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The Effects of Defense Expenditure on Economic Growth of Pakistan

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ABSTRACT

The main aim of this paper is to analyze the effect of defense expenditure on output growth of Pakistan and used series data from 1975 to 2018 period. The study used the ARDL techniques to analyze the data and the ECM was also used to check the convergence to the long run (LR) equilibrium. This study found that Defense expenditure (DE) has positive and noteworthy impact on output growth. The study concluded that the defense expenditure was mandatory to influence the economic growth (GGDP) of Pakistan. The study recommended that the government should be to promote economic growth which in turn provides resources to finance defense expenditures and spend more on the defense sector to achieve higher economic growth, create a peaceful environment.

1 Introduction

The government has been a priority to give the life protection of every human kind since the beginning. Citizen's protection became one of the political mandates which are realized through literature review. By a situation defense spending can be explained where the country secures its external and internal security for its citizens. The UN definition is based on SIPRI definitions. In SIPRI (2010) point of view military outflow means principal costs on the defense services, including military ministries, peace keeping services and further administration organizations engaged in security assignments, soldier services when judge to be proficient, military space activities, armed and are available for army actions. Such costs should contain, personal all outlays on current personal, pensions of army persons, military and interior retirements and community facilities for personal and relatives of them, procurement, maintenance, operations, defense construction, defense development, research, and defense relief (in the defense outflow of contributor country). Excepted military associated outflows are existing outflow, interior defense for earlier defense actions such as veteran benefits, demolition of arm and denuclearize and discussion of weapon manufacture services.

The foremost concentration about the problem of defense outflow is that we can see the domain ongoing to allocate huge amount of expenses to the defense division. Developed defense outflows incline to compare with higher output growth and also as a defense to sustain the diplomatic of the domain. Instead the public disagree on this judgment is that outflow will govern to battle. Moreover, higher taxation required to economics developed defense outflow, it will strain the output growth

falling in long run. This variance in opinions has led to diverse views on either defense spending has either negative or positive effect on output development. The essential worth of countrywide safety is feasibly the most noteworthy disagreement for military outflow. Absolutely, countrywide safety agrees for dynamic economic actions to be supported out except scare of overseas assumption. Therefore, defense outflow in long run is anticipated to deliver countrywide safety and consequently increase output growth (Ram, 1995).

The supporters of Keynesian economics discuss that when there is deficient in total demand and potential supply. The rise demand for defense outflow positively affects capital stocks, labor and employment. Therefore effective consumption causes to higher profit, which stimulates investment and as result growth rate increases (Faini et al., 1984). Secondly, positive effect of defense outflow on output development is also estimated in the logic that in various unindustrialized nations like Pakistan defense armies are involved in the progressive schemes for example constructions of hospitals, roads, schools, colleges, universities. They are also involved in establishment of educational services, technical trainings and other health care not individual to defense but similarly to overall community. Thirdly, there is an opportunity costs of defense outflows and can also have implications for balance of payment (BOP).

While the political reason of much of the development of military outlay are commonly on the wants to retain domestic safety. These current energetic forces have managed to improve deliberation over whether the growth of the military outflow develops or reduction the prosperity and output growth. While this has been a fundamental matter of the financial disagreement through 1980s and 1990 it was one that did not bring about a clear observational agreement among researchers, thinking to a huge degree the changes in the methods used and dissimilarities in the sample of nations enclosed and the time stages enclosed (Dunne et al., 2005). Since the opinion of Economists defense expenditures means that defense outlay discuss with all other social products the residents may want(Mosikari & Matlwa, 2014).

