



## Military Spending Is for Prosperity & Growth: An Analysis of Different Income Level Countries

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### ARTICLE DETAILS

#### History:

Accepted 18 November 2022

Available Online December 2022

#### Keywords:

Military Spending, Economic Growth, Panel Data, Income Level Countries

#### JEL Classification:

H56, F43, C33, E01

DOI: 10.47067/reads.v8i4.468

### ABSTRACT

*The study illuminates the linkages between military spending and economic growth through a cross-country dataset of 67 countries from 1990 to 2018. The full sample is divided into three sub-groups namely high income, middle income, and low-income countries in order to check the consistency of our findings. It has already been documented in various studies that the sensitivities associated with military spending sometimes relaxed the obligation to justify the need for a specific threat for a country. It is, however, more convincing and ethically justified if the military spending is aligned with the broader national interests. In the full sample as well as in the sub-sample groups, we have found a positive relationship between military spending and economic growth. The Fisher and the Kao cointegration tests indicate a long-run relationship, the Dumitrescu and the Hurlin causality test indicate the existence of bidirectional causality. The cross-section dependence test rejected the null hypothesis and suggested a long-run relationship. The Hausman test supported fixed effect regression and cointegrating results of fully modified ordinary least square and dynamic ordinary least square were used in order to find out the long-run coefficients. It would be more appropriate if the same relationship is tested country wise while taking country specific factors into account before making decisions regarding major changes in military spending. This study would serve as a baseline for all such studies.*

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### 1. Introduction

The increasing realization regarding the economy and national security linkages has compelled almost all countries to take economic decisions while considering national security consequences. Even strong economies like the U.S.A, U.K, China, etc. cannot afford to take military decisions while ignoring

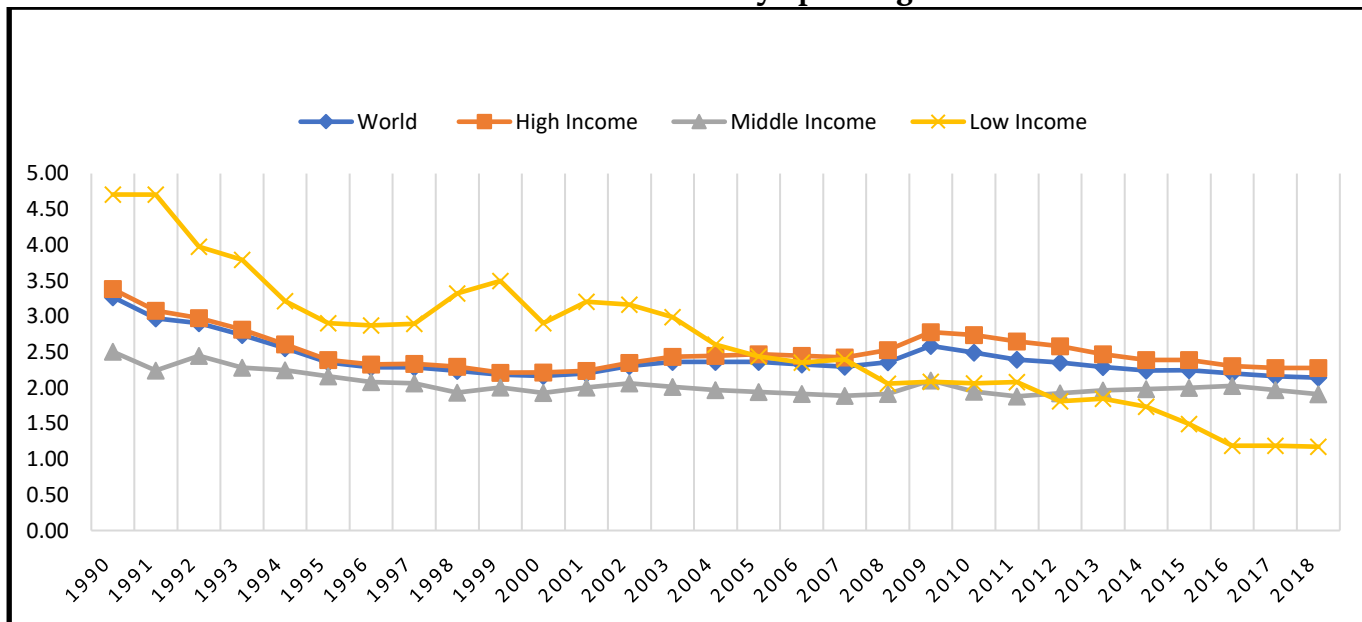
its economic fallouts. However, the ultimate fact remains the same ensuring internal and external security is the core objective to achieve and maintain national security. That's the reason why the countries have found to place internal and external security as the top priority issue, Danek (2013).

