The Impact of Defence Expenditure on Economic Growth in Sri Lanka: A Time Series Investigation

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Abstract

This study examines the impact of defence spending on economic growth in Sri Lanka, a country that has experienced prolonged ethnic conflict and elevated security-related expenditures. Using annual time series data from 1970 to 2022, the analysis employs the ARDL technique to investigate the co-integration relationships between defence expenditure, economic growth, economic freedom index, external debt stocks, Population growth, Trade openness, and Capital formation. The results reveal that defence expenditure has a statistically significant negative impact on Economic growth in the long run, while Population growth, Capital formation, and Economic freedom index have a positive effect. Furthermore, the Granger causality test suggests a one-way causal relationship between Economic growth and Defence expenditure. The study concludes that defence expenditure is a significant contributor to Sri Lanka's economic backwardness and recommends that policymakers focus on Defence expenditure and financial management to promote economic growth. The findings of this study contribute to the understanding of the complex relationship between Defence expenditure and Economic growth in developing countries like Sri Lanka.

Key words: *Economic growth, Defence expenditure, ARDL model, Sri Lanka*

JEL Codes: *E22, C32, D74, O53*

Background of the study

The relationship between defence expenditure and economic growth has been a subject of extensive debate and empirical investigation in economics for several decades. Classical economic perspectives often viewed military spending as a drain on productive resources, diverting capital and labour from sectors that could contribute more directly to economic expansion (Smith, 1776). This viewpoint suggests that increased defence expenditure reduces investment in physical and human capital, ultimately hindering long-term economic growth. This perspective is rooted in the idea that resources allocated to the military have a high opportunity cost.

However, an alternative perspective posits that defence spending can stimulate economic growth through various channels. This view, often associated with Keynesian economics, suggests that military expenditure can boost aggregate demand, create employment opportunities, and spur technological innovation (Keynes, 1936). The "Military Keynesianism" argument suggests that government spending on defence, regardless of its direct productivity, can create a multiplier effect that stimulates economic activity. Furthermore, defence -related research and development can generate technological spill overs that benefit civilian industries, fostering innovation and productivity growth (Ruttan, 2006).

In 1970, Sri Lanka's GDP stood at $2.30 billion (US dollars), rising to $74.40 billion by 2022, representing a 32.25-fold increase. Over the same period, defence expenditure rose from $0.02 billion to $1.05 billion, a more pronounced increase of 52.5 time (World Bank, 2023). Thus, while both experienced substantial growth, defence spending increased at a higher rate than GDP. In the context of Sri Lanka, understanding the relationship between defence expenditure and economic growth is particularly important, given the country's history of conflict and its ongoing efforts to achieve sustainable economic development.

This study addresses the critical research problem of understanding how defence spending influences economic growth in Sri Lanka, a country with a history of protracted internal conflict and elevated security expenditures. The objective of this research is to analyse the long-term relationships between defence expenditure and key economic indicators, including the Economic Freedom Index, External debt stocks, Population growth, Trade openness, and Capital formation, using econometric techniques such as the ARDL approach and Granger causality tests.