Due to external and internal threats military outflow remained high in Pakistan. From 1995-2002 Pakistan allocated average defense outflows 4.5% of its output growth. However, they have declined from 4.10% in 2003 to 3.10% in 2009 (Anwar et al., 2012). This devaluation in military outflows are partly due to receive of IMF fund to Pakistan (IMF, 2000). Due to war on terrorism defense outflows always remained high in Pakistan. India and Pakistan disputed four major conflicts were in 1947 to 1948, 1965 1971 and 1999. This led to arm fight between these two neighbors nations India and Pakistan and both were harshly effected due to high defense expenditure(Ajmair et al., 2018). Pakistan expends a large amount of its outflow on military division in direction to keep a reliable level of safety due to its dynamic geopolitical situation and long run unresolved disagreement over region of Kashmir with India as Pakistan has battled three foremost conflicts with India. Pakistan has to fix away a large share of its total outflow for military part every year. Defense outflow is therefore assumed to be one of the foremost factors of total outflow in Pakistan.

Normally it is supposed that low output growth in Pakistan is due to large defense outflow and the groups of this justification are of opinion that rise in defense spending decrease assets for further creative divisions like health, education, development schemes and finally low output growth. Though, military part can also have the prospective to sustain the output growth of a nation whiling producing employment opportunities for the unemployment people of a nation. Defense outflow of Pakistan was $11.4 billion in 2018 which was 20th biggest defense outflow in the world, a report issued by SIPRI. The defense outflow of 2018 which was improved 4% of Pakistan output growth which was the highest level since 2004, according to a reported by a Sweden based institute. Defense outflow of Pakistan among top 10 nations in the world with highest military burden outflows has increased every year report issued by SIPRI. Pakistan defense outflow had increased by 73% during the periods of 2009 to 2018. Defense outflow of Pakistan was 4.0 in 2018 which was 11% increase in defense

outflow of Pakistan. The lowest value of Pakistan defense outflow was 3.27 in 2009 and it was 4.0 in 2018 which was highest value of defense outflow of Pakistan over the past 56 years.

Pakistan is concerned with internal security and peace, as well as protecting itself from foreign threats. In order to achieve these threats, Pakistan must provide defense services. The defense expenditure has dual effect, on one side, the military expenditure is too mandatory to sustain the law and order situation to enhance the investment and employment and sovereignty of the country. On the other side, the military expenditure increases the current government expenditure which harms economic growth. It is assumed that peace keeping security in a state defense force plays a dynamic role. The state certifies its internal and external safety for its people. The first significance of the government has been to provide life security to its people in a state. Along with protection, the government also tries to raise the stander of living of the people and raise growth level. The position is indeterminate and complicate in case of unindustrialized nations. The effect of defense expenditure on GGDP is still controversial among the scholar. There have been several struggled to response this interrogation since the dynamic work of the (Benoit, 1978). Hassan et al. (2003), claimed that defense expenditure (DE) can effect negatively through force out investment and effect absolutely through increase of aggregate demand or an enhancement in security. In case of advanced nations, military costs extension is adversely affected economic development. (Pradhan, 2010; Wilkins, 2004). Before this debate "DE and Growth in unindustrialized nations", the problem of defense costs in developing states was not extremely doubtable among the scholars. Therefore, there is a general assumption that military spending is burden on the budget and military expenditure is negatively related to the output growth. This study is different from others because this study used the ARDL techniques, which results are more reliable than other techniques. This study used the gross saving as independent variable while no other study used the gross saving as independent variable in the case of Pakistan. Hence, this will be carried out to examine whether the defense spending has positive or adverse effects on the output growth in Pakistan. This study is significantly contributed in the existing literature. This study is different from others because this study used the ARDL techniques. This study used the gross saving as independent variable while no other study used the gross saving as independent variable in the case of Pakistan. Hence, this will be carried out to examine whether the defense spending has positive or adverse effects on the output growth in Pakistan. This study is significantly contributed in the existing literature. Therefore, this study conducted to investigate the effect of defense expenditure (DE) on output growth of Pakistan.

