

THE RELATIONSHIP BETWEEN MILITARY EXPENDITURE AND ECONOMIC GROWTH IN MIDDLE EAST AND NORTH AFRICA (MENA) COUNTRIES

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***Abstract:** The Middle East and North Africa (MENA) region is composed of countries with a shared heritage that are at various stages of economic growth and are home to extremely diverse natural resources. There have been military or civil wars in the majority of the countries in the region. There were wars that caused extreme human misery, economic displacement, and many development opportunities were lost by the nations of the region. Therefore, a substantial proportion of national budgets is used for military expenditure. In addition, for the economy, military investments produce both costs and profits. This study investigated the correlation between military expenditures and growth in MENA Countries by applying panel data over the span 2009-2019. As a result, we found a positive and significant impact of military expenditure on economic growth.*

***Key words:** Military expenditures, MENA countries, Economic growth, Dynamic panel data*

1. INTRODUCTION

For a prolonged period of time, the effect of military expenditure on growth has been the topic of economic analysis. The argument on the impact of increased military expenditure on economic development and welfare was revived by improved defense expenditure as a part of the

state inexpensive approach and the connected interests of the weapons manufacturing.

The short and long term consequences of defense expenditures have been scrutinized by many scholars. Defense expenditure has an effect beyond the resources it absorbs, especially conflicts are triggered or encouraged by these expenses. Thus,

it may have important economic implications. Moreover, military spending may have an economic effect that is both positive and negative. At the end of World War II, military government spending was a global issue and there were both industrialized and emerging countries that had an opportunity to reduce their defense expenses. Usually, the rise in spending on defense is a political response to national turmoil and may be a result of the world race of arms. In addition, industrialized nations may be worried about the detrimental impact of unregulated military expenditure on developing countries (Haseeb: 2014).

Since the 1990s, the bulk of the least developed countries and western economies have witnessed civil or military clashes. Some of them were domestic, however others were global, but all triggered similar and wide human misery, economic problems, and wasted opportunities for progress.

MENA is an economically different area that comprises nations that part a common heritage, are at various phases of economic growth and benefit from various incomes. Most of them have witnessed one degree or another of military or civil wars, on the other hand. Fair and

substantial human misery, economic difficulties and missed opportunities for growth were exacerbated by these conflicts. Consequently, a large proportion of these nations' budgets were allocated for military expenditure. The armed forces in the MENA countries play a vital role in maintaining the radical regime. Therefore, the military receives a huge share of national revenues, primarily based on their view of these nations as masters of politics. (Shahid & Saba, 2015).

In addition, rising defense spending has resulted in security challenges that are among the most distinctive issues in MENA countries.

Continued increases in the proportion of defense spending in national budgets and the goals investment in the arms sector have reinvigorated debates on the effect on development and welfare of increased military spending. Several researchers took part in this discussion and investigated the short- and long-run effect of defense spending on the economy. According to the Keynesian theory, military spending raises aggregate demand and leads to economic growth through the construction of infrastructures such as highways, houses, bridges, etc., contributing to technological advances that could be used by private industries.

On the other hand, the neoclassical approach suggests that defense spending has a negative impact on economic development by moving capital from private sector to defense and associated industries. Moreover, if a country does not have a strong defense budget, defense goods need to be imported, which will contribute to a rise in the transition of national resources to foreign countries. (Künü et.al., 2016).

The aim of this study is to empirically evaluate whether defense expenditure in MENA countries is related to economic development or not. This analysis was therefore intended to fill the gap; the basic objective of the research is to estimate the effect of defense spending on growth in the MENA states. The study has been conducted on MENA countries over the period 2009 to 2019. Furthermore, we have used the random and fixed effect with system GMM to investigate the impact of defense spending on growth in the sample countries. Section 2 discuss the defense spending and growth in MENA nations. Section 3 presents a related literature. Section 4 illustrates data sources and methodology. Section 5 discusses the results. A conclusion is given in Section 6.