Among expenditures to ensure national security, military spending is the single, most important component. Besides the host economy, military spending is found to affect the neighbouring countries too, Collier and Hoeffler (2002). Some countries increase their military expenditures due to internal and external insecurities while some countries encourage producing military products for exports, Malecki (1984). Though military spending is primarily based on national security requirements, however, it affects aggregate output and national income through a multiplier effect, Dunne and Tian (2013).

**1.1 Military spending: A historical review**

After the end of the Cold War, many countries got the opportunity to reduce military spending and reallocate more resources towards human development. However, post 9/11<sup>1</sup>, some countries had to increase military spending to cope with rising security threats, Murshed and Sen (1995), Dunne (1996), d'Agostino et al. (2010), Dunne and Tian (2016).

**Historical Trend of Military Spending**



Source: World bank (2020), percentage of GDP

The historical trend in figure 1 presents global military spending as a percentage of GDP. It confirms the above stated significant consequence associated with the end of the Cold War and 9/11. That is, the global military spending as a percentage of GDP gradually reduced in the nineties and start increasing from 2001. The lower income countries were found to be more volatile in terms of military spending relative to their middle income and high-income counterparts. A sharp declining trend in military spending as a percentage of GDP is observed since the early nineties while this spending is found to be lowest relative to the other countries after 2012. This might be partly because of increasing geopolitical stability in the post-cold war period while an increase in GDP growth relative to the military spending growth is probably another significant reason. The military spending in middle income and high-income countries are relatively more stable. There is a slight declining trend in the case of middle-income countries in the observed period. In the case of high-income countries, there was a decline in the nineties till 2001 however, it started increasing slightly after that period. After 2009, a

slight consistent declining trend is observed and it converged to the global and middle-income countries' pattern.

It is difficult to infer from the above trends conclusively because the countries in the same income level differ in geographical regions, geopolitical situations, and the level of internal and external risks. Therefore, there is a need to find out theoretical as well as empirical justification for this pattern.

### **1.2 Military spending: The ethical considerations**

As Gluck (1986) explains, ethics deals with the study of morality from a philosophical perspective. However, the term ethics is generally used in place of morality (which distinguish the desirable and undesirable act as right and wrong). On the other hand, the core objective of military spending is to ensure national security which implies being ready for military action at least for safeguarding the homeland. The sensitivities associated with national security sometimes demand to increase military spending without justifying the need or the level of threat and even without specifying the enemy country, Hersh (2001). Conversely, it is also believed that military spending must be ethically justified and must be in line with the broader national interests. In other words, military spending increases the level of security of a country which indirectly affects economic growth and prosperity through expansion in business and commerce activities while it can directly increase aggregate demand, employment, and income through a multiplier effect. In both cases, an increase in this spending is considered to be ethically justified.

