, and government effectiveness have a positive effect on capital inflows, additionally Globerman & Shapiro (2002b), investigated the national policy effect alongside six other governance indicators on US FDI inflows, on the other hand, Ayach and Berthomieu (2006) analysed the effect of political infrastructure on FDI, in which their results were linked to government performance, this indicates as public authority displays efficiency it will eventually lead to the attraction of potential investors. However, one common thing among all these researchers is using government effectiveness as an independent variable by employing it in a different context.

Hall et al. (1999) consider institutional and governmental policies as the primary determinant of the economic environment in which individuals accumulate skills and produce output. While effective government assists in providing efficient social infrastructures and services that protect against diversion and thus boost economic growth, on the other hand, bad governance will likely lead to deterioration, expropriation, bad regulation, and laws in the public sphere, consequently causing an economic diversion.

Furthermore, Alam et al. (2017) mentioned that an effective government would result in market efficiency by enforcing property rights, assisting the private sector by facilitating barriers, accelerating capital accumulation, and directing this capital in their required and appropriate places while keeping productivity growth by absorbing new technologies from other countries by

joint economical accords. Supported by Webber et al. (2010) economic growth is one of the instruments for achieving environmental safety hence developing countries should invest in an economic growth policy that will direct to achieving an ecological and economic target aptitude. While government policy that focuses on environmental safety limits economic growth, thus influencing their effectiveness perception by the citizens.

Albeit the positive results of government effectiveness in economic growth through market enhancing and complementing the market with adequate channels (Acemoglu, 2001; Kaufmann et al., 2002; Barro, 1998), evidence from other studies suggested that good institutions and effective governance do not technically matter for economic growth (Quibria, 2006; Kurtz and Schrank, 2007).

Regulation quality

Fakih et al. (2020) analysed the effect of political instability, war and refugees on the MENA, labour market. Their studies revealed that the following factors had a negative effect on job opportunities; as a result, contributing to the unemployment rate in the region, others found a negative relationship between unemployment, happiness and government performance, in other words, unemployment affects the country's happiness level and public performances (Winkelmann, 2014; Frey, 2018). In the context of regulation quality (Millimet, et al., 2009), reasonable regulation can promote technological innovation and increase enterprises' productivity, which in turn will upgrade the country's industrial structure. In another study, Qian Z. (2014) demonstrated that governmental regulation could promote a green economy by optimising and upgrading the industrial sector. Therefore, a governmental regulation supporting growth and development will lead to economic transformation, a more significant environmental budget, and expansion of the country's business size, reflecting governmental endeavours. Additionally, Fredriksson and Svensson (2003) consider that both poor regulation and political instability diminish the performance, affecting the government's effectiveness, particularly in better addressing environmental challenges. Likewise, 17, 18 results showed that inadequate regulation quality could reduce trade and foreign direct investment while simultaneously increasing carbon emissions. Kobeissi (2005) assessed the effect of several indexes, such as economic freedom, legal system, and governance, on FDI while analysing how they contribute to government effectiveness in 12 MENA countries, the result of the panel data they employed demonstrated that both macroeconomic and institutional variables impact FDI positively while a negative effect of these

variables will likely demonstrate weak effectiveness among governmental officials.

Political stability

Consistent with the literature Laver and Shepsle (1998) and Williams et al. (2013) highlighted that political instability and terrorism affect political governance, in terms of impacting policy choice adoption, judicial independence, rule of law and political coalition are more probable to be created. Other authors from the same field suggested that effective governance offers high opportunities for dealing with grievances, protecting their citizens, and better responses to terrorist actions than infective authority (Choi, 2010; Efobi & Asongu, 2015). Siqueira & Sandler (2007) deduced that political instability and the presence of terrorism hinder election and voting procedures. While from an economic governance spectrum, both terrorism and instability affect the government's ability to effectively ensure policy implementation that is designed to deliver public commodities, government credibility commitments, and regulation quality by impacting the public ability to present accurate policies as well as interfere between citizens and authority harmony while reducing the guidelines that were supposed to promote partnership between the private sector and public partnership. For instance, in the case of the delta region of Nigeria, Tobor (2016) noted in his article that the presence of extremists in the region obstructed the government's actions to provide public goods and necessities to the habitants of the area. Efobi and Asongu (2015) showed that terrorism diminishes the rule of law and increases the corruption rate in public sectors, particularly by embedding and implementing weak trust in citizens toward public agents by altering their confidence level, especially on how the other party will unlikely abide by the rule of law.