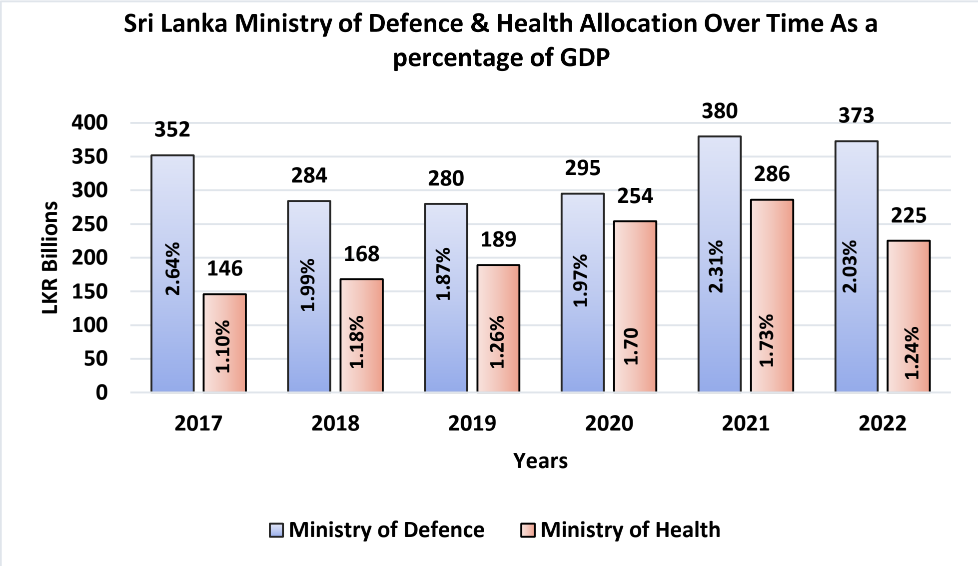

Figure 1. Sri Lanka's Data
Source: Sri Lanka Budget Estimates Multiple Years

While existing literature has explored the broader implications of defence spending on economic performance, there remains a notable gap in focused studies within the context of developing countries like Sri Lanka, particularly given its unique socio-political circumstances. By filling this gap, the research aims to provide valuable insights to policymakers to design strategies that balance national security needs with economic advancement.

Literature Review

Benoit's pioneering work (1973, 1978) found a positive link between defence spending and growth in LDCs, citing spill-over effects. However, his methodology and conclusions faced criticism. Lim (1983) found adverse effects in African and Western LDCs, while Frederiksen and Looney (1983) highlighted the role of resource constraints. Biswas and Ram (1986) found insignificant effects in low-income LDCs. Despite limitations, Benoit's work spurred further research in defence economics.

Following Benoit's (1973, 1978) criticism, research on the military-economic growth nexus has increased using economic theory and econometric models. Studies employing Keynesian demand-side models, like Deger and Sen (1983), and Atesoglu (2002), explore the multiplier effect of military spending on economic growth.

Keynesian framework has been widely used to analyse the defence-growth nexus. Some studies in South Asia, such as Khan (2004), Shahbaz *et al*., (2013) and Haseeb *et al.,* (2014) for Pakistan, and Tiwari and Shahbaz (2013) for India, found a negative long-run relationship between defence spending and economic growth, supporting the Keynesian demand-side model with modifications. Tiwari and Shahbaz (2013) noted the impact turned negative after surpassing a certain threshold.

However, Halicioglu (2004) found a positive relationship in Turkey using Atesoglu's (2002) Augmented Keynesian model. Similarly, Yiwen and Zhonghou (2014) tested the military Keynesian hypothesis for China, obtaining mixed results across different periods: positive from 1952-1978, but negative from 1978-2009 and 1952-2009.

The literature on the relationship between defence spending and economic growth is characterized by mixed and conflicting findings. Studies by Atesoglu (2002, 2009), Dunne (2011), Malizard (2013), and Khalid and Razaq (2015) examined the impact of defence spending on aggregate output and economic growth in the United States, with varying results. Atesoglu's model found a positive influence of defence spending, while Dunne's VAR model resulted in a negative relationship. In contrast, Malizard's study for France supported Atesoglu's finding. Khalid and Razaq's research for the US found a negative relationship between military spending and economic growth. This discrepancy highlights the complexity of the relationship between defence spending and economic performance, which may vary across countries and time periods.

The relationship between defence expenditure and economic growth is a complex and debated topic. Studies like Atesoglu (2002, 2009) and Malizard (2013) suggest a positive impact of defence spending on economic growth, particularly in developed countries. However, other research contradicts this, with Smith and Tuttle (2008) finding no significant impact and Khalid and Razaq (2015) even finding a negative relationship in the long run, using US data. Dunne (2011) also demonstrated conflicting results depending on the model employed.

For developing countries, the literature presents further complexities. Biswas and Ram (1986) found no significant impact in LDCs. Mintz and Stevenson (1995) emphasized the positive influence of non-military spending. However, Yildirim *et al.*,(2005) observed a positive relationship for Middle Eastern countries and Turkey, while Islam (2015) found similar results for a panel of 41 developing countries, but with country-specific variations. Batchelor *et al*., (2000) found the impact of military spending was significant on the output growth of the manufacturing sector of South Africa, but the study also found out that there was no significant effect of military spending on the output growth.

