MILITARY SPENDING AND ECONOMIC GROWTH: DOES POLITICAL INSTABILITY MATTER?

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Abstract

The purpose of this paper is to assess the interactional impact of military expenditure on economic growth, taking into consideration the levels of political instability in the Middle East, North Africa and Turkey region (MENAT), namely Egypt, Iran, Jordan, Morocco, Saudi Arabia, Tunisia, and Turkey, over the period 1996–2019. In this regard, this study considers the effects of military spending on economic growth in a panel cointegration framework using panel dynamic ordinary least squares (OLS), focusing on the implications of political instability. Our analysis indicates that after controlling for cross-sectional dependence, the typical relationship between military spending and output does not hold in the long run. This relationship, however, is re-established and becomes stronger once we account for political instability in the countries in the region. It is clearly found that political stability indices are more important for developing countries. In the long run, the results of dynamic OLS reveal that military spending has a more elastic relationship with the economic growth rate in the presence of political instability in the MENAT region with a negative effect, while there is a negative relationship between political stability level measured by government effectiveness and economic growth.

Keywords: Military Spending, Economic Growth, Panel Cointegration Analysis, Dynamic OLS, Political Stability

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1. INTRODUCTION

Military spending is a negotiable issue at any time, except when the region is in conflict or at war. Although some consider military spending a sign of security and stability for a country, others consider it a waste of the country's resources. However, notwithstanding this opinion, security, stability, and good living standards of the citizens should be the primary responsibility of the government, (Sweidan & Elbargathi, 2022). Providing a safe environment for the maintenance of the citizens' property and businesses is the key responsibility of the country (Lagum & Elektorowicz, 2022). According to the Stockholm International Peace Research Institute (SIPRI), the amount of global military spending increased from 1999 to 2011. It then levelled between 2012 and 2016, before it reached US$1.7 trillion in 2017. This represents 2.2% of the world's gross domestic product (GDP) (Fleurant et al., 2018).

The association between military expenditure and economic growth is one of the major elements of the sustainable development literature. The connection between the two principles has raised great interest among researchers as well as

decision-makers. Currently, there is a huge need for government intervention in the country's economy in order to enhance the macroeconomic activities (Sweidan, 2022). This specific concern derives from the assumption that military spending is not an exclusively monetary issue, but a combination of economic, political, environmental, and social aspects as well (Lagum, 2021). To illustrate, a higher political instability reduces certainty, poses challenges for fiscal and monetary policymakers, manipulates interest rates, and inflation, and thus lowers policy goals. As a result, political instability causes adverse implications on economic performance (Elbargathi & Al-Assaf, 2019).

Primarily, investment policies and economic regulations are likely to change with political regimes, thus increasing uncertainty about future net returns (Alghusin et al., 2020). This leads to lowering the expected annual returns related to investment projects (Sweidan & Elbargathi, 2023). These increased threats can also raise the output cost. Similarly, local savings and imported wealth would be hindered by taking risks (Sweidan & Elbargathi, 2021). Indeed, capital flight may be characteristic of a politically unstable economy (Fosu, 2001). It is also argued that political instability is a very important factor in understanding some deviations in global financial development (Roe, 2011; Al-hawatmah & Shaban, 2020).

Therefore, the links between military spending, political instability, and economic growth have been developed. Various economic and political indices are used to analyze the potential macroeconomic impact of defense expenditure on economic growth in times of political uncertainty. Empirical findings from research studies have confirmed that economic expansion is always influenced by an increase in military spending because many countries devote a substantial portion of their income to security-related expenditures. This is particularly true when they are engaged in foreign or domestic military conflicts. While the influence of military expenditure is often considered to be irrelevant or detrimental, numerous countries invest a large portion of their GDP in defense and military. For example, evidence from The World Bank (n.d.) stated that, between 1988 and 2012, countries with the largest defense spending (as a share of GDP) had the largest economic growth (5.96% of the high-income non-OECD and 2.57% of OECD), while countries with smaller shares had smaller economic growth (2.08% of middle-income countries and 2.05% in the OECD).