### **1.3 Military spending, prosperity, and growth nexus**

Several research studies on this subject have been conducted that differ in terms of regions, countries, data, period, and econometric models. According to the Neo-classical theory, countries can take economic benefits from military spending. Under the Keynesian theory, military spending can improve economic growth if it can increase output<sup>2</sup> through multiplier effects and lead to an opportunity for increasing the level of employment and income, Dunne and Tian (2013). The Institution's approach argued that high military spending gives benefit to the interest group which may be few individuals, firms, or industries. The group can become a pressure group and can influence in raising military spending without any threats. The Marxist approach is dominant in the general literature on economic development which argued that military spending is necessary for capitalist development. Military spending is required to maintain capitalism and prevent stagnation, Dunne (1996).

Empirical findings in this regard are widely different. For instance, Hirnissa et al (2009) concluded that the direction of the relationship between military spending and economic growth cannot be predicted while Khilji and Mahmood (1997) found that an increase in military spending hampers economic growth in the case of advanced economies whereas this relationship is found to be opposite for developing countries. Generally, studies have found a positive<sup>3</sup>, negative<sup>4</sup>, or no meaningful<sup>5</sup> relationship between military expenditure and economic growth, Frederiksen and Looney (1983). According to Benoit (1978), military expenditure can promote economic growth in less developed countries (LDCs) through increasing human capital.

It has been documented widely that development projects, education, and training institution, media information, medical care, etc. significantly contribute to the economic growth of third world countries, Kentor and Kick (2008). The military input fosters skilled human capital in the society that plays important role in economic wellbeing. It is argued that direct and indirect costs on military activities affect social wellbeing and peace however, it generally gives more benefit than cost thus

positively affecting economic growth (Pieroni, 2009).

As discussed earlier, military spending does not need to be justified in all cases. However, if it is found to be positively related to economic growth and prosperity, it is ethically justified as well. In light of the above theoretical and empirical studies, there is a need to find out the relationship between military spending and economic growth around the globe.

This study aims to fill this gap by using a global dataset and appropriate econometric techniques. The next section explains the data and methodology of this study. Section 3 presents estimation results and analysis while section 4 concludes the study along with discussing relevant policy implications.

## **2. Material and Method**

This section presents the model and framework that is based on military spending and economic growth. For this purpose, a global dataset has been used that is divided into a group of countries based on the income levels such as high-income countries, middle-income countries, low-income countries. Since the four groups (including the global dataset) consist of the same variables, the study has employed a single equation model for all the groups. Our first sample has been taken from the global dataset that consists of 67 countries<sup>6</sup>. The rest of the countries are not included because of unavailability or missing data such as Botswana, Senegal, Cuba, Panama, North Korea, Cyprus, Qatar, etc. Few countries were excluded because the same did not exist during a specific period such as Angola, Cape Verde, South Sudan, Tajikistan, Brunei, Bosnia, etc. thus the countries are narrowed down to 67 (See, Appendix 1). Data on military spending is taken from SIPRI (Stockholm International Peace Research Institute) website and the other datasets are taken from the World Bank for the 1990 to 2018 period. The main function of the model is expressed in general form as follows:

$$GDPPC = f (MEPC, TGDP, GDSGDP, LE ) \quad (1)$$

In the following model, GDPPC is used as gross domestic product per capita [Aizenman and Glick (2006), Dunne (2012)] as a dependent variable at time  $t$  of  $i^{\text{th}}$  country, whereas MEPC is used as military expenditure per capita [Aizenman and Glick (2006)] at time  $t$  of  $i^{\text{th}}$  country, TGDP is used as trade percentage of gross domestic product [Nikolaidou, (2008)] at time  $t$  of  $i^{\text{th}}$  country, GDSGDP is used to represent gross domestic savings as a percentage of gross domestic product at time  $t$  of the  $i^{\text{th}}$  country while LE is used as life expectancy at birth year at time  $t$  of the  $i^{\text{th}}$  country are used as independent variables in the model. In the model,  $\varepsilon$  is used as the error term while  $\alpha$  is used as a coefficient of variables.