The relationship between defence expenditure and economic growth continues to be a topic of debate in the literature. Ando (2009) found a positive relationship between defence spending and economic growth for 109 countries, including 30 OECDs, using panel data over the period 1995-2003. However, Danek (2015) examined the hypothesis that military spending positively contributes to economic growth in resource-abundant countries and negatively contributes to resource-constrained countries, using the Feder-Ram model and multiple regression model for 28 European Union (EU) countries from 1993 to 2014. Danek found that the hypothesis held true when using the multiple regression method, but not when using the Feder-Ram model.

The empirical studies based on the Feder-Ram theoretical approach have provided inconclusive results (Feder, 1982). Many researchers have concluded that military spending does not have a significant impact on economic growth. On the other hand, some researchers have found a positive relationship between the two variables. Dunne *et al*., (2001) criticized the Feder-Ram model for its limitations, including treating unevenly the two variables, not clearly defining the error term, and being susceptible to simultaneity problems and high co-linearity between variables. Moreover, the model does not contain any lagged variables, making it only capable of explaining static relationships and causing slow adjustment in time-series analysis.

The seminal work of Deger and Smith (1983) introduced the SEM to analyse the defence-growth nexus, featuring equations for economic growth, saving/investment, and military spending. Subsequent research by Deger (1986) and Deger and Sen (1995) expanded this model by incorporating a trade balance equation, providing a more comprehensive framework. These SEM models posit that military expenditure influences economic growth through channels such as aggregate demand, savings/investment, and technological spin-offs. While technological spin-offs may positively affect civilian growth, the model acknowledges potential negative effects of military expenditure, including a burden on saving and the trade balance, potentially resulting in a net negative impact of military spending on overall economic growth.

Building upon these foundations, Deger's research, and subsequent studies like those using the SEM, often explored the defence-growth relationship through a demand-side and supply-side lens. Researchers like Deger and Smith (1983) and Deger (1986 a) utilized a SEM to analyse the relationship between defence expenditure and economic growth. The SEM typically included three equations, addressing growth, investment, and the "military burden." These studies, often focusing on LDCs, found that while a direct positive impact on growth might exist, the indirect effects, such as reduced investment, often resulted in a net negative impact on economic growth. The SEM model can capture these complex interactions. In a related study, Deger (1986 b) added a trade balance equation and confirmed a negative effect of defence spending on the trade balance. This strengthened the argument for a net negative impact of the military burden on economic growth. Furthermore, the findings of the study of Galvin (2003) examining 64 developing countries showed that the negative effects were more pronounced in middle-income economies compared to low-income economies. This implies that the impact of defence spending on growth may vary based on the economic context.

The relationship between Defence expenditure and Economic growth has been a subject of extensive debate and empirical investigation in economics. In 1983, Deger and Smith's SEM was developed to analyse this relationship, including growth, saving/investment, and military components. Later studies, like those by Deger (1986) and Deger and Sen (1995), added a trade balance equation. These models often assume that military spending affects economic growth through aggregate demand, savings, and "spin-off" effects. However, the SEM model often suggests that, while spin-offs can have positive impacts, the negative effects of military burdens on savings and the trade balance often lead to a net negative impact on overall economic growth.

Some studies have used the SEM model in individual-country contexts. For example, a study in South Africa (Dunne *et al*., 2000) found a negative impact of military spending on economic growth. Similarly, Dunne and Nikolaidou (2001) found a negative relationship in Greece, with war being a key factor. Klein (2004) in Peru found a negative relationship between defence spending and economic growth. In contrast, Sezgin (2001) found a positive effect on economic growth and a negative impact on the trade balance in Turkey. Tiwari and Tiwari (2012) found bidirectional causality between defence spending and GDP in India. These studies, overall, show that the net effect of military spending on economic growth tends to be negative in developing countries. While the SEM model addresses issues of simultaneity and exogeneity, its theoretical foundation is not always robust.

A recurring theme in the literature pertains to the impact of defence spending on Sri Lanka's economic performance. Althukorala and Jayasuriya (2013) highlight that policy changes in post-war did not necessarily alleviate concerns regarding defence spending, implying continued resource allocation in this area. Further investigations by Francis and Amirthalingam (2019) underscore the contrasting economic effects of different public expenditures. Their analysis, spanning 1980-2017, reveals a negative association between defence spending and economic growth, in contrast to the positive impacts of infrastructure and education spending. This finding is echoed by Selvanathan and Selvanathan (2014), who, examining the period from 1975 to 2013 also identify an inverse relationship between defence spending and economic growth.