2. MILITARY EXPENDITURES AND ECONOMIC GROWTH IN MENA COUNTRIES

Defense expenditure is a large part of a nation's national budget. Defense expenditure is characterized as national defense expenditure based on state economic fiscal policies. (Islam: 2015). Since 2011, political tensions of various forms have been seen in the MENA countries. The underdeveloped existence of these countries and insecurity have been the main reasons for these conflicts. There is a continuing civil war in Syria, Iraq, Libya and Yemen in the MENA region, resulting in extreme human casualties and the devastation of Physical facilities: 15 million refugees, the majority of them in countries with economic and political turmoil such as Tunisia, Djibouti, Lebanon, and Jordan are displaced, contributing since the World War II to the greatest refugee crisis. It is predicted that the present instability in Yemen will result in the damage of years of growth. Under the obstruction and danger of aggression, Gaza has one of the world's top joblessness rates, and GDP stands at 40% of its potential. Oil exporters and relatively prosperous countries like Iran, Algeria, and the

Gulf Cooperation Council (GCC) countries. These countries are facing now problems such as low oil prices and persistent youth joblessness and undiversified resources (World Bank 2020). While after the Cold War, there was a global decrease in military expenditure, the Middle East was an exception to this pattern, where there was an increase in military spending. Economics, demographics and security issues have also been essential to the stability of the region (Yildirim et al., 2005). As of 2016, global defense expenditure rose to USD 1.616 trillion for the second consecutive year the first continuous yearly increase since 2011, the year when defense spending hit an all-time peak of USD 1.699 trillion. Defense expenditure patterns and trends vary greatly across regions. Military spending continues to grow in Oceania, Central and Eastern Europe, North Africa, and Asia, for example, although decreasing in the countries of the Caribbean, the Middle East and Sub-Saharan Africa, Central and South America (SIPRI 2020). In 2016, worldwide military costs accounted for 2.2% of worldwide GDP. This rate was the highest in the Middle East, with an average rate of %6.0 in 2016 (in countries where data was available).

The military expenditure, especially in the Middle East, has been seen as a reliable tool to assist political regimes. Scarce resources have been diverted to military spending, justified by political instability, radical Islamist fundamentalism and external challenges, and investment in economic and social development has been adversely affected in these nations as a result. It is therefore necessary to identify the impact of military expenditure on development. (Yildirim et al., 2005). According to the Keynesian theory, defense expenditure stimulates total demand and rises the use of resources, jobs and income, thus stimulating a surge in investment and thereby having a positive effect on economic development. It could also stimulate development by investing in infrastructure, such as constructing highways, bridges, buildings, etc., and by encouraging technical innovations that could also be used by the private sector. However, the neoclassical perspective suggests that defense expenditure discriminates against the private sector by directing expenditures that might be more lucrative for military companies in private hands and associated firms, thus having a negative effect on economic development.

National defense in nations without modern armed powers industries is heavily reliant on imports. Increasing foreign debt and shifting capital to foreign countries may adversely impact the economy (Künü et. al., 2016). It may also have detrimental consequences if defense spending were funded by increased supply of cash or domestic and international borrowing or depletion of stocks of foreign currencies. Moreover, because of the import of advanced technology items needed by the military manufacturing, military spending may also have a negative effect on foreign debt. (Günlük Şenesen: 2004). Military expenditure is an aspect of monetary policy and has several possible theoretical consequences for the economy.

Depending on the particular perspective, these results may be considered as positive or negative. Increased spending on defense may decrease unemployment due to low consumption or disinvestment. Research and development of the defense industry could have a beneficial impact on private investment by spin-offs and technology transfers. Some methods apply to the developing nations. It could also be argued that defense

expenditure could improve overall social infrastructure and other public domain goods and services. Military investment may also develop the social skills developed through the training of military personnel. Defense expenditure supports a healthy market atmosphere which, by providing security, facilitates foreign investments. Defense costs, however, could divert private sector assets from where they could be used more effectively. The balance of payments could be adversely affected by weapons imports. Increased defense orientation might redirect needed private sector R&D investments where the production might be used for extra realistic objectives. To fund military expenditures that could limit economic growth, governments could increase taxes (Islam: 2015).