$$\log (GDPPC)_{it} = \alpha_i + \alpha \log (MEPC)_{it} + \alpha (TGDP)_{it} + \alpha \log (GDSGDP)_{it} + \alpha (LE)_{it} + \varepsilon_{it} \quad (2)$$

## **3. Results and Discussion**

### **3.1 Cross-section Dependence test**

Pesaran (2004) proposed the Pesaran CD test to check cross-sectional dependence characteristics in the data (all variables). The result of table 1 has found strong evidence that each variable in different groups (World, High-income, Middle-income, and Low-income) has cross-sectional dependence. The results allow us to test the military spending-economic growth relationship in all the models since the above test is a prerequisite for the second-generation unit root test<sup>7</sup>.

**Table 1: Results of Pesaran CD Dependence test**

	<b>GDPPC</b>	<b>MEPC</b>	<b>TGDP</b>	<b>GDSGDP</b>	<b>LE</b>
<b>World</b>					
<b>Pearson CD test</b>	204.58	137.17	70.38	11.36	217.03
<b>Prob.</b>	0.00	0.00	0.00	0.00	0.00
<b>High Income countries</b>					
<b>Pearson CD test</b>	83.74	61.63	54.85	11.64	97.67
<b>Prob.</b>	0.00	0.00	0.00	0.00	0.00
<b>Middle Income countries</b>					
<b>Pearson CD test</b>	11.79	80.30	26.38	2.36	101.04
<b>Prob.</b>	0.00	0.00	0.00	0.00	0.00
<b>Low Income countries</b>					
<b>Pearson CD test</b>	10.86	3.47	6.69	4.89	19.52
<b>Prob.</b>	0.00	0.00	0.00	0.00	0.00

### **3.2 Panel Unit Root**

To avoid any spurious regression, Levin, Lin, chu (2002) statistics are used to examine the data (each variable) at the level and first difference. The results are presented in table 2. It is found that all variables are non-stationary at the level and stationery at the first difference.

Table 2: Results of Common Unit Root statistic

Variables	World				High Income				Middle Income				Low Income			
	Level		1 <sup>st</sup> difference		Level		1 <sup>st</sup> difference		Level		1 <sup>st</sup> difference		Level		1 <sup>st</sup> difference	
<b>GDPPC</b>	-0.60	-0.56	-20.7	-18.9	-0.41	0.55	-9.77	-11.9	2.01	0.81	-13.2	-9.03	0.60	0.30	-10.7	-10.4
	(0.27)	(0.28)	(0.00)	(0.00)	(0.33)	(0.71)	(0.00)	(0.00)	(0.97)	(0.79)	(0.00)	(0.00)	(0.72)	(0.62)	(0.00)	(0.00)
<b>MEPC</b>	0.10	-1.11	-29.5	-25.4	0.30	1.33	-16.2	-12.3	0.37	-0.78	-21.5	-16.8	0.90	-0.79	-9.45	-8.51
	(0.54)	(0.13)	(0.00)	(0.00)	(0.62)	(0.90)	(0.00)	(0.00)	(0.64)	(0.21)	(0.00)	(0.00)	(0.81)	(0.21)	(0.00)	(0.00)
<b>TGDP</b>	-1.03	0.65	-4.15	-4.65	-0.64	-0.89	-23.8	-21.5	1.14	0.63	-31.5	-27.5	1.25	-0.96	-9.04	-6.96
	(0.15)	(0.74)	(0.00)	(0.00)	(0.25)	(0.18)	(0.00)	(0.00)	(0.87)	(0.73)	(0.00)	(0.00)	(0.89)	(0.16)	(0.00)	(0.00)
<b>GDSGDP</b>	-0.10	3.93	-4.81	-15.1	-0.96	1.56	-16.3	-13.8	-0.72	2.72	-28.3	-26.3	-1.18	-0.45	-17.2	-15.1
	(0.45)	(1.00)	(0.00)	(0.00)	(0.16)	(0.94)	(0.00)	(0.00)	(0.23)	(0.99)	(0.00)	(0.00)	(0.11)	(0.32)	(0.00)	(0.00)
<b>LE</b>	0.50	-1.21	-4.30	-4.03	-0.25	-0.50	-20.8	-18.1	-0.98	-0.87	-8.54	-5.48	0.76	0.91	-6.64	-17.4
	(0.69)	(0.11)	(0.00)	(0.00)	(0.43)	(0.30)	(0.00)	(0.00)	(0.16)	(0.19)	(0.00)	(0.00)	(0.77)	(0.82)	(0.00)	(0.00)