However, other studies present alternative perspectives. Suresh and Navaratnam (2009), using data from 1950-2006, reveal a unidirectional causal relationship between economic growth and defence expenditure. This finding suggests that economic growth influences defence spending, but not vice versa. Similarly, Maheswaranathan and Jerusha (2021), analysing data from 1990 to 2019, identify a unidirectional relationship, but find that defence spending positively impacts economic growth in the long run. Finally, Sithy *et al.* (2016), using data from 1973 to 2014, conclude that military expenditure has a statistically significant, positive impact on Sri Lanka's per capita GDP growth, both in the short and long term. Supporting this, Wijeweera and Webb (2009), analysing the period from 1976-2007, find a positive impact of military expenditure on economic growth, using both supply-side (Feder-Ram model) and demand-side (Keynesian) frameworks.

Existing research on the impact of defence expenditure on economic growth, particularly in Sri Lanka, suffers from several limitations. Francis and Amirthalingam (2020), Many studies focus solely on the long-run effects, neglecting the potentially significant short-run impacts, while analyses specific to focusing on Sri Lanka are scarce. The impact of conflict is often oversimplified through the use of a single dummy variable, failing to capture the nuanced effects of varying conflict intensities or durations. Additionally, the econometric techniques employed are limited, and there is a lack of robust theoretical frameworks underpinning these relationships. Time-series analyses are underrepresented, and the application of advanced econometric tools remains limited, especially in the context of Sri Lanka's recent economic challenges following the crisis. These contrasting results underscore the complexity of the relationship, which may be influenced by factors such as the specific time period studied, the econometric methods used, underlying economic conditions, and definitions of defence spending. Future research could benefit from exploring these nuances in greater depth, including examining the impact of defence spending on specific sectors or considering the mediating role of conflict resolution and peace_ building efforts, particularly in the post-crisis context.

Data and Methods

The present study investigates the impact of defence expenditure on economic growth in Sri Lanka using annual secondary data spanning the period from 1970 to 2022. The analysis employs a time-series approach to assess the relationship between a set of independent variables and the dependent variable, which is the economic growth, Economic growth serves as the primary indicator of economic performance. The selection of independent variables is guided by both theoretical considerations and empirical literature on the determinants of economic growth. These include key socio-economic factors such as Defence expenditure, Capital formation, Economic freedom index, External debt stocks, Trade openness, and Population growth. Data for all variables were obtained from the World Bank's publicly available databases, ensuring the use of consistent and standardized data sources for analysis.

Table 1. Description of Variables

Variables		Definition	Source
Dependant Variable	Economic Growth [GDPG]	GDP growth (annual%)	WDI (2022) data.worldbank.org
Independent Variable	Defence Expenditure [DE]	Military Expenditure (% of GDP)	WDI (2022) data.worldbank.org
	Trade Openness [TO]	Trade (%GDP)	WDI (2022) data.worldbank.org
	External Debt Stocks [EDS]	External Debt Stocks (% of GNI)	WDI (2022) data.worldbank.org
	Economic Freedom Index [EFI]	Economic Freedom Index	Human Progress https://humanprogress.org
	Capital Formation [GCF]	Gross fixed capital formation (annual % growth)	WDI (2022) data.worldbank.org
	Population Growth [PG]	Population growth (annual %)	WDI (2022) data.worldbank.org

Source: Authors' compiled

The First step in the Autoregressive Distributed Lag (ARDL) analysis is the execution of a unit root test, which is essential for establishing the integration status of each variable involved. This preliminary analysis is vital to satisfy the conditions required for the bounds testing approach inherent in ARDL models. And the second step in the ARDL approach to cointegration is to determine the appropriate lag structure. Determining optimal lag-length leads to meaningful cointegration results (Ng and Perron, 2001). However, the ARDL approach does not require symmetry of lag-lengths. Maximum lag lengths in each variable are selected using Akaike Information Criterion (AIC) and Schwarz Criterion (SC) statistics. Pesaran *et al.,* (2001) also employed AIC statistics to select an optimal lag-length (see Figure 2. for more detail).