3. LITERATURE REVIEW

There are many investigations on the effect of defense expenditure on economic development. Several research studies have indicated that defense expenditure may have had a positively and negatively economic impact, while other research in the field have also shown that it has little impact on economic growth. The connection between military

expenditure and growth has also been examined empirically by studies in the literature of defense economics since the important study by Benoit. According to Benoit (1973). He shows that defense expenditure is positively linked to growth in the Least Developed Countries (LDCs). He found the argument on the conceptual basis that military organizations in LDCs are more effective in delivering non-military welfare services to vulnerable citizens than their bureaucratic counterparts. Moreover, Hassan et al. (2003) examine the correlation between defense spending and growth in five out of 7 South Asian Association for Regional Cooperation (SAARC) countries from 1980 to 1999. In their investigations they find that the correlation between military spending and growth is positive, suggesting that military spending may have a positive impact on economic. In addition, Anwar et al. (2012), in an empirical investigation, examine the relationship between military spending and growth in Pakistan over the 1980-2010 span. They find that there is a long-run link between defense expenditure and growth, while defense spending is triggered by economic growth. Furthermore, Sezgin (2000) examines the correlation

between military expenditure and economic development in Turkey and Greece. Study results show that economic growth in these two nations is positively influenced by defense spending. Farzanegan (2012) explores the correlation between economic and defense expenditure in Iran.

The results indicate that growth in defense expenditure (its share of total spending) clarifies Iran's potential economic growth. Halicioğlu (2004) studies the association between economic and defense expenditure in Turkey from 1950 to 2002. The modern macroeconomic theory and multivariate co-integration approach were used in the analysis and a long-run and positive correlation between aggregate military spending and total production in Turkey was empirically confirmed.

Furthermore, according to DeRouen (2000) investigation, when technological development was employed as leverage, short-run rises in defense expenditure contracted the growth in Israel. The non-defense spending promoted growth was decided by the same report. Hirnissa et al. (2016) examine the causality of defense expenditure and economic in 20 developed states, and find that military expenditure and growth are co-integrated in all sample countries.

The panel model used in the analysis highly suggests that during the study periods, there is a long-term correlation between military spending and growth in these countries. Nevertheless, the findings show that the long-run impact is unidirectional and defense expenditures are affected only by economic growth. Consequently, it could be argued that growth in the twenty developing nations examined in the study had a positive effect on the growth of the defense manufacturing on average, but vice versa was not true. Some studies have shown that the relation between military spending and economic has been negative.

Moreover, Stroup & Heckelman (2001) investigate the impact of defense expenditure on growth in Latin American and African nations over the period 1975-1989 by using a panel data for 44 African and Latin American countries. The results indicate that low levels of military spending have enhanced economy, but higher levels of military spending have had a negative impact on economy. In a study done by Pan et al. (2014) based on cross-sectional dependency to assess the correlation between defense expenditure and economic in 10 Middle Eastern nations. They found that there was a unidirectional relationship in Turkey

from defense spending to growth, a unidirectional causality in Lebanon, Kuwait, Syria, and Egypt from growth to defense expenditure, and a bidirectional causality in Israel, and it was found that there was no link in Jordan, Oman, and Saudi Arabia between defense expenditure and development of economy. Moreover, Smith (1980) used data from 1954-1973 for 14 large OECD nations and examined the hypothesis that decreased expenditure in the post-war era was a significant opportunity cost for military spending. The findings showed that military spending has a direct negative impact on investment. Lebovic & Ishaq (1987) found that Higher defense expenditure hampered economic growth in the Middle East. Khalid et al. (2015) investigated the correlation between defense expenditure and economic growth in the USA by applying the boundary testing approach and co-integration test over the period 1970 to 2011. Their findings indicated that the relationship between military spending and economic was negative.

In addition, Agostino et al. (2013) investigated the correlation between military expenditure and economic development in an African nation by applying panel data from 1989-2010. Their results showed that

military expenditure has an effect on development. Dunne & Nikolaidou (2011) used panel and time series data, and the Solow-Swan model was used to find empirical evidence about the economic impacts of military spending from 1961 to 2007 in EU15 countries. Both the panel data and time series approaches presented clear indication and showing that defense expenditure in these countries did not stimulate economic development. Furthermore, Al-Jarrah (2005) used two models to examine the causal correlation between military expenditure and overall real growth in Saudi Arabia from 1970 to 2003. Their founding indicated that a bidirectional causal correlation existed between defense expenditure and growth, and a unidirectional causal correlation existed between non-oil growth and defense expenditure, with a negative and strong short-term effect of military spending.