Source: Author's Estimation

Note: Parenthesis considered prob. Values

**3.3 Fisher (Combine Johansen) cointegration**

Fisher (1932) derived a technique to use individual independent tests for panel cointegration whereas an alternative approach was proposed by Maddala and Wu (1999). This approach is used in panel data by combining cointegration tests from individuals. Table 3 reported two statistics, the first block represents trace statistics while the second block maximum eigenvalue statistic. The null hypothesis of no cointegration was rejected and the results prove the existence of cointegration between military spending and economic growth in all models.

**Table 3: Results of Fisher cointegration**

	Trace Statistic	Prob.	Max. Eigenvalue	Prob
<b>World</b>				
	1338.0	0.00	856.5	0.00
	685.2	0.00	406.5	0.00
	383.3	0.00	262.7	0.00
	232.0	0.00	172.2	0.01
<b>High-Income countries</b>				
	395.2	0.00	241.9	0.00
	199.6	0.00	122.4	0.00
	116.4	0.00	70.84	0.06
<b>Middle-Income countries</b>				
	835.7	0.00	543.5	0.00
	413.1	0.00	246.4	0.00
	221.9	0.00	158.7	0.00
	123.5	0.00	93.69	0.03
<b>Low-Income countries</b>				
	144.2	0.00	95.37	0.00
	90.15	0.00	45.91	0.00
	55.89	0.00	44.05	0.00
	24.20	0.01	20.42	0.05

**Source:** Author’s Estimation

Note: Intercept in CE and VAR with lag 1

**3.4 Kao (Engle-Granger residual-based) cointegration**

Kao (1999) use the ADF test for panel cointegration and the results (table 4) show strong evidence for the existence of a relationship between military spending and economic growth. It is found that a significant long-run relationship exists in all models as the results have rejected the null hypothesis of no cointegration in all four cases.

**Table 4: Results of Kao cointegration**

ADF	t-statistic	Prob.
<b>World</b>	-4.200	0.000
<b>High-Income countries</b>	-4.40	0.000
<b>Middle-Income countries</b>	-3.534	0.000
<b>Low-Income countries</b>	-2.582	0.004

**Source:** Author’s Estimation

Note: Individual intercept with SIC automatic selection criterion

### 3.5 Hausman Test

Hausman (1978) developed a hypothesis of no correlation. It deals with endogeneity and compares an appropriate model from the random effect or the fixed effect, Sheytanova (2015). The results show (table 5) that there is a correlation between the error term (random effect model) and independent variables. In this regard, the random effect estimation is inconsistent, and the fixed effect estimation is more appropriate to use for further analysis.

**Table 5: Results of correlated Random effect - Hausman test**

Test summery	Chi-Square	degree of freedom	Prob.
<b>World</b>			
<b>Cross section</b>	165.18	4	0.00
<b>and period random</b>	102.37	4	0.00
<b>High Income countries</b>			
<b>Cross section</b>	23.95	4	0.00
<b>and period random</b>	238.58	4	0.00
<b>Middle Income countries</b>			
<b>Cross section</b>	7.69	4	0.05
<b>and period random</b>	9.87	4	0.04
<b>Low Income countries</b>			
<b>Cross section</b>	77.71	4	0.00
<b>and period random</b>	13.48	4	0.00

**Source:** Author’s Estimation

### 3.6 Least square regression – Fixed effect

It is found that fixed effect estimation is more appropriate to analyze panel regression which is consistent with Saleem and Iftikhar (2019). The next step is to estimate fixed effect regression which is presented in table 6.