The purpose of this paper is to assess the interactional impact of military expenditure on economic growth, taking into consideration the levels of political instability in seven countries in MENAT (Egypt, Iran, Jordan, Morocco, Saudi Arabia, Tunisia, and Turkey) over the period 1996–2019.

The rest of this paper is organized as follows. Section 2 is devoted to a theoretical background and literature review on the relationship between military spending and the economic growth that is linked to political instability and it provides a brief descriptive analysis. Section 3 presents the data and the econometric methodology of the current study. Section 4 discusses the empirical findings and results. Section 5 concludes the paper.

2. LITERATURE REVIEW

Military spending and political instability may have both negative and positive effects on economic development. It may be detrimentally impacted in a variety of ways, like crowding out capital formation, interrupting economic operations, growing government debt, etc. Alternatively, the increase in aggregate demand, the investment in infrastructure, and the job creation could have a positive impact. Barro (1991) was the first who studied a cross-section of nations and reported that the political variables are negatively associated with economic development. Also, Alesina and Perotti (1996) employed various factors on political instability and, similar to Barro (1991), suggested that there is an adverse correlation between economic development and political instability. Moreover, in a related study, it has been noted that national political turmoil had a significant negative effect on the nation's economic results. Ades and Chua (1997) argued that both political instability and defense spending reduce economic growth.

The relationship between military expenditure and economic growth was examined by Stroup and Heckelman (2001) for 44 African and Latin American countries during the period 1975–1989. The results from this study confirmed the non-linearity correlation between the two variables. They found that low levels of defense expenses led to high levels of economic growth and vice versa. Furthermore, Aizenman and Glick (2006) analyzed the interaction between military expenses and economic growth by using several political indicators such as external risks, corruption, and other relevant controls. Empirical results found that the higher rates of military expenditure caused lower levels of economic growth. Conversely, in the presence of the selected independent variables, the analysis found evidence that military spending led to an increase in growth. In other words, defense expenses had a positive impact on the economic performance during an unstable political environment.

Accordingly, fixed effects, random effects, and Arellano–Bond GMM estimates were used to examine the non-linear relationship among the military spending, arms trade, and economic growth of a balanced panel of 28 countries in the period 1965–2000. Augmented Solow and Barro development models that were proposed by Dunne et al. (2005) were used. The finding indicated that higher military spending and net arms exports independently can lower economic growth, but a large amount of defense expenditure can slightly lower the growth levels when a country is a net arms exporter (Yakovlev, 2007). Moreover, the negative impact of military expenditure on economic growth can be seen also in Romania as noted by Obreja Brasoveanu (2010). The cluster analysis, quintile analysis, regression methodology, and Granger causality were applied to obtain such a result. This was because spending high amounts on military operations and equipment potentially had a negative impact on the economic growth in Romania. Also, an econometric analysis was performed by Saudi et al. (2019) by using autoregressive distributed lag (ARDL) to assess the effect of military expenditure on economic growth in Malaysia. It provided a set of data for the period 1979–2017. The findings confirmed an adverse association between military

spending and GDP. Besides, several other studies indicated that military expenditure may slow down growth (Deger & Smith, 1983; Faini et al., 1984; Deger, 1986; Mintz & Huang, 1990; Huang & Mintz, 1991; Ward & Davis, 1992; Pieroni, 2009).