2 Literature Review

Benoit (1973) existing works debates two foremost networks in which defense outflow can effect development of economies i.e. Neoclassical Methodology and Keynesian Methodology. Keynesian methodology depends on main character of comprehensive demand. According to Keynesian methodology, with rise in defense outflows will raise total demand and this growth in demand will reason employment and output to produce. Thus defense outflow carries positive effects on development of economy. Some of the researchers have assumed this methodology (Chletsos & Kollias, 1995; Lim, 1983; Shahbaz et al., 2013; Smith, 1980). However neoclassical methodology depends on essential role of total supply. In accordance to neoclassical methodology, rise in defense outflow will reason rise in government outflow which will forcing out private asset. Private asset will be forcing out because if DE are funded by rise in tariffs it will reduce private-savings and therefore it will raise national interest-rate which will forcing out private asset. And if otherwise defense outflows are supported by taking loans this will cause rise in internal interest-rate as demand for national funds will rise for given supply of local funds. This forcing out of private asset will reason total supply to decline and thus a reduction in output and employment. Therefore, neoclassical methodology expects harmful possessions of defense outflow on the development of economy. Most of the researchers have assumed this methodology (Alexander, 1990; Mintz & Stevenson, 1995; Murdoch et al., 1997; Sezgin, 1997).

d'Agostino et al. (2019) used the data of 109 non-high-income countries from 1998 to 2012. They discovered that endogeneity resulting from reverse causation is a critical concern, with instrumental-variable (IV) estimates indicating a more noteworthy negative consequence of DE on GGDP. This conclusion is found to be consistent across diverse sources of historical periods.

Nadeem et al. (2020) investigate the impacts of terrorism, government structure, and defense outflows, on tourism in Pakistan, an emerging economy, from Q1 2002 to Q4 2016. The ARDL testing technique to co-integration is used. The findings exposed that terrorism, and military spending, all have a negative influence on tourism. The governing system has a good effect on tourism. Nonetheless, this influence, like that of terrorism, is insignificant. The findings of OLS techniques back up the conclusions. They recommend improving the governmental structure, as well as the physical infrastructures, in order to increase tourism activities.

Azam (2020) examine the influence of DE on economic development for a sample of 35 non-OECD nations from 1988 to 2019. The PMG approach is used. This study discovered a definite detrimental impact of DE on GGDP. The results show a bidirectional relationship between DE and GGDP. Generally, these estimates give compelling evidence that DE is not advantageous, but rather harmful to development.

Desli and Gkoulgkoutsika (2020) examine the global effect of DE on GGDP from 1960-2017. Overall, the global effect of DE on economic development from 1960 to 2017 looks to be adverse, and this is particularly obvious in NATO nations. For the majority of nations, there is a neutral impact unimportant. Certain economies regularly gain by DE, but the majority of nations fluctuates over time, with no discernible pattern.

POLAT (2020) explores the links between DE and GGDP using data from 1992 to 2017 for 15 nations with the greatest defense expenditures in 2017. The cointegration relationships between series, and the series are found to be cointegrated. Long and medium-term analyses are conducted using the PDOLS approach, and a 1% rise in defense outflows is expected to raise national revenue by 1.05% on average, with a slightly smaller effect in the near term. Similarly, 1% upsurge in national-income upsurges DE by 0.89%, with a lesser effect in the short term. The models' error correcting method is operational. Causality linkages between series are seen using the VECM approach.

Saba and Ngepah (2020) study the causal-link between DE, GGDP, and development in three regions from 1990 to 2018. They also assess the multivariate effects of defense spending, GDP, and development across three areas. They utilized real GDP as a proxy for growth, and the Human progress Index to quantify economic progress. The experiential results designate that there is a bi-directional link between DE and GGDP.

Amir-ud-Din et al. (2020) explore the mutual connections have frequently deteriorated to the point where a nuclear war appeared a serious possibility. While India is one of the world's top five defense spenders, Pakistan spends an unduly big fraction of its GDP on defense to counter India's military edge. While Pakistan's DE is mostly focused on India, it is unclear whether the reciprocal is also true. As a result, this study investigates whether India and Pakistan's defense expenditures are causally related or if the arms race is asymmetrical.