The bounds testing approach proposed by Pesaran et al. (2001) was employed to examine the existence of a long-run equilibrium relationship among the variables. The ARDL model was estimated using Diagnostic tests for serial correlation, heteroskedasticity, normality, and stability were performed to ensure the robustness of the results. The long-term coefficients were derived from the estimated model, and an Error Correction Model (ECM) was constructed to analyse short-term dynamics and the speed of adjustment towards long-term equilibrium. All analyses were conducted using EViews (software), which provides specialized tools for ARDL modelling and cointegration analysis

Results and Discussions.

Table 2. Unit Root Test Results

	ADF Test			PP Test		
	Level	1^{st} difference	Conclusions	Level	1^{st} difference	Conclusions
GDPG	0.2927	0.0000*	I [1]	0.2927	0.0000*	I [1]
LDE	0.3355	0.0000*	I [1]	0.1696	0.0000*	I [1]
EFI	0.2804	0.0000*	I [1]	0.3355	0.0000*	I [1]
GCF	0.0000*	0.0000*	I [0]	0.0000*	0.0000*	I [0]
TO	0.6543	0.0000*	I [1]	0.5854	0.0000*	I [1]
EDS	0.4366	0.0000*	I [1]	0.4594	0.0000*	I [1]
PG	0.7110	0.0000*	I [1]	0.6660	0.0005*	I [1]

*Note: * denote 1% level of significance respectively.*
Source: Authors' Estimates

The results indicate that Capital Formation is integrated at order zero (I(0)), signifying its stationarity in level form. Conversely, variables such as economic growth, defence expenditure, Economic Freedom Index, external debt stocks, population growth and trade openness display a unit root in their level form but achieve stationarity upon taking their first difference, establishing them as integrated at order one (I(1)). Consequently, all variables of interest are integrated of order one (I(1)) except for capital formation. These results have implications for the time series analysis as they confirm the presence of both non-stationary and stationary variables, which should be taken into consideration when modelling and analysis of the data.

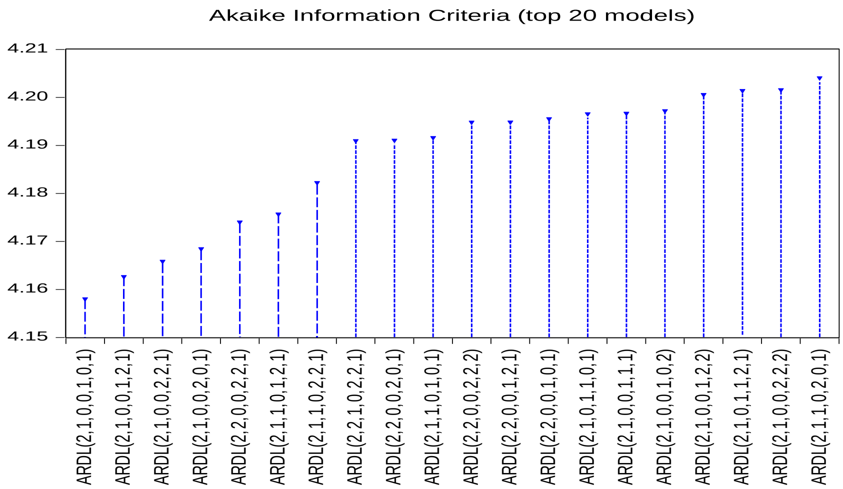

Figure 2. Selected ARDL Models

Source: Authors' Estimates

Based on the Akaike Information Criterion (AIC) and eligibility criteria applied to the top 20 models with the lowest sum of squared errors, the ARDL (2,1,0,0,1,0,1) model was selected as the preferred specification for this study. This selection process prioritized models that minimized the AIC value, indicating the best balance between model fit and complexity.

Table 3. F-Statistic of Cointegration Relationship

Test Statistics	Value	K
F statistic	6.668672	6
Critical Value Bounds		
Significance	Lower bound I(0)	Upper bound I(1)
5%	2.27	3.28

Source: Authors' Estimates

The calculated F-statistic of 6.668672 exceeds the upper bound critical value of 3.28 at the 5% significance level, under the assumption of a restricted intercept and no trend. This indicates a statistically significant cointegration relationship among the variables, suggesting that they share a long-term equilibrium connection. In other words, despite short-term fluctuations, the variables tend to move together over time, maintaining a stable relationship. This finding provides strong evidence of a long-term interconnection among the variables, which has important implications for understanding their dynamic interactions and for policy formulation.