In contrast, Biswas and Ram (1986) were one of the first researchers who stated that military expenditure does not hinder or boost growth. Looney and Frederiksen (1986) reached approximately a similar conclusion. As the hypotheses of the study posit, there would be a detrimental relationship between defense and economic growth in countries that are financially limited by resources but have a positive association in countries that are unregulated by resources. In this regard, the regression coefficients are calculated for the entire sample and each category, with growth in the GDP being the dependent variable, and the external debt, structural condition, growth, and balance of payments in the economy as the independent variables. The findings supported the hypothesized positive correlation between defense and growth in the unbridled group, but it was not verified for the restricted category. The results revealed that factors such as foreign exchange, net capital inflows, external debt, and public sector expansion, had a significant impact on economic growth. Furthermore, the causality between the growth of gross national product (GNP) and defense expenditure in Turkey was studied by Karagol and Palaz (2004) with the assumption that there is a long-term relationship with regard to equilibrium between GNP and defense spending. As such, this paper examined a series of unit roots, co-integration, and causality tests for the years 1955–2000. The results revealed that there is a unidirectional causality between factors, from security spending to economic development. Additionally, Feder-Ram and the augmented Solow models were used to examine the defense-growth linkage in the United States (US) between 1954 and 2005. The findings suggested that the US economy is not affected by military investment and expenditure (Heo, 2010).

Ando (2009) conducted a relevant study and collected a set of data from 109 countries. He stated that the military strain may not have a detrimental influence on economic growth. Also, cointegration and vector error correction instrument was used to explore the connection between defense expenditure and economic growth, measured by GDP, in addition to several macroeconomic factors. These incorporate exchange rate (EXRT), inflation rate (INF), lending rate (LR), gross capital formation (GCF), and unemployment (UN). In addition, the time of the structural adjustment program (SAP) was included as a dummy variable to assess the effect of strategy changes. The main finding of this paper is the existence of a relationship among all the study variables in the long run. A positive relationship was demonstrated between defense expenditure and economic growth for Nigeria, over both the long term and the short term (Anyanwu & Aiyedogbon, 2011).

Again, the augmented Solow growth model was used by Chairil et al. (2013) to empirically analyze the causal association between military expenditure and economic growth in Indonesia. The results showed that defense expenditure has a positive impact on the development of the economy of Indonesia, which was a result of the improvement of human resources as a consequence of military expenditure. In another study, a series of data covering the period 1975–2013 was used to analyze the connection between defense spending and economic growth in Sri Lanka (Selvanathan et al., 2014). The findings suggested that protection spending in such a country was one of the reasons for economic development. However, the economic growth had no impact on defense expenditure,

Using a sample of 12 countries from MENAT, the trajectory of causality between political uncertainty, defense expenditure, and economic development over the period 1988–2013 was discussed, in the context of a panel co-integration analysis. A positive causality was found between political instability and defense spending to economic growth for Lebanon, while a positive causality between political instability and economic growth to defense spending for Jordan, Saudi Arabia, Morocco, and Turkey and a positive causality between economic growth and defense spending to political instability for Egypt and Turkey. The results indicated that the military, as a government institution had played a critical role in economic development and political turmoil in Lebanon, Egypt, and Turkey (Balan, 2015). Besides that, the connection between security spending, political uncertainty, and economic growth has been identified by Aizenman and Glick (2006). While several studies have examined the relationship between military expenditure and development, the scientific evidence that is available at the moment is unfortunately not satisfactory. Several experiments showed that military expenditure is conducive to development (Smith, 1980; Yildirim et al., 2005). Some studies showed that it is conducive to growth (Benoit, 1973; Weede, 1983). Likewise, the correlation between military spending, political uncertainty, and economic development in Nigeria was discussed by Umar and Abu (2016). Several variables such as GDP were applied to measure the economic growth, defense expenditure, arms imports, and political instability index. The results indicated that the interaction of military spending and political instability is a source of economic development in Nigeria, but the recurrent political turmoil can hinder its economic growth.

In conclusion, the magnitude of the impact that military expenditure has on economic growth has not been fully understood yet, and no consensus has been reached as to what this relationship really looks like. Nawaz (1983) has earlier predicted that "no clear agreement has emerged about the nature and extent of their economic impact" (Nawaz, 1983, p. 34).