Table 6: Results of OLS- Fixed Effect

Variables	World			High Income			Middle Income			Low Income		
	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.
<b>C</b>	6.17	24.96	0.00	8.37	4.48	0.00	6.66	14.42	0.00	4.51	7.37	0.00
<b>MEPC</b>	0.16	20.93	0.00	0.13	8.31	0.00	0.16	15.87	0.00	0.08	3.12	0.00
<b>TGDP</b>	0.00	1.34	0.17	0.00	6.44	0.00	0.00	1.17	0.24	0.00	3.21	0.00
<b>GDSGDP</b>	0.00	8.58	0.00	7.66	0.09	0.92	0.00	5.63	0.00	0.01	6.51	0.00
<b>LE</b>	0.41	7.28	0.00	0.23	0.53	0.59	0.14	1.32	0.18	0.32	2.27	0.02
<b>Effect specification</b>												
Adjusted R2	0.99			0.97			0.97			0.92		
Durbin Watson	1.90			1.95			1.90			1.97		
Prob. (F-statistics)	0.00			0.00			0.00			0.00		

Source: Author's Estimation

It is found that the relationship between military spending and economic growth is positive and statistically significant. Some of the other variables such as Trade is found insignificant in the world and middle-income countries while domestic savings is also found insignificant which might be due to increased military expenditure in high-income countries. Moreover, the life expectancy effect is also found insignificant in affecting the growth of high-income countries. This might be due to already high life expectancy rates in the high-income countries while this linkage might become weaker because the population after retirement age is less likely to contribute to the process of economic growth.

### **3.7 FMOLS regression**

Fully modified ordinary least square (FMOLS) regression proposed by Phillips and Moon (1999) to check the robustness of the model (consistent with Saleem and Iftikhar, 2019 and Frimpong, 2018). It focuses on the nonparametric method to resolve serial correlation and endogeneity issues. Table 7 presents the findings of FMOLS.

**Table 7: Results of FMOLS**

Variables	World			High Income			Middle Income			Low Income		
	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.
<b>MEPC</b>	0.27	23.90	0.00	0.05	2.17	0.02	0.27	27.35	0.00	0.15	5.40	0.00
<b>TGDP</b>	0.00	6.89	0.00	0.00	3.57	0.00	0.00	4.01	0.00	0.00	3.41	0.00
<b>GDSGDP</b>	0.00	3.13	0.00	0.00	0.56	0.57	0.00	2.80	0.00	0.01	5.48	0.00
<b>LE</b>	1.07	11.62	0.00	3.66	9.69	0.00	1.32	11.62	0.00	0.61	4.57	0.00
<b>Effect specification</b>												
Adjusted R2	0.99			0.96			0.97			0.90		

**Source:** Author's Estimation

The table shows a positive and statistically significant effect of military spending on economic growth in FMOLS regression which is consistent with the initial findings through panel OLS.

### 3.8 DOLS regression

Dynamic ordinary least square (DOLS) regression was proposed by Mark and Sul, (1999 & 2003) to check the robustness of the model. This method resolves serial correlation and endogeneity issues using leads and lags. The finding through DOLS is presented in table 8.

**Table 8:**

Variables	World			High Income			Middle Income			Low Income		
	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.	coefficient	t-stat	prob.
MEPC	0.21	10.07	0.00	0.06	2.38	0.01	0.31	11.78	0.00	0.14	4.39	0.00
TGDP	0.00	1.56	0.11	0.00	2.97	0.00	0.00	0.89	0.37	0.00	3.04	0.00
GDSGDP	0.00	4.03	0.00	0.00	0.63	0.52	0.00	1.76	0.07	0.01	4.67	0.00
LE	2.22	8.76	0.00	3.63	8.99	0.00	1.71	4.51	0.00	0.62	4.08	0.00
Effect specification												
Adjusted R2	0.99			0.96			0.99			0.90		

Source: Author’s Estimation

Table 8 also confirms the findings of previous tests. Military spending and economic growth are found to be statistically significant and positive contributors to economic growth using different leads and lags in all models.