Tao et al. (2020) investigate the link between defense expenditure and GGDP in Romania from 1980 to 2018. The findings demonstrate that defense spending would have both a good and negative impact on Romania's GGDP. Specifically, the impression of defense spending on GGDP was adverse from 1999 to 2004. It may be concluded that in periods of instability in adjacent nations, a rise in defense spending would supplant private sustainability of investment and consumption, which is detrimental to economic growth. Economic development was favorably correlated with defense spending between 1999 and 2002, as well as 2004 and 2006. They can infer that, during a period of

internal turbulence and NATO membership, more defense spending helps to stabilize the domestic situation and so stimulates long-term economic growth.

Ullah et al. (2021) uses the NARDL econometric model to evaluate yearly data from Pakistan and India between 1985-2018. The empirical findings reveal that militarism has a considerable beneficial influence on GGDP, but non-militarization has a favorable effect on GGDP in Pakistan and India. In Pakistan and India, the link between militarized and GGDP is asymmetric, as is the link between DE and CO2.

Sürücü et al. (2022) scrutinized the link between DE and development in China and Turkey, the nations with the biggest rise in defense expenditures from 2000 to 2020, and compared their statistics. In this study, data were evaluated using trend analysis and visualizations. The analytical results demonstrate that China and Turkey are not the same.

Wang et al. (2023) used a panel vector autoregressive (PVAR) technique to scrutinize the possible links between democracy, DE, and economic development in 126 countries between 1990-2020 and technique is used to account for the diverse relationship between military spending among nations. Their empirical findings show that democracy has a large beneficial influence on GGDP, whereas DE has a negative impact, with low democratic-levels and a high DE. For elected nations with low DE, military spending has a greater and adverse influence on democracy, and vice versa.

3 Methodology

A secondary data is employed in this analysis as it suited the economic research nature of the work for the computation of the study results time series annual data has been used. Time period taken is 1975 - 2018. This time era is nominated for the goal that there occur meaningful financial, social instabilities and constitutionally in Pakistan during this time. The data to be used was obtained from World Development Indicators (2020).

3.1 Model Specification

The model is to study the effect of the defense outflow on output in the paper is consequential from the neoclassical growth model:

$$Y\,(t) \;=\; A\,(t)\;F\,(k\,(t), L\,(t)) \quad \ldots\ldots\ldots\ldots \quad (1)$$

And its Cobb-Douglas functions:

$$F\,(K, AL) = K^{\alpha}\,AL^{1-\alpha},\; 0<a<1 \ldots\ldots \quad (2)$$

$$GGDP_t = \beta_1 + \beta_2 CF_t + \beta_3 DE_t + \beta_4\,LF_t + \beta_5 GS_t + \mu \ldots\ldots \quad (3)$$

An ARDL representation of equation:

$$GGDP_t = \beta_0 + \sum_{i=1}^{k}\beta_{1i}GGDP_{t-i} + \sum_{i=0}^{k}\beta_{2i}CF_{t-i} + \sum_{i=0}^{k}\beta_{3i}DE_{t-i} + \sum_{i=0}^{k}\beta_{4i}LF_{t-i} + \sum_{i=0}^{k}\beta_{5i}GS_{t-i} + \mu_t \ldots\ldots \quad (4)$$

3.2 ARDL Bound Test

$$\Delta GGDP_t = \beta_0 + \sum_{i=1}^{k}\beta_{1i}\Delta GGDP_{t-i} + \sum_{i=0}^{k}\beta_{2i}\Delta CF_{t-i} + \sum_{i=0}^{k}\beta_{3i}\Delta DE_{t-i} + \sum_{i=0}^{k}\beta_{4i}\Delta LF_{t-i} + \sum_{i=0}^{k}\beta_{5i}\Delta GS_{t-i} + \gamma_1 CF_t + \gamma_2 DE_t + \gamma_3 LF_t + \gamma_4 GS_t + \mu_t \quad \ldots.. (5)$$

Where Δ denote the first variance operative, α_0 is the implication element and μ_t is the natural white nose residuals.