2.1. Trends in military spending, political instability, and GDP variables

This section provides a brief descriptive analysis of three categories — military, political, and economic environments for all the countries studied, over the period 2010–2019. The graphs below show the trends of the main two response variables for each category.

Figure 1 shows the amount in a million US$ which was spent on military, by several countries from MENAT over the study period (percentage share of GDP by country as presented in SIPRI).

Based on the highest spending amount by each country, Saudi Arabia is ranked at the top. The 13.3% of GDP in Saudi Arabia went to military expenditure

in 2015 which was equal to US$90,409 million. It is followed by Jordan in second place, with 5.9% of GDP in 2010 spent on military expenditure, amounting to US$1,942 million.

In the same way, Morocco was in third place with 3.8% GDP in 2013 which was equivalent to US$3,876 million. Iran was in fourth place with 3.1% which equaled US$14,678 million. Furthermore, the modest maximum outlay on military issues in 2019 reached approximately 2.6% of GDP in Turkey and Tunisia. This was equal to US$20,795 million and US$1,039 million, respectively, while the lowest percentage was around 2 in Egypt in 2010 which amounted to US$3,892 million.

Figure 1. Military expenditure (constant 2018 US$) and military expenditure as GDP (%) for 2010–2019

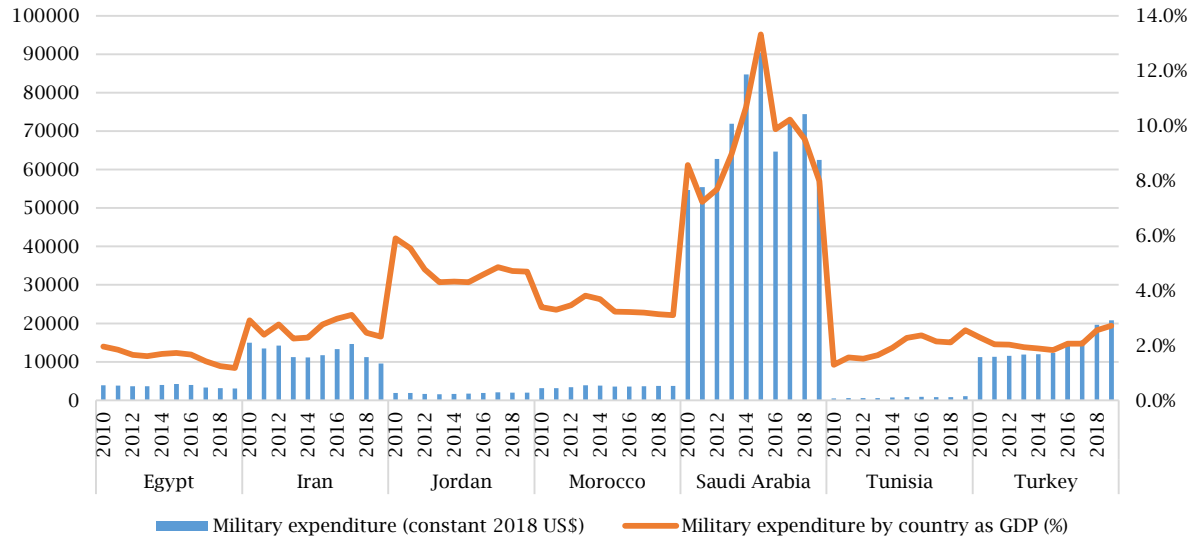
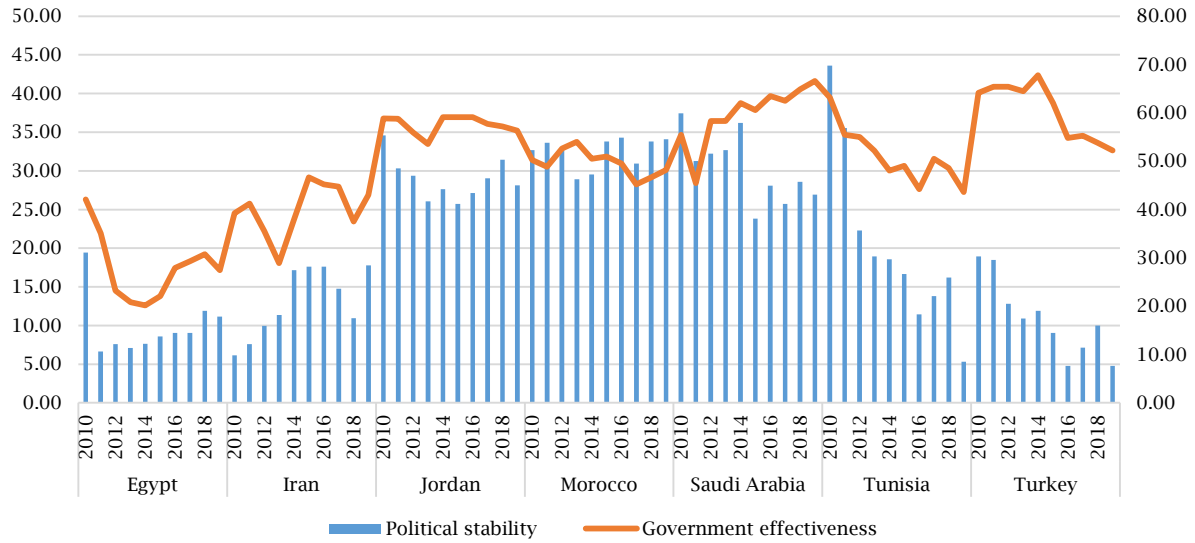