Moreover, Apanisile & Okunlola (2014) examined the long and short run impact of defense expenditure on output in Nigeria. Their findings indicate that defense spending had a significant and negative impact on short-term growth, but the same impact was significant and positive in the long-term, as both

long and short run capital and labor had significant and positive impacts. While, in the long run, labor had the highest coefficient.

Furthermore, Dunne (2012) investigated the cross-country panel data from 1988-2006. The study focused on countries located in an area with wide conflicts during that time, namely Sub-Saharan Africa with different income levels and classified into subgroups. The findings indicated that defense spending had a substantial short-term negative impact and had a marginal long-run effect on GDP growth, and that the effect was not consistent across different income classes. Aizenman & Glick (2006) have been examined the long-run impacts of defense expenditure on economic development. They reported that defense expenditure would stimulate growth because of external threats, but defense spending would reduce growth to gain personal interest because of corruption. Dunne & Tian (2013) used balanced panel data model over the period 1988-2010 data for 104 countries, the effect of defense spending on growth was studied. The effect of defense spending on growth for the entire sample was documented to have been

significantly negative, and the impact was stronger in African countries.

Korkmaz (2015) investigated the impacts of defense spending on growth and unemployment variables were examined in 10 Mediterranean states, which were considered to be important in the region over the period 2005-2012, the study was performed with panel data. The findings indicated that while defense expenditure had a negative impact on development in these states, unemployment grew.

In a study conducted by Künü et al. (2016) on the effect of defense expenditure on growth over the span 1998-2012, in 12 Middle Eastern nations, the findings show that defense spending had a detrimental impact on development, which improved in periods of the study. Yang et al. (2011) investigated and indicated that there was a strong negative association between defense spending and growth in 23 nations with a primary income, that economic improvement in these 23 nations was found to decrease when the threat level deteriorated. However, military spending encourages development in cases where a serious danger exists.

In addition, Wijeweera & Webb (2011) investigated the correlation

between financial expenditure and economic development by using a panel data approach for five South Asian countries with data from 1988-2007 for Bangladesh, India, Sri Lanka, Nepal and Pakistan. They found that a 1 % rise in financial expenditure only raised the real GDP by 0.04 percent, so it could be argued that substantial public spending in the military sector in these states had a marginal effect on economic development. Moreover, Islam (2015) studied the correlation between military expenditure and growth in 41 developing nations over the 2001-2010 span and examined the connection between military expenditure and GDP. They found that in various nations, the effect of defense expenditure on GDP growth was either negative or positive.

4. DATA AND METHODOLOGY

4.1. The Data

A balanced panel data was constructed to analyze the defense-growth correlation in the MENA states over the span 2009-2020. The data set is balanced and all cross-section units have the same time periods available. The data is taken from the Military Budget Yearbooks (SIPRI) and the data for population and GDP are taken from the WDI.

Table 1. Variables descriptions: Annual data: (2009-2019; N=18)

Variable	Explanation	Source
ME	Military expenditure	SIPRI (2020)
RGDPC	Real Gross domestic product per Capita	WDI (2020)
IM	Import of Goods and Services	WDI (2020)
EX	Export of Goods and Services	WDI (2020)
Govex	General government expenditure	WDI (2020)
POP	Population	WDI (2020)

Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, Sudan and Turkey.

4.2. Econometric methodology

The purpose of this research is to understand the connection between the defense expenditure and growth in the MENA states. Therefore, the econometric analysis used during the study is the following:

$$ME_{it} = \alpha_1 + \alpha_2 ME_{it-1} + \alpha_3 RGDPC_{it-1} + \alpha_4 IM_{it-1} + \alpha_5 EX_{it-1} + \alpha_6 Govex_{it-1} + \alpha_7 POP_{it-1} + \lambda_i \varepsilon_{it}, \quad i = 1, \dots, N; t = 1, \dots, T \quad (1)$$

Equivalently, Eq. (1) may be written as follows:

$$ME_{it} = \alpha_1 + \alpha_2 ME_{it-1} + \alpha_3 RGDPC_{it-1} + \alpha_4 IM_{it-1} + \alpha_5 EX_{it-1} + \alpha_6 Govex_{it-1} + \alpha_7 POP_{it-1} + \lambda_i \varepsilon_{it-1}, \quad i = 1, \dots, N; t = 1, \dots, T \quad (2)$$

Where *ME* is military expenditure, *RGDPC* is real gross domestic product (GDP) per capita, *IM* is import of goods and services, *EX* is export of goods and services, *Govex* is general government expenditure, *POP* is population, and the subscripts *i* and *t* index countries and time, respectively. Furthermore, the specification also contains an unobservable country-specific impact μ and error-term ε .