Table 1
Description of Variables

Variables	Notation
GDP growth (annual %)	$GGDP_t$
Gross Capital Formation (% of GDP)	GCF_t
Defense Expenditure (% of GDP)	DE_t
Gross Saving (% of GDP)	GS_t
Labor Force Participation rate, total (% of total population ages 15+)	LF_t

Econometric Methods

The ARDL technique is too beneficial for the small sample and mixed order of integration. This techniques eliminate autocorrelation in the data and fix the endogeneity problem (Ahmad & Wajid, 2013).

4 Results and Discussion

4.1 Unit Root(UR) Test Results

The basic requirement of the data is that there is no UR issue in the data series. The study used the augmented dickey-fuller (ADF) test was used to detect the UR problem in the data. Table No. 2 indicated that the series of GDP growth, labor force, gross saving and GCF are stationary at level, and defense expenditure is stationary at first difference.

Table 2
ADF Test Results

Variables	At level t-stat (p-value)	At 1st difference t-stat (p-value)	Decision
$GGDP_t$	-4.2463* (0.0016)	----------	Stationary at Level
GCF_t	-4.2434*(0.0017)	----------	-do-
DE_t	-0.2509 (0.9235)	-3.5997* (0.0099)	Stationary at 1st Difference
GS_t	-3.7075*(0.0074)	----------	Stationary at level
LF_t	-4.6262*(0.0005)	----------	-do-

ADF Test Critical Values

Level of consequence	Critical-Values
1%	-3.5925
5%	-2.9332
10%	-2.6049

*Note: * indicate the significance at 1%.*

4.3 Regression Results

4.3.1 ARDL Long-Run Coefficients and Bound Test

Table No. 3 indicated the ARDL long run results. This study select the ARDL (1,0,0,0) through AIC techniques. The result indicates that the GCF has momentous and optimistic effect on output growth of Pakistan, and has the coefficient value is 0.2885 and t-stat is 1.7019 with p-value 0.0972 which is substantial at 10 percent. 1% upsurge in the GCF will leads to surge the 0.29% in the long run. This results were in line with the finding of (Pavelescu, 2008), (Ali, 2015) and (Wilfred, 2013) and dissimilar with the finding of (Khan et al., 1995**)**. The Defense expenditure has a noteworthy effect on output growth, and the coefficient of defense expenditure is 0.5546 and t-value is 3.1564 with p-value 0.0032 which is momentous at one percent level of significance. 1% upsurge in the defense expenditure will leads to upsurge the 0.55% in the LR. This results were in line with the finding of (Chletsos & Kollias, 1995; Lim, 1983; Shahbaz et al., 2013; Smith, 1980) and opposite with the finding of (Alexander, 1990; Mintz & Stevenson, 1995; Murdoch et al., 1997; Sezgin, 1997; Sürücü et al., 2022).

Similarly, the labor force participation also has a optimistic and momentous effect on output growth, and has the β is 0.1843 and t-value is 2.6361 with p-value 0.0122 which is momentous at 5%. One percent upsurge in the LF will leads to upsurge the 0.18%. The similar results was given by (Hanushek & Kim, 1995) and (Paudel & Perera, 2009) and dissimilar results was given by (Maestas et al., 2016). The gross saving has optimistic and momentous effect on output growth, and has the coefficient value is 0.3822 and t-stat is 3.1315 with p-value 0.0034 which is momentous at 1%. 1% upsurge in the GS will leads to increase the 0.38%. Alike with (Sinha, 1996), (Abu, 2010) and (Sinha, 1999).

The results of ARDL Bound test 5.7641 which greater than the upper bound values and concluded that there exists LR co integration among the variables.