Asongu and Nwachukwu (2017) employed a GMM on 169 countries for the period of 1960-2004; the panel data showed that political instability reduces government effectiveness and GDP growth rates. Lehkonen and Heimonen (2015) studied the effect of political risk and democracy on 49 emerging markets. The authors used two-panel methods pooled OLS and GMM, concluding that low political risks are correlated with higher returns. Furthermore, Uddin et al. (2017) assessed the effect of political stability on economic growth by collecting data from 120 developing countries from 1996 to 2014, the result of the GMM and the quantile regression showed that political stability tends to be High in OIC countries, consequently, deterring these country's economic growth, the author continued by underlining that lower-middle-income countries are as well severely influenced by the political instability due to the lack of economic solid models, effective government and

accountable political institutions. Similarly Yilmaz and Levent (2015) found bidirectional causality between political stability and economic growth, as more stable countries are, the more their economies flourish. In another case, Al-Tal (2021) examined the effect of quality governance (Political stability and government effectiveness) on energy consumption in the MENA region, the author deduced that political stability indicators positively affect the energy consumption of the MENA countries.

Accountability and corruption

Setiyanningrum (2017) considers accountability the extent of trusting the government to manage, report, and disclose all their activities reasonably, while Bovens (2007), Fox (2009), and Jeriansyah and Mappanyukki (2020) define accountability as the process of properly carrying out public duties such as monitoring, enforcing the law, upholding the integrity of their citizens, and deterring any misconduct by having the full authority of punishing, and investigating, but with the knowledge and consciousness that they will be held responsible if they fail to do so.

Setiawan and Safri (2016) investigated the effect of public accountability, and transparency on the performance of SKPD (Regional Working Unit), the author employed the path analysis, and the result of the path effect showed that simultaneously public accountability and transparency affect the performance of SKPD. At the same time, Osho and Afolabi (2014) inspected the influence of accountability and transparency in government sectors, accordingly, they found that an increase in accountability promotes government efficiency and decreases corruption among public officials. We notice that previous authors link accountability with transparency, indeed, without transparency getting reliable information from governmental bodies' performance will be challenging consequently, making it difficult for the citizens to hold the public sector accountable. García-Sánchez et al. (2016) utilized media freedom as a factor that affects government effectiveness in developed countries, the author considers the media as a critical element in the context of achieving political changes as it shows the percentage of the country's democracy. Accordingly, the same factor was applied in developing countries, interestingly, there was a considerable effect, as the media are influenced by government actions (Censoring) which makes citizens less informed in the decision-making process (Dirir, 2022).

Kepramareni (2021), conducted an analysis of the impact of accountability, independence, fairness, and responsibility on LDP performance. The result contended that accountability did not affect LDP performance, while the other factors have a positive effect on the performance.

Odilla (2017) employed accountability in how the government manages and allocate the budget, finding a positive significant effect on government effectiveness in terms of budget management. A similar result was found by Setiyanningrum (2017), their findings showed that accountability affects positively budget execution and budget performance. Eventually, this was not the case for the MENA regions, despite going through the Arab spring, which challenged many Arab governments and pushed them to re-examine their internal policies, the dearth of accountability and transparency between the agent's state and citizens, as well as the level of inequality has been an increase, while corruption and absence of social justice are still lingering and present in the region (Alkebsi et al., 2017). The author argues that MENA regions experience uncontrollable corruption, limited political freedom, and the absence of democracy, thus resulting in a dearth of accountability.

Women in parliament

In the field of political economy and governance it is well established that the proportion of women in parliament is positively and significantly affiliated with the quality of government institutions (Chen, 2013). Clots-Figueras (2011) argued that countries that boost the level of inclusion, especially women in the domain of policymaking, tend to project more resounding positivity because women's involvement in government sectors influence positively nation's behaviour. Moreover, Salahodjaev and Jarilkapova (2020) evaluated how the presence of women in parliament is related to deforestation, they found, if the number of women augments in politics, their role in the reduction of deforestation is significantly transparent. Keeping in line with the female in parliament, DiRienzo (2019) applied cross-country data to explore how women influence the corruption level in specific governmental sectors and how their presence stimulates the state's peace. Accordingly, their findings showed that the augmentation of the number of women in parliament brings general peace through their policies that focus on improving the provision of resources.