Moreover, in this paper, we have used the Generalized Moment Method (GMM), which is a semi-parametrically effective model of estimation, and since Hansen (1982) developed its large sample properties, GMM has obtained

abundant attention in the field of economics. The GMM approach starts from a list of over-identified population moment conditions and attempts to find an estimator that minimizes them.

The resulting estimate has been shown to be reliable and asymptotically normal under many conditions. However, the GMM first differential estimator suffers from a significant weakness. Blundell and

Bond (1998) found that lagging levels of these variables are weak resources for the regression equation when the independent variable persists over time, expressed in initial differences. In addition, Blundell and Bond (1998) have found that the instrument variable used for the first-difference GMM method (i.e. the endogenous variables lagged two or more times) is less informative in models where the variance of the fixed effects is mainly proportional to the variance of the transitory shocks. This is likely to contribute to skewed coefficients, and issues in small samples.

In addition, this technique effectively incorporates the first-difference with the same equation expressed in levels in a system. The instruments of differential regression are the same as those labeled above, while the lagged differences of the associated variables are the lagged differences of the instruments of the level equation. The main advantage of the SGMM method is that, unlike the first differential (between or within), it uses the level estimate for estimation, and not only does this take advantage of the difference in results, but also between countries. It therefore enables the storage of further data to identify the parameters of interest. Arellano and Bond

(1991), based on the Monte-Carlo simulation, show that this additional information results in a significant gain in the accuracy of the estimates.

5. THE EMPIRICAL RESULTS

Our study focuses on 18 MENA states for which we have access to data for the 2009-2019 period. We have applied the panel data for the pooled regression model, cross-section results, and REM models of random effects, between and within the models of fixed effects. Furthermore, we are going to use the Blundell and Bond (1998) systems GMM approach (SGMM) in which the parameters are simultaneously calculated in the first-step GMM, second-step GMM with robust SE of the variables.

To decide if a fixed and random effects model is sufficient for our study, we performed the Hausman test, which is distributed as χ^2 , where the degrees of freedom are equal to the number of regressors. The results show that the fixed effects model is rejected, and this outcome is consistent with Murdoch et al. (1997), as random effect models are considered more fitting. Therefore, the fixed-effects model is not necessary in our case. Estimates

of the random effect and fixed effect parameters are listed for the MENA countries in Table 2 and Table 3. For the results obtained we used a pooled regression model based on a balanced data set provided in Table 4, similar to Smith and Dunne (2001), who have a clear and significant relationship between economic growth and military, and the result shows that the relationship between military expenditure and economic growth is positive and statistically significant.

In addition, the results of this analysis, provided in Table 5, are estimated by the GMM model system and show that there is a positive relationship between defense expenditure and economic growth in the rest of the sampled countries and statistically significant growth, while population is not directly linked to economic growth. That means it does not lead to increased military spending in the MENA countries as the population increases. All diagnostics in each table are satisfactory for the models. In this analysis, GDP and general government expenditure are typically positively linked to defense expenditure, and statistically significant at 1%. The findings indicate that the increase in defense expenditure in the sample countries is due to economic growth (GDP) and general government expenditure.

In addition, this result shows that amid many problems such as civil war, disputes and border tensions, military spending plays a significant role in the MENA nations, and this finding is confirmed by earlier work for 44 developing countries by Benoit (1973&1978). Additionally, Ali's (2007) findings in developed countries also confirm and help our findings. Moreover, these net positive ties support the assumption that the expansion of total demand in the developing countries is connected to military spending and economic development. In addition, investment in infrastructure and creation of human resources in developing economies operating below full employment have positive spillover effects from defense spending of the Benoit type. There is less evidence that defense expenditure in developed nations is negatively related to economic development in developing countries. The positive results occur as relationships vary from economic growth to defense expenditure and meaning that many developing countries are still at a stage where low-income defense spending is limited and will rise along with the economy. They are not yet in a position to rise less than proportionately with economic growth in defense spending.