Table 3
ARDL long Run Results

Variable	Co-efficient	Std. Error	t- Statistic	Probability
GCF_t	0.2885***	0.1695	1.7019	0.0972
DE_t	0.5546*	0.1757	3.1564	0.0032
LF_t	0.1843**	0.0699	2.6361	0.0122
GS_t	0.3822*	0.1221	3.1315	0.0034
C	-27.7998*	5.4625	-5.0892	0.0000
ARDL Bound Test Results				
F-statistics Values		5.7641*		
Critical Values for ARDL Bound Test		Significance level	Lower bound	Upper bound
		10%	2.45	3.52
		5%	2.86	4.01
		1%	3.74	5.06

*Note: *,** and *** designate the significance at 1, 5 and 10% one-to-one.*

4.3.2 ARDL Short-Run (SR) Coefficients and ECM Test

Table No 4 presents the short run coefficient and ECM results. The results indicated that the GCF has momentous and affirmative effect on output growth, and has the β is 0.5183 and t-value is 2.6763 with p-value 0.0111 which is significant at 5 percent. One percent upsurge in the labor force participation will leads to upsurge the 0.52 percent. Similarly, the defense has noteworthy and positive consequence on GGDP, and has the coefficient value is 0.7766 and t-value is 4.6081, which is substantial at 1%. One percent upsurge in the labor force participation will leads to upsurge the 0.78%.

The gross saving also has substantial and positive effect on GGDP, and has the coefficient value is 0.1873 and t-value is 2.7861 with p-value 0.0085 which is substantial at 1%. 1% upsurge in the GS will leads to increase the 0.19%. Similarly, the LF has noteworthy and positive consequence on GGDP, and has the coefficient value is 0.3758 which is substantial at 1%. 1% upsurge in LF will leads to upsurge the 0.38 percent in the short run. The ECM value also found negative and highly substantial, which means that there are 55% speed of adjustment from the SR equilibrium to LR equilibrium and will take approximately one year and eleven months to achieve the LR stability.

Table 4
Short Run Coefficients and ECM Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$D(GCF_t)$	0.5183**	0.1937	2.6763	0.0111
$D(DE_t)$	0.7766*	0.1685	4.6081	0.0000
$D(GS_t)$	0.1873*	0.0672	2.7861	0.0085
$D(LF_t)$	0.3758*	0.1305	2.8803	0.0067
C	-31.1799*	5.6367	-5.5316	0.0000
ECM_{t-1}	-0.5493*	0.1568	-3.5036	0.0012

*Note: *,** and *** designate the significance at 1, 5 and 10% one-to-one.*

5 Conclusion

Pakistan is concerned with internal security and peace, as well as protecting itself from foreign threats. In order to achieve these threats, Pakistan must provide defense services. It is assumed that peace keeping security in a state defense force plays a dynamic role. The state certifies its internal and external safety for its people. The first significance of the government has been to provide life security to its people in a state. Along with protection, the government also tries to raise the stander of living of the people and raise growth level. The position is indeterminate and complicate in case of unindustrialized nations. The effect of defense expenditure on economic growth is still controversial among the scholar. The foremost purpose of this study is to study the effect of defense outflow on output growth of Pakistan. To get this goal, this research used the data from 1975-2018 periods. The ADF test are implemented to investigate the stationary in the data. The Least square and ARDL (Autoregressive Distributed Lag) techniques are applied for analyze the data. The ECM procedure is used to check the convergence to the long run equilibrium. This research paper originated that Gross capital formation, Defense expenditure, Gross saving and labor force have positive and noteworthy effect on output growth of Pakistan. The study considered that the defense outflow has positive and noteworthy effects on output growth of Pakistan.

5.1 Recommendations

- The main concerned of government should be to improve GDP which in turn delivers incomes to finance defense expenditures.
- Pakistan should spend more on the defense sector to achieve higher economic growth, create a more peaceful environment.
- Government should increase defense spending to providing security and protection to the state, and creating options for the economic uplift.