Table 4. Long-run Results

Dependent variable: GDPG

Coefficient

LDE	EFI	PG	GFC	EDS	TO	R^2
-1.5098	5.0006	3.1057	0.1891	-0.1236	-0.0292	0.7325
(0.0001)*	(0.0012)*	(0.1102)	(0.0000)*	(0.0001)*	0.2881	

*Note: * denote 1% level of significance respectively.*
Source: Authors' Estimates

Table 4. presents the long-run coefficient estimates for the ARDL (2,1,0,0,1,0,1) model, investigating the determinants of Economic growth in Sri Lanka over the period 1970 to 2022. The results indicate statistically significant long-run relationships between Economic growth and several key variables. The long-run test statistics results indicate that the coefficients for Defence Expenditure, Economic freedom index, Capital formation and External debt stocks are statistically significant at the 1% level. The coefficients for the other variables, including Population growth, and Trade openness, are not statistically significant at 1% levels.

Notably, mean defence expenditure exhibits a negative and highly significant relationship with Economic growth (coefficient: -1.509844, p<0.001). This finding suggests that, in the Sri Lankan context, increases in defence spending are associated with reduced long-run Economic growth. This relationship may be attributed to several factors. Firstly, significant defence expenditure, particularly in the context of Sri Lanka's civil conflict history, can divert resources from more productive sectors such as education, healthcare, and infrastructure development, thereby hindering long-term economic growth. Secondly, elevated levels of Defence expenditure can potentially lead to increased government debt and fiscal imbalances, which could negatively impact macroeconomic stability and investment.

The economic freedom index demonstrates a positive and statistically significant effect at the 1% level, with a coefficient of 5.00, implying that improvements in economic freedoms can substantially enhance long-term growth. Capital formation also exerts a significant positive influence, with a coefficient of 0.18, indicating that increased investment in capital assets promotes economic expansion. Conversely, external debt stocks have a significant negative effect on growth at the 1% level, with a coefficient of -0.12, suggesting that rising external debt may constrain growth due to debt servicing costs and macroeconomic instability. Interestingly, trade openness shows a negative coefficient of -0.02 but is not statistically significant at the 1% level.

Population growth exhibits a positive coefficient of 3.10 but is also not statistically significant at the 1% level, indicating limited empirical support for its impact within this model. The R-squared value of 0.7325 indicates that approximately 73.25% of the variation in Economic growth is explained by the model, reflecting a good fit. Diagnostic tests confirmed that the residuals are serially independent, and stability tests indicated that the model is dynamically stable, satisfying the necessary assumptions for reliable inference. These findings suggest that policymakers should consider the potential adverse effects of high defence spending and external debt, while promoting economic freedoms and investment to support sustainable growth.

Next important pre-requisite of the ARDL bounds test approach is to make sure the errors of this model are serially independent and estimated models are dynamically stable.

Table 5. Diagnostics Tests Results

Breusch-Godfrey Serial Correlation LM Test	0.4859
Jarque-Bera Test	0.8536
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.0802
Ramsey RESET Test	0.0635

Source: Authors' Estimates

The diagnostics tests provide insights into the validity of assumptions of the ARDL model. The Breusch-Godfrey Serial Correlation LM test result of 0.4859 suggests a failure to reject the null hypothesis of no serial correlation. Therefore, the ARDL model appears to be free from serial correlation. The Jarque-Bera test result of 0.853634 indicates that the residuals are normally distributed. The Heteroskedasticity Test (Breusch-Pagan-Godfrey) with a p-value of 0.0802 doesn't reject the null hypothesis of homoskedasticity at conventional significance levels ($\alpha = 0.05$), which is an important assumption for the standard ARDL model. The Ramsey RESET test, with a p-value of 0.0635, indicates a failure to reject the null hypothesis of correct functional form. This result suggests that the model might be adequately specified.