Table 2. Random Effects Results (Sample period: 2009-2019)

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-13038.71	4848.442	0.007*	-3535.935
POP	.0001961	.0000753	0.009*	.0003437
GDP	.4413887	.0777137	0.000*	.5937048
govex	866.1522	125.2411	0.000*	1111.62
EX	-83.14711	33.28213	0.012*	-17.91533
IM	6.431454	38.14303	0.866	81.19041
Hausman test	0.1139	-	-	-
Observations	198	-	-	-
Countries	18	-	-	-
Min obs	11	-	-	-
Max obs	11	-	-	-
Av obs	11	-	-	-
Rsqu within	0.63	-	-	-
Rsqu between	0.63	-	-	-
Rsqu overall	0.63	-	-	-
Wald chi2(2)	-	-	-	-

* indicate significance at 1% level.

Table 3. Fixed Effects Results (Sample period: 2009-2019)

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-13237.62	3569.055	0.000*	-6193.691
POP	.0001877	.0000946	0.049*	.0003744
GDP	.4703932	.0835192	0.000*	.6352278
govex	874.7386	131.0726	0.000*	1133.425
EX	-89.66944	33.89215	0.009*	-22.77947
IM	9.980485	38.82005	0.797	86.59622
Hausman test	0.1139	-	-	-
Observations	198	-	-	-
Countries	18	-	-	-
Min obs	11	-	-	-
Max obs	11	-	-	-
Av obs	11	-	-	-
Rsqu within	0.63	-	-	-
Rsqu between	0.63	-	-	-
Rsqu overall	0.63	-	-	-
Wald chi2(2)	-	-	-	-

* indicate significance at 1% level.

Table 4. Results of Pooled OLS estimations (Sample period: 2009-2019)

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-17015.64	5219.615	0.001	-6720.488
POP	.0001934	.0000467	0.000	.0002855
GDP	.0985769	.0769428	0.202	.2503387
govex	1166.943	184.6439	0.000	1531.134
EX	146.7065	74.61118	0.051	293.8694
IM	-131.9938	87.87698	0.135	41.33443
Breusch-Pagan LM test			(0.000)	135.67*
Hausman test	-	-	-	-
Observations	198	-	-	-
Hetero (χ^2 – stat)	-	-	-	-
Serial Correlation (F-stat)				
R-squared	0.6481	-	-	-

* indicate significance at 1% level.

Table 5. One-Step System GMM Results (Sample period: 2009-2019).

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-14837.96	3635.649	0.000*	-7712.214
POP	.0000153	.0000885	0.862	.0001887
GDP	.3753839	.0822609	0.000*	.5366123
govex	913.5987	155.5431	0.000*	1218.458
EX	-12.61819	29.90853	0.673	46.00146
IM	29.54036	34.62042	0.394	97.39514
Observations	162	-	-	-
Countries	18	-	-	-
Min obs	9	-	-	-
Max obs	9	-	-	-
Av obs	9	-	-	-
Wald chi2(2)	192.13	-	0.0000	-

* indicate significance at 1% level.

In addition, the effects of the two-step GMM system and the two-step GMM system are robustly demonstrated in Tables 6 and 7. The results of these estimates suggest

that there is a positive association between military spending and economic growth and that there is a statistically insignificant correlation.

Table 6. Two-Step System GMM Results (Sample period: 2009-2019).

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-7561.703	123366.7	0.951	234232.6
POP	-.000164	.0015593	0.916	.0028923
GDP	.2119623	2.238385	0.925	4.599117
govex	585.0987	10629.96	0.956	21419.44
EX	99.6059	634.8617	0.875	1343.912
IM	-74.54759	72.27418	0.302	67.1072
AR (1)	-.33384			0.7385
AR (2)	-.60014			0.5484
Observations	180	-	-	-
Countries	18	-	-	-
Min obs	10	-	-	-
Max obs	10	-	-	-
Av obs	10-	-	-	-
Wald chi2(2)	3321.70	-	0.0000	-

* indicate significance at 1% level.