References

Abu, N. (2010). Saving-economic growth nexus in Nigeria, 1970-2007: Granger causality and co-integration analyses. *Review of Economic and Business Studies (REBS)*(5), 93-104.

Ahmad, K., & Wajid, S. (2013). What matters for economic growth in Pakistan: Fiscal policy or its composition. *Asian Economic and Financial Review, 3*(2), 196-215.

Ajmair, M., Hussain, K., Abbassi, F. A., & Gohar, M. (2018). The Impact of military expenditures on economic growth of Pakistan. *Applied Economics and Finance, 5*(2), 41-48.

Alexander, W. R. J. (1990). The impact of defence spending on economic growth: a multi-sectoral approach to defence spending and economic growth with evidence from developed economies. *Defence and Peace Economics, 2*(1), 39-55.

Ali, G. (2015). Gross Fixed Capital Formation & Economic Growth Of Pakistan. *Journal of Research in Humanities, Arts and Literature Applied, 1*(2), 21-30.

Amir-ud-Din, R., Waqi Sajjad, F., & Aziz, S. (2020). Revisiting arms race between India and Pakistan: a case of asymmetric causal relationship of military expenditures. *Defence and peace economics, 31*(6), 721-741.

Anwar, M. A., Rafique, Z., & Joiya, S. A. (2012). Defense spending-economic growth nexus: A case study of Pakistan. *Pakistan Economic and Social Review*, 163-182.

Azam, M. (2020). Does military spending stifle economic growth? The empirical evidence from non-OECD countries. *Heliyon, 6*(12), 1-10.

Benoit, E. (1973). *Defense and economic growth in developing countries*: Lexington Books Lexington, MA.

Benoit, E. (1978). Growth and defense in developing countries. *Economic development and cultural change, 26*(2), 271-280.

Chletsos, M., & Kollias, C. (1995). Defence spending and growth in Greece 1974–90: some preliminary econometric results. *Applied Economics, 27*(9), 883-890.

d'Agostino, G., Dunne, J. P., & Pieroni, L. (2019). Military expenditure, endogeneity and economic growth. *Defence and Peace Economics, 30*(5), 509-524.

Desli, E., & Gkoulgkoutsika, A. (2021). Military spending and economic growth: a panel data investigation. *Economic Change and Restructuring, 54*(3), 781-806.

Dunne, J. P., Smith, R. P., & Willenbockel, D. (2005). Models of military expenditure and growth: A critical review. *Defence and peace economics, 16*(6), 449-461.

Faini, R., Annez, P., & Taylor, L. (1984). Defense spending, economic structure, and growth: Evidence among countries and over time. *Economic development and cultural change, 32*(3), 487-498.

Hanushek, E. A., & Kim, D. (1995). Schooling, labor force quality, and economic growth. In E. G. Robert & J. W. John (Eds.), *American Economic Growth and Standards of Living before the Civil War* (pp. 19-78). University of Chicago Press: National bureau of economic research.

Hassan, M. K., Waheeduzzaman, M., & Rahman, A. (2003). Defense expenditure and economic growth in the SAARC countries. *The Journal of Social, Political, and Economic Studies, 28*(3), 275-293.

Khan, A. H., Malik, A., Hasan, L., & Tahir, R. (1995). Exports, Growth and Causality: An Application of Co-integration and Error-correction Modelling [with Comments]. *The Pakistan Development Review, 34*(4), 1001-1012.

Lim, D. (1983). Another look at growth and defense in less developed countries. *Economic development and cultural change, 31*(2), 377-384.

Maestas, N., Mullen, K. J., & Powell, D. (2023). The effect of population aging on economic growth, the labor force, and productivity. *American Economic Journal: Macroeconomics, 15*(2), 306-332.

Mintz, A., & Stevenson, R. T. (1995). Theories of budgetary tradeoffs. *Journal of Public Budgeting, Accounting & Financial Management, 7*(4), 586-612.