The same indicator was applied to corruption, Debski et al. (2018) studied 177 countries by utilizing a fixed effect regression, proving that female involvement in politics would not result in a reduction in corruption as there will not be any effect unless distance of power and masculinity is included in the analysis. However, in the same topic, Jha and Sarangi (2018) noted a significant negative relationship exists between women holding governmental posts and corruption. This indicates that augmentation in women's seats in parliaments and other representative platforms would decrease corruption. Similarly, Esarey andSchwindt-Bayer (2019) checked the relationship between female parliamentary representation and corruption, their result coincided with other

positive research on women's presence in parliament leads to reducing corruption levels. However, their findings did not stop at this, as they mentioned that if the corruption level increases, this will certainly lead to women's reduction in parliament. Another article from Xu (2015) Found that women in parliament foster economic growth. Similarly, countries that possess higher female participation in government sectors are more likely to project the extent of government effectivity in several domains, such as implementing pro-environmental policies. Furthermore, Boserup et al. (2013) results showed a more inclusive women's participation would increase the level of productivity of the country in terms of the economy as this predictive augmentation can be drawn from previous research, which articulated that women are less involved in corruption while countries with enough percentage of women in the parliament are the most to sign multilateral and bilateral environmental accords. Therefore, our hypotheses are formulated as follows:

H1: GDPpc increases the level of government effectiveness in the MENA regions under the period 2012-2021

H2: Regulation quality has a positive effect on government effectiveness in the MENA regions from the period 2012-2021

H3: Political stability and absence of violence increase governmental performance in the MENA regions under the period 2012-2021

H4: Voice and accountability have a positive impact on government effectiveness in the MENA regions under the period 2012-2021

H5: the presence of women in the government increases the level of effectiveness in the MENA regions under the period 2012-2021

H6: Control of corruption has a positive impact on government effectiveness in the MENA regions under the period 2012-2021

Data and method

The study is based on secondary data, the utilized data were collected from world bank development, Government effectiveness (GE), GDPpc (GDP), regulation quality (RQ), political stability and absence of terrorism (PV), voice and accountability (VA), women in parliament (WIP) and control of corruption (COC). To carry out the analysis, we studied selected 12 countries from MENA regions. The collected data are then arranged in panel data, the aforementioned statistics were used because of their benefit in dealing with data violation of Gauss Markov assumptions, namely heteroskedastic and normality (Wooldridge, 2010). This study's panel data also shows an observation of

(balanced data), beginning from 2012 to 2021. Additionally, the model developed in this study is to examine factors affecting government effectiveness in the MENA regions, where (GE) is taken as a dependent variable and (GDP, RQ, PS/AT, VA, WIP, and COC) as independent variables, hence the model framework for the data is defined as follows:

First the Fixed effect equation:

$GE_{it} = \alpha_i + \beta_1 GDPpc_{it} + \beta_2 RQ_{it} + \beta_3 PV_{it} + \beta_4 VA_{it} + \beta_5 WIP_{it} + \cdots + u_{it}$

Random effect:

$GE_{it} = \alpha_i + \beta_1 GDPpc_{it} + \beta_2 RQ_{it} + \beta_3 PV_{it} + \beta_4 VA_{it} + \beta_5 WIP_{it} + \cdots + u_{it} + \varepsilon_{it}$

And for OLS model

$GE_{tit} = \beta_1 GDPpc_{it} + \beta_2 RQ_{it} + \beta_3 PV_{it} + \beta_4 VA_{it} + \beta_5 WIP_{it} + \beta_5 COO_{it} \cdots + u_{it}$

Where GE_{tit} is government effectiveness *i* at time *t, GDPpc is gross domestic product per capita adjusted purchase parity,* RQ government regulation quality, PV defines as political stability and absence of terrorism, where VA is voice and accountability and WIP represent percentage of women in parliament. For the OLS equation $\beta_5 COO_{it}$ represents control of corruption β_1 - β_5 parameters to be estimated while ε_{it} is the random effect.