Table 7. Two-Step with vice (robust) System GMM Results (Sample period: 2009-2019)

Variables	Coef.	Std. Err.	T-Ration	Interval
Constant	-7403.462	94542.33	0.938	177896.1
POP	-.0000998	.0010369	0.923	.0019325
GDP	1912067	1.079756	0.859	2.30749
govex	437.0571	617.1646	0.479	1646.677
EX	100.5182	280.3367	0.720	649.968
IM	-44.31274	1224.91	0.971	2356.467
AR (1)	-.33384			0.7385
AR (2)	-.60014			0.5484
Observations	180	-	-	-
Countries	18	-	-	-

Variables	Coef.	Std. Err.	T-Ration	Interval
Min obs	9	-	-	-
Max obs	9	-	-	-
Av obs	9	-	-	-
Wald chi2(2)	3321.70	-	0.0000	-

*. indicate significance at 1% level.

6. CONCLUSIONS & REMARKS

The relationship between military and growth has been a topic of keen interest in defense economics and there is a significant amount of literature exploring the relationship between military spending growths in developing countries. Nevertheless, due to the application of various theoretical models, different analytical methods and different samples, the current literature is inconclusive about the military-growth relationship. This paper explores the correlation between military expenditure and growth in 18 MENA countries. By applying more recent econometric models such as the pooled regression model, Random, Fixed and SGMM model. Moreover, our panel regressions present rational and robust outcomes.

The findings of the empirical panel indicate that military expenditure in the sample countries has a significant and optimistic relationship with economic development. The empirical estimates therefore support the positive relationship between military expenditure and development, and Kollias (1997) and Alia (2012) are in line with our findings.

REFERENCES

- [1] Ali, H.E., (2011) *Military expenditures and human development: Guns and butter arguments revisited: A case study from Egypt*, Peace Economics, Peace Science and Public Policy 17(1), pp. 1–19.
- [2] Apostolakis, B.E., (1992) *Warfare-welfare expenditure substitution in Latin America 1953–87*, Journal of Peace Research 29(1), pp. 85–98.
- [3] Ali, H.E., (2007) *Military expenditures and inequality: empirical evidence from global data*, Defence and Peace Economics 18(6), pp. 519-535.
- [4] Ali, H.E., (2012) *Military expenditures and inequality in the middle east and north africa: A panel analysis*, Defence and Peace Economics 23(6), pp. 575-589.
- [5] Arellano, M., Bond, S., (1991) *Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations*, The review of economic studies 58(2), pp. 277-297.
- [6] Baltagi, Badi H., Young-Jae Chang, (1994) *Incomplete Panels: A Comparative Study of Alternative Estimators for the Unbalanced One-way Error Component Regression*

Model, *Journal of Econometrics*, 62(2), pp. 67-89.

[7] Batchelor, P., Dunne, P., Saal, D., (2000) Military spending and economic growth in South Africa, *Defence and Peace Economics* 11(6), pp. 553-571.

[8] Benoit, E., (1973) *Defense and economic growth in developing countries*.

[9] Benoit, E., (1978) *Growth and defense in developing countries*, Economic Development and Cultural Change, pp. 271-280.

[10] Blundell, R., Bond, S., (1998) *Initial conditions and moment restrictions in dynamic panel data models*, *Journal of econometrics* 87(1), pp. 115-143.

[11] Breusch, T. S., Pagan, A. R., (1980) The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics, *Review of Economic Studies*, 47(1), pp. 239-253.

[12] Cappelen, A., Gleditsch, N.P., Bjerkholt, O., (1984) Military spending and economic growth in the OECD countries. *Journal of Peace Research* 21(4), pp. 361-373.

[13] Caputo, D.A., (1975) *New perspective on the public policy implications of defence and welfare expenditures in four modern democracies: 1950-1970*, *Policy Sciences* 6(4), pp. 423-446.

[14] Chowdhury, A.R., (1991) A causal analysis of defense spending and economic growth. *The Journal of Conflict Resolution* 35(1), pp. 80-97.

[15] Deger, S., (1986). Economic development and defense expenditure, *Economic Development and Cultural Change*, 35 (1), pp. 179- 196.

[16] Dabelko, D. McCormick, J., (1977) *Opportunity cost of defence: Some cross-national evidence*, *Journal of Peace Research* 14(2), pp. 145-154.

[17] Deger, S., (1985) *Human resource, government's education expenditure and the military burden in less developed countries*, *Journal of Developing Areas* 20(1), pp. 37-48.