### 3.9 Dumitrescu-Hurlin causality

After establishing a positive, long run relationship between military spending and economic growth, it is also relevant to check whether a causal relationship exists between these two or not. This is done by employing Dumitrescu and Hurlin (2012) framework. This test is different from the standard Granger causality test because it assumes all individual coefficients and fits well in existence in cross-section dependence (Dogan et. al, 2015). In this test, the null hypothesis states the existence of no homogeneous granger casualty while the alternative hypothesis suggests a causal relationship. The results are presented in table 9.

**Table 9: Results of Dumitrescu-Hurlin causality**

Test summery	W-Stats	Prob.	Results
<b>World</b>			
MEPC does not homogeneously cause GDPPC	3.41	0.00	Bidirectional
GDPPC does not homogeneously cause MEPC	4.27	0.00	Bidirectional
<b>High Income countries</b>			
MEPC does not homogeneously cause GDPPC	5.24	0.00	Bidirectional
GDPPC does not homogeneously cause MEPC	4.23	0.00	Bidirectional

<b>Middle Income countries</b>			
MEPC does not homogeneously cause GDPPC	1.91	0.00	Bidirectional
GDPPC does not homogeneously cause MEPC	4.47	0.00	Bidirectional
<b>Low Income countries</b>			
MEPC does not homogeneously cause GDPPC	3.54	0.00	Bidirectional
GDPPC does not homogeneously cause MEPC	3.15	0.00	Bidirectional

As shown in the table, bidirectional causality between military spending and economic growth is found to have existed. The results remain consistent in the full-sample model and the other models consisting of high income, middle income, and low-income countries.

#### **4. Discussion**

The statistical and graphical evidence presented in this paper found that military spending positively contributes to the economic growth in all the groups of countries though the magnitude of this effect varies in all the groups. In the case of the full sample and middle-income countries model, it is found that a 1 percent increase in military spending (as a percentage of GDP) increases GDP growth by 0.16 percent. In the case of high income and low-income countries, the magnitude is found to be 0.13 percent and 0.08 percent respectively. This finding supports the argument that military spending is pro-growth for almost all countries.

As discussed earlier, an increase in military spending promote growth through direct as well as the indirect channel. It increases aggregate demand and income through the multiplier effect directly. At the same time, it increases the level of security in an economy which positively affects production, employment, and income level. This effect is found to be relatively weaker in the case of low-income countries which might indicate the presence of inefficient utilization of military spending or the weak linkage between military spending and the level of security in the economy.

It is also found that the magnitude of the relationship does not only vary country-group-wise but also varies with the estimation method used in a particular study. Though the OLS, FMOLS, and DOLS coefficients are positive and statistically significant, however, magnitude varies greatly.

Military spending and economic growth are found to have bi-directional causality. It means that more economic growth increases military spending while more military spending leads to having more growth. This causal relationship is consistent in all groups of countries. This means that besides geopolitical and other relevant factors, economic growth is also a significant factor in military spending decisions.

#### **5. Conclusion and Policy-Implications**

The study illuminates the linkages between military spending and economic growth through a cross-country dataset of 67 countries which were divided into three sub-groups namely high income, middle income, and low-income countries. It has already been documented in various studies that the sensitivities associated with military spending sometimes relaxed the obligation to justify the need for a specific threat for a country. It is, however, more convincing and ethically justified if it is aligned with the broader national interests.