Mosikari, T. J., & Matlwa, K. (2014). An analysis of defence expenditure and economic growth in South Africa. *Mediterranean Journal of Social Sciences, 5*(20), 2769-2776.

Murdoch, J. C., Pi, C. R., & Sandler, T. (1997). The impact of defense and non-defense public spending on growth in Asia and Latin America. *Defence and Peace Economics, 8*(2), 205-224.

Nadeem, M. A., Liu, Z., Xu, Y., Nawaz, K., Malik, M. Y., & Younis, A. (2020). Impacts of terrorism, governance structure, military expenditures and infrastructures upon tourism: empirical evidence from an emerging economy. *Eurasian Business Review, 10*(1), 185-206.

Paudel, R. C., & Perera, N. (2009). Foreign debt, trade openness, labor force and economic growth: evidence from Sri Lanka. *The ICFAI Journal of Applied Economics, 8*(1), 57-64.

Pavelescu, F.-M. (2008). Gross capital formation and economic growth during early 2000's in EU-member and candidates states. *Romania, 11*(12), 1-12.

POLAT, M. A. (2020). The relationship between defense expenditure and economic growth: A panel data analysis for Turkey and selected countries. *Akademik Araştırmalar ve Çalışmalar Dergisi (AKAD), 12*(22), 86-102.

Pradhan, R. P. (2010). Defense spending and economic growth in China, India, Nepal and Pakistan: Evidence from cointegrated panel analysis. *International Journal of Economics and Finance, 2*(4), 65-74.

Ram, R. (1995). Defense expenditure and economic growth. *Handbook of defense economics, 1*, 251-274.

Saba, C. S., & Ngepah, N. (2022). Nexus between defence spending, economic growth and development: evidence from a disaggregated panel data analysis. *Economic Change and Restructuring, 55*(1), 109-151.

Sezgin, S. (1997). Country survey X: Defence spending in Turkey. *Defence and Peace Economics, 8*(4), 381-409.

Shahbaz, M., Afza, T., & Shabbir, M. S. (2013). Does defence spending impede economic growth? Cointegration and causality analysis for Pakistan. *Defence and peace economics, 24*(2), 105-120.

Sinha, D. (1996). Saving and economic growth in India. *Munich Personal Repec Archive (MPRA), 18283*(01), 1-17.

Sinha, D. (1999). The role of saving in Pakistans economic growth. *Journal of Applied Business Research (JABR), 15*(1), 79-86.

Smith, R. P. (1980). Military expenditure and investment in OECD countries, 1954–1973. *Journal of comparative economics, 4*(1), 19-32.

Sürücü, L., Eminer, F., & Sağbaş, M. (2022). The Relationship of Defense Expenditures and Economic Growth Examples of Turkey and China (2000-2020). *Güvenlik Stratejileri Dergisi, 18*(41), 171-199.

Tao, R., Glonț, O. R., Li, Z.-Z., Lobonț, O. R., & Guzun, A. A. (2020). New evidence for Romania regarding dynamic causality between military expenditure and sustainable economic growth. *Sustainability, 12*(5053), 1-13.

Ullah, S., Andlib, Z., Majeed, M. T., Sohail, S., & Chishti, M. Z. (2021). Asymmetric effects of militarization on economic growth and environmental degradation: fresh evidence from Pakistan and India. *Environmental Science and Pollution Research, 28*(8), 9484-9497.

Wang, X., Na, H., & and Chen, B. (2023). Democracy, military expenditure and economic growth: A heterogeneous perspective. *Defence and Peace Economics, 34*(8), 1039-1070.

Wilfred, G. (2013). Savings, Gross Capital Formation and Economic Growth Nexus in Nigeria (1975-2008). *IOSR Journal of Economics and Finance, 1*, 19-25.

World Development Indicators. (2020). World Development Indicators (WDI), The World Bank, Retrieved from https://databank.worldbank.org/source/world-development-indicators.