[18] Domke, W.K., Eichenberg, R.C., Kelleher, C.M., (1983) *The illusion of choice: Defence and welfare in advanced industrial democracies 1948-1978*, *American Political Science Review* 77(1), pp. 19-35.

[19] Deger, S., Sen, S., (1995) *Military expenditures and developing countries*, In K. Hartley, & T. Sandler (Eds.), *Handbook of defense economics*, Vol. 1, Amsterdam, Oxford: Elsevier, pp. 275-307.

[20] Dunne, P., Nikolaidou, E., (1999) *Military expenditure and economic growth: A demand and supply model for Greece 1960-96*, *Defense and Peace Economics*, 12, pp. 47-67.

[21] Dunne, J. P., (1996) *Economic effects of military expenditure in developing countries: A survey*, In N. P. Gleditsch (Ed.), *The peace dividend*, Amsterdam: North-Holland, pp. 30-45.

[22] Eichenberg, R.C., (1984) *The expenditures and revenue effects of defence spending in the Federal Republic of Germany*, *Policy Sciences* 16(4), pp. 391-411.

[23] Greene, William H., (2003) *Econometric Analysis*, 5th ed. Upper Saddle River, NJ: Prentice Hall.

- [24] Hausman, J.A., 1978. Specification Tests in Econometrics, *Econometrica*, 46(6), pp. 1251-1271.
- [25] Harris, G., Pranowo, M.K., (1988) *Trade-offs between defence and education health expenditures in developing countries*, *Journal of Peace Research* 25(2), pp. 165-177.
- [26] Hess, P., Mullan, B., (1988) *The military burden and public education expenditures in contemporary developing nations: Is there a trade-off?*, *Journal of Developing Area* 22(4), pp. 497-514.
- [27] Joerding, W., (1986) *Economic growth and defense spending*, *Journal of Development Economics*, 21, pp. 35-40.
- [28] Kollias, C., et al., (1997) *Defence expenditure and economic growth in the European Union: a causality analysis*, *Journal of Policy Modeling* 26(5), pp. 553-569.
- [29] Kollias, C., Paleologou, S.M., (2011) *Budgetary trade-offs between defence, education and social spending in Greece*, *Applied Economics Letters* 18(11), pp. 1071-1075.
- [30] Lindgren, G., (1984) *Armaments and economic performance in industrialized market economies*, *Journal of Peace Research* 21, pp. 375-387.
- [31] Murdoch, J.C., Pi, C.-R., Sandler, T., (1997) The impact of defense and nondefense public spending on growth in Asia and Latin America. *Defence and Peace Economics* 8(2), pp. 205-224.
- [32] Mintz, A., (1989) *Guns versus butter: A disaggregated analysis*, *American Political Science Review* 83(4), pp. 1285-1293.
- [33] Nadir, A.L.M., (1993) *Economic growth and defense spending in sub-Saharan Africa: Benoit and Joerding revisited*, *Journal of African Economies*, 2 (2), pp. 146-156.
- [34] Peroff, K.K., (1976) *The warfare-welfare tradeoff: Health, public aid, and housing*, *Journal of Sociology and Social Welfare* 4, pp. 366-381.
- [35] Peroff, K.K., Podolak-Warren, M., (1979) *Does spending on defence cut spending on health? A time-series analysis of the U.S. economy 1929-74*, *British Journal of Political Science* 9(1), pp. 21-40.
- [36] Ram, R., (1995) Defense expenditure and economic growth. In *Handbook of Defense Economics, Vol 1*, edited by K. Hartley and T. Sandler. London: Elsevier, pp. 251-273.
- [37] Russett, B.M., (1969) *Who pays for defence?*, *American Political Science Review* 63(2), pp. 412-426.
- [38] Russett, B.M., (1982) *Defence expenditures and national well-being*, *American Political Science Review* 76(4), pp. 767-777.
- [39] Smith, R., Dunne, P., (2001) *Military expenditure growth and investment*, Birbeck College and Middlesex University Business School, April.
- [40] Verner, J.G., (1983) *Budgetary trade-offs between education and defence in Latin American: A research note*, *Journal of Developing Areas* 18(1), pp. 25-32.
- [41] Yildirim, J., Sezgin, S., (2002) *Defence, education and health expenditures in Turkey 1924-96*, *Journal of Peace Research* 39(5), pp. 569-580.