Although, literature also considers political regime (see Blomberg, 1996), social structure (see Pieroni, 2009), socio-cultural (see Benoit, 1978), and historical characteristics (see figure 1) as important factors that influence a military-growth relationship. The fear hypothesis of military spending is based on security concerns and the insecurity determined by the military power in the region. Different incidents such as separatist movements, extremist activities, border disputes, terrorist threats, maritime intervention, and a few other random disputes force countries to strengthen their defense systems.

In the full sample as well as in the sub-sample groups, we have found a positive relationship between military spending and economic growth. More economic growth implies more jobs, income, better standard of living thus leading to prosperity. In this way, military spending in almost all the countries and groups is found to be ethically justified as well though the magnitude varies greatly.

There is a need to further enlighten the relevant factors as we have found the coefficient sensitive to the technique employed, though they remain positive and significant in all the cases. It is also important to explore the magnitude of the direct and indirect channels involved in this relationship to find out their relative importance.

It is also important to find out the impact of combat and non-combat expenditures separately and check the possibility if a part of the non-combat expenditure is reallocated for the underdeveloped sector of the economy. This is more important for the low income and middle-income countries to check the possibility to reallocate some of the non-combat expenditures to the education and health sector. A proper strategic framework is needed to restore health and education and bring them to par with the developed nations.

It would be more appropriate if the same relationship is tested country wise while taking country specific factors into account before making decisions regarding major changes in military spending. This study would serve as a baseline for all such studies.

### **Endnotes**

1. 11<sup>th</sup> September 2001
2. Help to increase industrialization by increasing aggregate demand
3. Hassan et. al. (2003)
4. Deger (1986)
5. Dakurah et. al. (2001)
6. In line with Kentor and Kick (2008)
7. Dogan et al. (2015)

### **Disclosure statement**

We have no conflict of interest, financial or otherwise

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Appendix 1

Different Income Level Countries

World Countries	World Countries	High-Income group Countries	Middle-Income group Countries	Low-Income group Countries
Algeria	Korea, South	Australia	Algeria	Madagascar
Argentina	Madagascar	Austria	Argentina	Mali
Australia	Malaysia	Belgium	Bangladesh	Mozambique
Austria	Mali	Canada	Belize	Nepal
Bangladesh	Mexico	Cyprus	Bolivia	Rwanda
Belgium	Morocco	Denmark	Brazil	Sudan
Belize	Mozambique	Finland	Cameroon	
Bolivia	Nepal	France	China	
Brazil	Netherlands	Germany	Colombia	
Cameroon	New Zealand	Greece	Dominican Republic	
Canada	Nigeria	Ireland	Ecuador	
China	Norway	Israel	Egypt, Arab Rep.	
Colombia	Oman	Italy	El Salvador	
Cyprus	Pakistan	Japan	Eswatini	
Denmark	Paraguay	Korea, South	Guatemala	
Dominican Republic	Philippines	Netherlands	India	
Ecuador	Portugal	New Zealand	Indonesia	
Egypt, Arab Rep.	Russian Federation	Norway	Iran, Islamic Rep.	
El Salvador	Rwanda	Oman	Jordan	
Eswatini	Saudi Arabia	Portugal	Kenya	
Finland	Senegal	Saudi Arabia	Malaysia	
France	South Africa	Spain	Mexico	
Germany	Spain	Sweden	Morocco	
Greece	Sri Lanka	Switzerland	Nigeria	
Guatemala	Sudan	United Kingdom	Pakistan	
India	Sweden	United States	Paraguay	
Indonesia	Switzerland	Uruguay	Philippines	
Iran, Islamic Rep.	Thailand		Russian Federation	
Ireland	Tunisia		Senegal	
Israel	Turkey		South Africa	
Italy	United Kingdom		Sri Lanka	
Japan	United States		Sudan	
Jordan	Uruguay		Thailand	
Kenya			Tunisia	
			Turkey	

Source: Based on World Bank Classification (WDI, 2020)