Figure 2 includes information related to the two featured political indicators during the period of the study. The data were collected from the Worldwide Governance Indicators and The World Bank Group. It is measured in standard normal units of the index, ranging from 0 to 100. The higher the number, the higher the degree of stability.

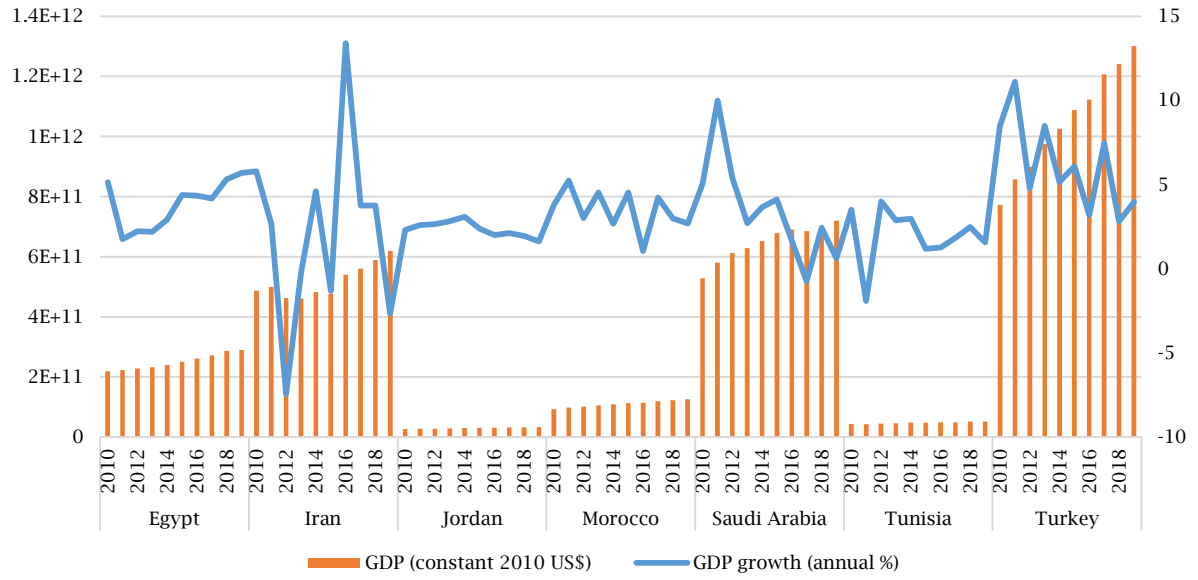
It can be seen clearly in this figure that all countries suffered from political instability during the period of the study, as all data of the political stability indicator were less than 50% in all years. Accordingly, the highest percentage among all countries was in Tunisia, which was 43.6% in 2010. In contrast, the lowest was in Turkey in 2016 and 2019 as the index reached 4.7%. On the other hand, the majority of government effectiveness indicators were above 50% with few exceptions in Egypt and Iran. Therefore, the peak was in Turkey in 2014 with 67.7%, while the minimum was in Egypt in 2014 as well with 20.1%.