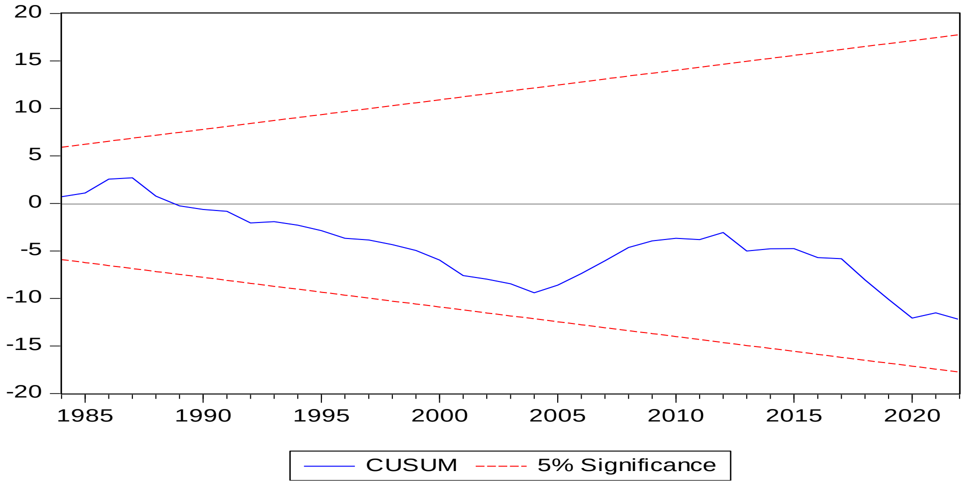

Figure 3. Plot of CUSUM of Recursive Residuals
Source: - Authors' Estimates

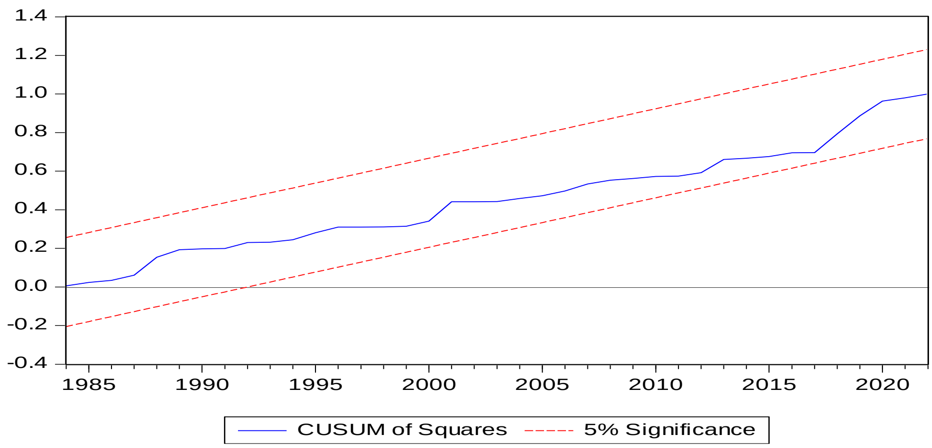

Figure 4. Plot of CUSUMSQ of Recursive Residuals
Source: Authors' Estimates

The results indicate that the statistics of both CUSUM and CUSUMSQ test lie within the interval bands at 5 % confidence interval. The results then suggest that there is no structural instability in the residuals of economic growth equation. The absence of structural instability in the residuals supports the reliability of the model and the validity of the statistical inferences made based on it.

Table 6. ARDL (2,1,0,0,1,0,1) ECM Result

Dependant variable: GDPG

Variables	**Lag order**
	0
D(LGDPG)	-0.256731 (0.0160) **
D(LNDE)	-0.329347 (0.2989)
D(GFC)	0.113715 (0.0000) *
D(TO)	0.147589 (0.0026) *
ECT (-1)* -0.987361 (0.0000) *	

*Note: ** and * denote 5% and 1% level of significance respectively.*
Source: Authors' Estimates

As can be seen, the estimated error correction coefficient of ECT (-1), is negative and statistically significant, indicating that cointegration occurs among economic growth and other variables in the model. The findings indicate that the coefficient for defence expenditure is 0.32, suggesting a negative relationship but it does not attain statistical significance at the 5 % level. The coefficient for economic growth is 0.25, suggesting a negative relationship and it does attain statistical significance at the 5 % level. The coefficient for capital formation is 0.11, suggesting a positive relationship and it does attain statistical significance at the 5 % level. The coefficient for Trade openness is 0.14, suggesting a positive relationship but it does not attain statistical significance at the 5 % level. Additionally, the error correction term has a coefficient of -0.987361, proving statistically significant at the 1 % level. These results suggest that after a shock, approximately 98 %, adjustment towards the long run equilibrium is completed after one year. The high speed of adjustment implied by the model may be unrealistic given Sri Lanka's weak policy implementation and institutional capacity, potentially overlooking real-world delays and frictions. Further investigation is needed to assess the model's practical applicability in this context.