Data Analysis and Results

Before checking the descriptive analysis, we first tested the correlation between the variables, we can see from Table 1 that all the variables have a significant positive effect on government effectiveness. However, the indicator (WIP) shows no significant effect despite being positive. Accordingly, regulation quality (RQ) has the strongest positive correlation with government effectiveness (GE), followed by (GDPpc) and Political stability (PV), with each of one 0.6296 and 0.4187, respectively. The fourth variable also has a significant positive correlation at 0.303. Additionally, a multicollinearity test was conducted, and all the variables seem to respect the assumption of non-multicollinearity, but only after we deleted control of corruption (COO) from the table, which showed near collinearity at 8.41.

Table 1: Correlation Analysis and VIF results

	GE	GDP	RQ	PV	VA	WIP	VIF	1/VIF
GE	1							
GDP	0.6296*	1					2.16	0.462828
	0							
RQ	0.8926*	0.5845*	1				1.96	0.510056
	0	0						
PV	0.4187*	0.6312*	0.4685*	1			1.87	0.534812
	0	0	0					
VA	0.3030*	-0.1453	0.2461*	-0.2266*	1		1.38	0.724502
	0.0008	0.1134	0.0067	0.0128				
WIP	0.1442	0.3089*	-0.1069	0.3200*	0.2850*	1	1.2	0.830709
	0.1161	0.0006	0.245	0.0004	0.0016		Mean:1.72	

GE: Government effectiveness, GDP: Gross domestic product per capita adjusted purchase parity, RQ: Regulation quality, PV: Political stability, VA: voice and accountability, WIP: woman in parliament. *p<0.05.

Descriptive analysis

Table 2 shows the descriptive results of the selected variables. as we can notice from the table, GDP and WIP possess the highest mean with 36503.78 and 15.917, respectively. This can be explained by the positive number affiliated with these two variables. The mean value of PV and VA are negative (-0.34: -0.88), while both have a standard deviation below 1. Again, we omitted to include control of corruption due to multicollinearity. In Table 3, the mean of each

variable was extracted to provide us with a clear picture of MENA countries' performance in the different sectors. United Arab Emirates, Bahrain, Israel, Jordan, Oman, Qatar, and Saudi Arabia have a positive score in government effectiveness. While for voice and accountability all MENA regions score negatively according to the world bank estimation, except for Israel and Tunisia, this can be explained by both countries' emphasis on democracy and media freedom. Finally, the percentage of women in parliament seems to be high in the United Arab Emirates, followed by Tunisia, and interestingly Djibouti has a percentage of 18.01.

Table 2: Descriptive results

	Mean	StD	Medium	Interquartile range	max	min
GE	0.1948778	0.6866868	0.135265	0.8601367	1.505398	-1.081845
GDP	36503.78	30415.07	34345.28	39832.4	141634.7	0.5
RQ	0.0960298	0.7241864	0.0991094	1.125961	1.309297	-1.373277
PV	-0.3471877	0.7475425	-0.5820026	1.272575	1.223599	-1.638831
VA	-0.8828443	0.6663644	-1.057835	0.6187589	0.786672	-1.882015
WIP	15.91796	11.48742	15	19.50605	50	0.5

GE: Government effectiveness, GDP: Gross domestic product per capita adjusted purchase parity, RQ: Regulation quality, PV: Political stability, VA: voice and accountability, WIP: woman in parliament. source: from the author.

Table 3: The Mean of each factor

	GE	GDP	RQ	PV	VA	WIP
UAE	1.357922	61562.9	0.952621	0.7130248	-1.09795	29.25
BHR	0.4374124	47526.86	0.619708	-0.8802142	-1.38252	11
DJI	-0.9417636	4467.752	-0.69613	-0.4169575	-1.40223	18.01399
DZA	-0.4690961	12201.84	-1.26968	-1.041862	-0.93756	26.91471
EGY	-0.5320759	11674.91	-0.66766	-1.35498	-1.24091	11.68139
ISR	1.272361	37609.24	1.236702	-0.9614095	0.686883	25.25
JOR	0.1201886	9866.194	0.128829	-0.4421584	-0.74612	13.16109
KWT	-0.0952643	52524.17	-0.00322	0.1053886	-0.65045	3.604151
OMN	0.1649595	34279.38	0.447294	0.6123199	-1.08648	1.525406

QAT	0.8683726	104721.3	0.688024	0.8979595	-1.14871	4.346883
SAU	0.2276116	50448.21	0.071765	-0.5356992	-1.74409	17.88079
TUN	-0.0720941	11162.6	-0.3559	-0.8616639	0.15599	28.3871
Total	0.1948778	36503.78	0.09603	-0.3471877	-0.88284	15.91796

*UAE: United Arab Emirates, *BHR: Bahrain, *DJI: Djibouti, *DZA: Algeria,

*EGY: Egypt *ISR: Israel, *JOR: Jordan, *OMN: Oman, *SAU: Saudi Arabia,

*QAT: Qatar, *TUN: Tunisia.