Figure 2. Political stability and government effectiveness for 2010–2019



Likewise, GDP in million US$ and its annual growth percentage for all countries are presented in Figure 3. These were also collected annually for the same years from The World Bank Group. The outset point of the annual GDP growth among all countries was in Iran at 13.3% in 2016, when it jumped sharply from -7.4% in 2012. The maximum growth in GDP of Saudi Arabia was 10% in 2011 and in Turkey, it was 8.5 % in 2013. Alternatively, Egypt and Morocco reached approximately the same level of growth which was around 5% in 2019 and 2011 respectively. To a lesser extent, the GDP growth in Tunisia was 3.9% in 2012 and in Jordan, it was around 3% in 2014.

Figure 3. GDP (constant 2010 US$) and GDP growth (annual %) for 2010–2019



3. RESEARCH METHODOLOGY

To investigate the relationships between military spending and economic growth in the presence of political instability, the study uses annual data covering the period 1996–2019 for seven selected countries from the MENAT region. The present study employs panel data analysis. In line with the current literature, a general-to-specific modeling approach and the selection of the explanatory variables have been guided by the empirical literature.

The basic general model of the impact of military spending on economic growth including the political stability indicators that capture potential long-run relationships among these variables (including political stability variables) can be constructed as follows:

$$LY_{it} = \beta_0 + \beta_1 LGCF_{it} + \beta_2 LLF_{it} + \beta_3 LMS_{it} + \beta_4 PI_{rit} + \varepsilon_{it} \quad (1)$$

where, LY_{it} represents the GDP of the country (i) at time (t). $LGCF_{it}$ is the investment level expressed by the gross capital formation of the country (i) at time (t). LLF_{it} is the labor force of the country (i) at time (t). LMS_{it} is the military spending of the country (i) at time (t), and PI_{rit} is the political stability index (r) of the country (i) at time (t), which includes *PS* (political stability index) and *PSGE* (government effectiveness index). ε is the error term. All variables are expressed in logarithms.

The primary focus of this study is to determine the role played by the political instability level in the MENAT region in affecting the long-run relationship between military spending and economic growth in the selected sample. Therefore, the model will be first estimated without political stability variables and then with the political stability indices included in the estimation to check the effect of considering these important variables in the model specification in such region. Although the precise definition of political instability may be debatable, many studies have adopted the political stability indicators published by the Worldwide Governance Indicators and The World Bank Group.

Dynamic ordinary least squares (OLS) can be used if the cointegration is present in a panel framework. It provides information about the long-run elasticities. To achieve unbiased and endogeneity-corrected estimates of the long-run parameters, parametric adjustments are made to the errors. This adjustment is done by including both past and future values of the first differenced I(1) regressors. The following equation is used to obtain the dynamic OLS estimators:

$$Y_{it} = \alpha_i + X_{it}'\beta + \sum_{j=q_1}^{j=q_2} C_{ij}\, \Delta X_{it+j} + \upsilon_{it} \quad (2)$$

where, X_i represents the explanatory variables included in Eq. (1). C_{ij} represents the lag coefficient of the explanatory variables at first differences.