The concept of causality in time series analysis is pivotal for enhancing predictive capabilities. A time series variable is considered 'causal' to another if incorporating the information from the first variable improves the predictive accuracy of the second variable. This notion of causality was initially proposed by Wiener (1956) who laid the groundwork for understanding relationships within stochastic processes. However, it was Granger (1969) who provided a practical implementation of this concept through the development of time series linear autoregressive models. Granger's work not only formalized the framework for establishing causal relationships among time series but also established the widely-utilized Granger causality test, which remains a fundamental tool in econometrics and statistics for assessing causal links.

Table 7. Granger causality Test Results

	ΔGDP	ΔLNDE	ΔEFI	ΔPG	ΔEDS	ΔTO	ΔCFC
ΔGDP		0.02**	0.16	0.00*	0.17	0.00*	0.22
ΔLNDE	0.91		0.97	0.32	0.01**	0.15	0.24
ΔEFI	0.04**	0.27		0.19	0.23	0.01**	0.99
ΔPG	0.47	0.77	0.62		0.84	0.82	0.91
ΔEDS	0.91	0.95	0.89	0.35		0.31	0.02**
ΔTO	0.00*	0.08	0.00*	0.00*	0.03**		0.07
ΔCFC	0.00*	0.52	0.57	0.04**	0.03**	0.06	

*Note: ** and * denote 5% and 1% level of significance respectively.*
Source: Authors' Estimates

The Granger causality results presented in Table 5 reveal insightful dynamics between various variables and Economic growth. At the 1% significance level, Trade openness shows a bilateral causal relationship with Economic growth, indicated by a p-value of 0.00, which is well below the alpha level of 0.01. This suggests that changes in Trade openness can predict Economic growth, and vice versa, reflecting a mutual influence. In contrast, the variable Population growth exhibits a one-way causal relationship with Economic growth, supported by its p-value of 0.00, which is also significantly below 1%. This indicates that changes in Population growth can predict Economic growth, but Economic growth does not exert any predictive influence on Population growth. Additionally, at the 5% significance level, we see that Defence Expenditure is associated with a one-way causal relationship with Economic growth, as evidenced by a p-value of 0.02, which is below the alpha level of 0.05. This suggests that developments in Defence expenditure can help predict Economic growth, although the reverse is not true. Finally, the variables External debt stocks and Capital formation exhibit no causal relationship with Economic growth, indicating that fluctuations in these variables do not predict or influence Economic growth. Overall, these findings highlight the varying degrees of causality among different economic indicators and Economic growth, with certain variables demonstrating significant predictive relationships while others show no discernible effects.

Conclusion and Recommendations

This study provides empirical evidence that increased defence spending has a negative impact on economic growth in Sri Lanka. The findings support the 'guns versus butter' theory, illustrating the opportunity costs associated with allocating substantial resources to Defence expenditure at the expense of social and productive sectors. The results align with prior research by Atthukorala and Jayasuriya (2013) and Francis and Amirthalingam (2019), reinforcing the notion that excessive military spending can hinder economic development by diverting funds from investments in education, healthcare, and infrastructure. Given Sri Lanka's historical context of high defence expenditure driven by ethnic conflicts and security concerns, these insights highlight the need for a strategic re-evaluation of fiscal priorities.

Based on the findings that increased defence spending adversely affects Sri Lanka's economic growth, it is essential for policymakers to consider a strategic rebalancing of fiscal priorities. Specifically, reducing defence budgets and reallocating resources toward social sectors such as education, healthcare, and infrastructure can foster human capital development, improve productivity, and create a more sustainable growth trajectory. To ensure effective reallocation, efforts should focus on enhancing transparency and accountability within defence budgeting processes, minimizing wasteful expenditures, and maximizing the impact of available resources. Additionally, adopting a balanced policy framework that prioritizes investments in human capital and infrastructure-while maintaining necessary security measures-can help diversify and strengthen the economy. Future research should also explore the role of peace building initiatives and economic diversification strategies, as stability and broader economic bases are crucial for sustained growth. By implementing these recommendations, Sri Lanka can reduce the negative effects of high defence spending, optimize resource utilization, and build a more resilient and prosperous economic future.

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