Regression results

Before conducting the regression analyses, we run the Hausman test to check which statistical model was best suitable for our research, the test showed a significant p-value of 0.0001. Hence, from this result, we conclude that the fixed effect is the most suitable model that will help us with the data processing of indicators affecting government effectiveness, Table 4 shows all the regression results of the two models. Additionally, Breusch-Pagan / Cook-Weisberg test for heteroskedasticity demonstrated that our model is Homoscedastic at the value of 0.055, consequently discarding the assumption of running the robust test to correct our model. While In table 5, we decided to add control of corruption (COO) and perform an OLS regression analysis to check if political stability and absence of terrorism (PV) will be the same. It is important to note that we have removed (COO) because of near collinearity at the level of 8.41. In line with the interpretation, it can be seen from table 4 that GDPpc, RQ, and women in parliament (WIP) all have a significant positive effect at the level of $p<3.42$, $p<0.495$, and $p<0.007$, respectively. Similarly, the random effect shows a significant positive value for GDPpc, RQ and WIP, coinciding with fixed effect results. On the other hand, voice & accountability and political stability reveal insignificant results, although both factors are positive. Following the OLS regression results in Table 5, we included the control of corruption to check if the COO increases government effectiveness in the MENA region, interestingly all variables increase government performance in the 12 MENA regions except voice and accountability while a decrease in political stability (PV) affects effectiveness.

Table 4: Result of Fixed effect and Random effect

VARIABLES	(RE) GE	(FE) GE
GDPpc	3.42e-06***	2.21e-06**
	(9.74e-07)	(9.68e-07)
RQ	0.495***	0.214**
	(0.0719)	(0.0906)
VA	0.114	0.0492
	(0.0802)	(0.115)
WIP	0.00799***	0.00658***
	(0.00178)	(0.00172)
PV	0.0329	0.0209
	(0.0594)	(0.0630)
Constant	0.00768	0.0395
	(0.118)	(0.125)
Observations	120	120
Number of Id	12	12
R-square	0.893	0.954

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: OLS regression results

	Coef.	St.Er	t-value	p-value	95% Conf	Interval	Sig
GDP	3.99E-06	7.30E-07	5.46	0.000	2.54E-06	5.43E-06	***
RQ	.289	.046	6.33	0.000	.199	.38	***
PV	-.118	.028	-4.28	0.000	-.172	-.063	***
VA	.033	.025	1.31	0.192	-.017	.082	

WIP	.009	.002	5.90	0.000	.006	.012	***
CC	.722	.068	10.65	0.000	.588	.856	***
Constant	-.22	.047	-4.65	0.000	-.313	-.126	***

R-squared: 932, Number of Observation; 120, Prob > F 0.000

GE: Government effectiveness, GDP: Gross domestic product per capita adjusted purchase parity, RQ: Regulation quality, PV: Political stability, VA: voice and accountability, WIP: woman in parliament, CC: Control of corruption. *** p<.01, ** p<.05, * p<.1. source: from the author.

Discussion and conclusion

This study examines the effect of Gross domestic product per capita (GDPpc), regulation quality, political stability and the absence of violence, voice and accountability, the percentage of women in parliament, and control of corruption on the government's effectiveness. For the purpose of this study, a sample of 12 MENA countries was selected from the period 2012 to 2021. Furthermore, panel data was employed on the pooled countries to test the impact of each variable on the dependent variable (GE). It can be seen in Table 4 the outcomes of regression results of each model. The R-square of the random effect shows 0.893 explaining 89% of the variance, while for the fixed effect model, the independent variable explains 95%, respectively.