The panel unit root tests are used to examine the degree of integration between military spending, economic growth, and political stability variables. It starts with Levin, Lin, and Shin (LLC), the IPS test proposed by Im et al. (2003), and ADF-Fisher which are commonly used in empirical work. A shortcoming of this test is that it does not take into account the possible cross-sectional dependence among the variables of the panel. Such

dependence distorts the inference as the asymptotic analysis is no longer accurate. For this reason, the study adopts the Pesaran (2004) cross-section dependence (CD) test. It then proceeds to perform the panel unit root tests proposed by Pesaran (2007) and Chang and Song (2009) that take into account cross-sectional dependence. After checking the order of integration among variables, the study proceeded by testing to potential long-run cointegration relationship using two panel cointegration tests. The first one was developed by Kao, which extends the Engle-Granger two-step residual-based cointegration tests, and the second is the Fisher test, which is based on the Johansen cointegration test.

4. RESULTS

The first step in detecting the cointegration relationship among variables is to determine the order of integration through unit root tests, and this step also includes the cross-section dependence test. However, the CD test rejects the null of cross-sectional independence in all cases, and the results are not presented here for space limitation.

From Table 1, it can be seen that all variables under investigation are non-stationary at their levels and become stationary at their first differences, which indicates that all the variables are integrated in the same order I(1). The next step is to test for potential long-run relationships using the panel cointegration tests. This study applies two-panel cointegration tests developed by Kao, which extend the Engle-Granger two-step residual-based cointegration tests, and the Fisher test, which is based on the Johansen cointegration test. In order to see the role played by political stability indicators in the long-run relationship between military spending and economic growth, the model is first tested for cointegration without including the political stability variables (Model 1), and then it is tested with the most significant political stability indices: political stability (*PS*) and government effectiveness (*PSGE*) in Models 2 and 3, respectively.

Table 1. Panel unit root tests

Null: Unit root						
Variables	***Levin, Lin, and Shin (LLC)***		***Im, Pesaran, and Shin W-stat. (IPS)***		***ADF-Fisher Chi-square***	
LY	-1.603*	[0.060]	1.463	[0.920]	5.821	[0.971]
ΔLY	-3.54295***	[0.000]	-3.78572***	[0.000]	42.9496***	[0.000]
LGGF	-1.11102	[0.1333]	1.08574	[0.8612]	6.03448	[0.9656]
ΔLGGF	-5.93678***	[0.000]	-6.25498***	[0.000]	62.3277***	[0.000]
LLF	-1.8829**	[0.0299]	1.43116	[0.9238]	10.5419	[0.7216]
ΔLLF	-2.50482	[0.006]	-2.7987	[0.003]	30.1279	[0.007]
LMS	0.36431	[0.6422]	1.84025	[0.9671]	11.4242	[0.6524]
ΔLMS	-7.04470***	[0.000]	-6.02093***	[0.000]	62.5923***	[0.000]
PS	0.62359	[0.7336]	1.05685	[0.8547]	9.70672	[0.7833]
ΔPS	-9.96442***	[0.000]	-11.0801***	[0.000]	113.698***	[0.000]
PSGE	0.28879	[0.6136]	0.66906	[0.7483]	13.1275	[0.5165]
ΔPSGE	-9.88267***	[0.000]	-10.4760***	[0.000]	108.705***	[0.000]

*Note: Value in squared brackets indicates the p-value, optimal lag length determined by (SIC); *, **, and *** represents the 10%, 5%, and 1% significance levels, respectively.*

The empirical results of the Kao and Fisher tests for all three models are displayed in Table 2. It is seen that for Model 1, the null hypothesis of no cointegration cannot be rejected at any level of significance. However, after adding the political stability indices (both *PS* and *PSGE*), the two tests indicate that the null hypothesis of no cointegration between military spending and economic growth can be strongly rejected, which means that there is evidence of a long-run relationship between military spending and economic growth in the presence of political stability variables.