In Table 4, GDP has a positive effect on government effectiveness, this means, when the GDP of a country flourishes, the level of effectiveness of public authority increases, as it boosts their macroeconomic policies by adopting other favourable policies while projecting the country's performance size, reputation and competitiveness to the eyes of investors, entrepreneurs, and other countries who are seeking bilateral accords and joint partnership, this result is coinciding with (Kraipornsak, 2018; Alam et al., 2017; Kaufmann et al., 2002b).

Regulation quality (RQ) reflects on how the policies adopted by government and public institutions adequately fit by providing favourable results to sectors they are desired to cover, such as protecting against unfair competition and discriminating taxes, offering financial & investment freedom, ease of building businesses in the country, and how the national laws are friendly with startup companies and small medium enterprises. After examining from these angles, the regression results of Regulation quality (QR) demonstrate a significant positive effect on government effectiveness for all three models. This indicates, when governmental regulation projects adequacy, capability, and response to the need of different sectors by minimizing the risk and anticipating their demand, government effectiveness will increase while simultaneously

citizens' satisfaction and their perceivedness of public endeavor will turn positively, therefore, MENA regions are advised to enhance their national and regional regulations to further accommodate with their performance, this result is supporting the previous findings of (Fredriksson and Svensson, 2003).

On the other hand, voice and accountability do not have a significant effect on government effectiveness despite showing a positive value. This suggests that MENA country's effectiveness is scarcely based on voice and accountability. Although voice and accountability might have an impact on how governments in developed countries perform, particularly in countries where democracy is high, however, this doesn't seem to be the case among MENA countries (Kepramareni, 2021).

Women in parliament show a positive significant effect on government effectiveness. Indicating that if there is a sufficient presence of women in governmental sectors, the likelihood of increasing the state's effectiveness is certain. In the past year, all MENA countries have been working on introducing women in the parliament, despite this achievement, Middle Eastern and North African countries are still far behind compared to their western counterparts. For example, Djibouti has been making efforts to include women in the policy-making process, although the country has only 988,000 population, smaller than most countries in the MENA, however, the percentage of women having seats in the parliament is more extensive compared to Saudi Arabia and Egypt. Therefore, accelerating the introduction of women into the parliament would be effective for MENA countries, as has been proved by Baskaran et al. (2018), who investigated the effect of women's legislation on economic performance in several provinces that elected women to represent them as a legislator. The result of the discontinuity regression approach revealed a positive association between women's legislators and economic growth, the result indicated that the economy grew 1.8 per cent in the female constituency compared to their male counterparts. Similarly, Collins (2019) findings showed the contribution of women in parliament to the south African economy.

Keeping in line with table 4, PV doesn't show any effect on government effectiveness, according to this, we employed OLS regression while adding control of corruption (COO). In Table 5, we see that political stability has a negative sign; therefore, we deduce that if political stability decreases in the region, government effectiveness will decrease consistently. In other words, the increase of unstable factors (internal or external), eventually somehow impacts institutional and governmental activities to carry out effectively, such as protecting property rights, contract enforcement, and responding to crimes and violence. These results match with Asongu and Nwachukwu (2017), who investigated how terrorism affects governance effectiveness in 53 African countries from 1998 to 2012, The empirical result of the GMM demonstrated

that all terrorism factors have a negative effect on governance (Political, Institutional, stability, control of corruption, rule of law, and general governance).

Finally, the control of corruption was discarded because of near multicollinearity at the level of 8.41, however, we decided to include this indicator in the Ols model to check if there is any effect between the two variables, interestingly control of corruption has a positive effect on MENA countries' effectiveness. With these results, we are supporting previous works in the field that similarly concluded that corruption is without any doubt an obstacle that hinders government performance. For instance, in the MENA regions, Tunisia established a passel of laws that deals with corruption and restrains civil workers, politicians, and public servants from engaging in work that involves corruption, Moreover, the country passed 2017 laws that protect whistle-blowers. Qatar has successfully established anti-corruption bodies such as the (ACTA) while salient legal frameworks have been developed in recent years to increase citizens' trust. However, corruption still exists and is present in the country as the nation remains a monarchy (Kukutschka, 2018). At the same time, the Egyptian government has taken strict measures against corruption in sectors such as budget execution, The Egypt Administration of the Criminal Justice Project (AOCJ) uses software that prevents records from being destroyed easier. Although the MENA government established several initiatives, the region needs to address several societal and political issues before achieving satisfactory effectiveness.

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