In addition, the results of the Fisher test show that the cointegration relationship is stronger when the political stability variables are included in the models (Models 2 and 3), where the null hypothesis of no cointegration is also rejected for all models and there are at most 2 cointegrating relationships in Models 2 and 3 while only at most one for Model 1 at 1% level of significance exists.

Table 2. Panel cointegration tests

Null: No cointegration						
	Model 1		***Model 2***		***Model 3***	
Variables	*GDP, LF, GFC, MS*		*GDP, LF, GFC, MS, PS*		*GDP, LF, GFC, MS, PSGE*	
Kao residual	-1.234 [0.1085]		-2.308** [0.0105]		-3.165*** [0.0008]	
Johansen Fisher panel (max-eigen test)	None	73.38***	None	102.6***	None	112.6***
	At most 1	31.39***	At most 1	47.62***	At most 1	49.61***
	At most 2	23.51*	At most 2	36.07***	At most 2	34.59***
	At most 3	20.67	At most 3	22.46*	At most 3	30.22***

*Note: Value in squared brackets indicates the p-value, optimal lag length determined by (SIC); *, **, and *** represent the 10%, 5%, and 1% significance levels, respectively.*

Table 3 shows the panel dynamic OLS estimates which provide the elasticities of the GDP with respect to other variables included in the three models. The empirical results also show that adding the political stability variables influences the impact of military spending on economic growth, especially when including the government effectiveness index as a measure of political stability in the selected countries. Political instability/uncertainty usually creates an unfavorable business climate, which seriously erodes the risk-averse foreign investors' confidence in the host country and drives GDP components down, and makes military spending away from development and capital accumulation. This is also reflected though the negative and significant coefficient of military spending in Model 3.

Table 3. Panel DOLS (long-run elasticities)

Dependent variable: GDP			
Vars.	***Model 1***	***Model 2***	***Model 3***
LF	0.629*** [0.000]	0.679*** [0.000]	0.641*** [0.000]
GFC	0.836*** [0.000]	0.555 ** [0.019]	1.069*** [0.000]
MS	-0.051 [0.678]	-0.192 [0.189]	-0.214* [0.062]
PS	-	-0.008*** [0.007]	-
PSGE	-	-	-0.012*** [0.000]

*Note: Value in squared brackets indicates the p-value. All variables are in log. *, **, and *** represent the 10%, 5%, and 1% significance levels, respectively.*

In addition, the standard diagnostic checks of the specifications are obtained, whereas a test for autocorrelation of residuals using a Lagrange multiplier (LM) test is conducted and both χ^2 and F-statistic indicate that we cannot reject the null hypothesis of no autocorrelation in the residual at all sensible levels of significance. A normality test, the using Jarque-Bera test, is also implemented to detect whether the residuals are normally distributed in our models. χ^2 statistic obtained highlights that we cannot reject the null of normal errors.

5. CONCLUSION

The study focused on the long-run relationship between military spending and economic growth in the panel of MENAT countries over the period of 1996–2019. The study employed panel techniques using several cointegration tests and estimating panel dynamic OLS for examining the long-run elasticities with respect to military expenditures, economic growth, and political stability variables. The result shows that all of the variables have a non-stationary at level, while it becomes differenced stationary. The results confirmed the cointegration relationship between military spending and economic growth and this relationship becomes stronger when including political stability variables. The results of dynamic OLS reveal that military spending has a more elastic relationship with the economic growth rate in the presence of political instability in the MENAT region with a negative effect, while there is a negative relationship between political stability level measured by government effectiveness and economic growth.

In light of the findings discussed above, the study suggests policy-makers to moderate military expenditure, so that it increases the investment levels and economic growth in the country. Future research is still needed to investigate the nexus between military expenditure and internal threats as proxied by the degree of civil wars, poverty, income inequality, and limited economic or political freedoms as well as any other factor that may have an impact on military spending.

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