

Analyzing the Long-Run and Short-Run Effect of Military Expenditure and Political Stability on Economic growth of Afghanistan

Shahzad Anwar Faizan Ahmad

To cite this article: Anwar, S., & Ahamd, F. (2024). Analyzing the long-run and short-run effect of military expenditure and political stability on economic growth of Afghanistan. *Kardan Research Journal*, *1* (1), 29-41.

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Published online: 30 December 2024



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Analyzing the Long-Run and Short-Run Effect of Military Expenditure and Political Stability on Economic growth of Afghanistan Kardan Research Journal 1 (1) 29–41 ©2024 Kardan University Kardan Publications Kabul, Afghanistan

Shahzad Anwar Faizan Ahmad

Abstract

Received: 28 Sep 24 Revised: 25 Oct 24

Accepted: 28 Nov 24 Published: 30 Dec 24

> This study examines the impact of military expenditures (as a percentage of GDP), military imports, and political stability on Afghanistan's economic growth (GDP%) from 2001 to 2021. Using a Vector Error Correction Model (VECM), the analysis investigates short- and long-term relationships. The Augmented Dickey-Fuller (ADF) and Philips Peron test confirm stationarity at the first difference, while the Johansen cointegration test identifies a long-term equilibrium relationship among the variables. However, no short-term relationship is detected, indicating that changes in military expenditures, imports, and political stability do not immediately impact GDP growth. The findings emphasize the role of political stability in enhancing the long-term economic impact of military expenditures. By addressing a key research gap that Hassani (2020) highlighted, this study offers actionable insights for policymakers and development agencies working in post-conflict recovery and fragile state development. It recommends improving political stability and optimizing military spending to support sustainable economic growth in Afghanistan.

> *Keywords:* Military Expenditure, Political Stability, Economic Growth, Short and Long Run Relationship

JEL Codes: H56, D72, O40, C22

1. Introduction

The relationship between military expenditure, political stability, and economic growth has been a focal point in financial literature, especially for countries grappling with conflict and instability. While some studies suggest that military spending stimulates economic development through job creation, technological innovation, and conflict stabilization (Dunne & Tian, 2015; Knight, Loayza & Villanueva, 2022), others argue that it diverts resources from productive sectors like health, education, and infrastructure, thereby limiting long-term growth (Dimitriou, Goulas, Kallandranis, & Drakos, 2024). Similarly, political stability is often associated with an improved investment climate, reduced uncertainty, and consistent policy implementation, which foster economic development (North,1990; Aisen & Veiga, 2013). However, in conflict-affected countries like Afghanistan, where military expenditures constitute a significant portion of the national budget and political stability remains fragile, these relationships become more complex and context-specific.

The interplay between military expenditures and political instability has been increasingly studied in recent years. For instance, Yildirim and Öcal (2020) highlight that while military spending may provide short-term stabilization, its long-term effects often depend on the governance environment. Similarly, research by Shahbaz et al. (2021) underscores the importance of differentiating between short-run and long-run impacts of military expenditures on economic growth, as their effects can vary significantly over time. In the Afghan context, understanding these temporal dynamics is crucial for informing policies to foster sustainable growth amid ongoing security challenges.

The central problem of this study is the volatility and inconsistency in Afghanistan's economic growth, as measured by GDP (% change), during the period 2001-2021. Although significant resources have been allocated to defence and security, Afghanistan's economic performance has remained erratic. Prior studies have documented that military expenditures have a dual impact on growth, with short-term stabilization effects often countered by long-term fiscal burdens (Yildirim & Öcal, 2020; Nadeem, Imran, & Sarwar, 2024). Meanwhile, political instability disrupts trade, weakens investor confidence, and diverts public spending toward crisis management rather than development (Aisen & Veiga, 2013; Cox & Weingast, 2018). Existing studies, however, tend to focus on broad multi-country analyses or regions with relatively stable political environments, often overlooking the unique context of Afghanistan (Khalid & Noor, 2018; Raju & Ahmed, 2019). This study is grounded in Keynesian Economic Theory, which posits that government spending, including military expenditures, can stimulate aggregate demand and drive economic growth, particularly in the short term. However, insights from Conflict Economics highlight that in conflict-affected regions like Afghanistan, defence spending is not always growth-enhancing. Instead, its impact depends on governance, the efficiency of resource allocation, and the role of political stability. Thus, this study employs a theoretical framework that combines Keynesian principles with the specific challenges of fragile states.

A notable contribution to this gap is the work of Hassani (2020), who emphasized the need to integrate political factors into defence spending analyses specific to Afghanistan. The present study builds on this by incorporating the Political Stability Index as a key variable, which has not been previously explored in Afghan-specific research. The study addresses a critical void in the existing literature by examining the short-run and long-run relationships between military expenditures, political stability, and economic growth.

Afghanistan's socio-political and economic context is unique due to its prolonged conflict, dependence on international aid, and fragile governance structures. From 2001 to 2021, military expenditures accounted for a substantial share of GDP, driven by domestic security needs and foreign military support. Political instability, characterized by regime changes, insurgency, and weak institutional capacity, further complicated efforts to achieve sustained economic development. This fragile context makes Afghanistan an ideal case study for investigating how military expenditures and political stability collectively shape economic growth. Understanding the interplay between these variables is essential for informing policy promoting post-conflict recovery and sustainable development.

1.1 Research question

What is the long-run and short-run relationship between military expenditure, political stability, and economic growth in Afghanistan?

2. Literature Review

The relationship between military expenditures, political stability, and economic growth has been the subject of extensive academic inquiry. While this field has produced varying conclusions across different contexts, Afghanistan's unique socio-political and economic conditions from 2001 to 2021 present an opportunity to contribute to this body of literature. This section critically examines the theoretical foundations, empirical findings, and gaps in existing research, focusing on military expenditure, political stability, and their impact on economic growth.

2.1 Theoretical Foundations

The theoretical debate on the relationship between military expenditures and economic growth is primarily framed within two competing perspectives. The Keynesian Economic Theory argues that increased government spending, including military expenditures, stimulates aggregate demand and contributes to economic growth, especially in the short run. Keynesian proponents assert that military spending can generate employment, spur technological advancements, and foster economic activity through multiplier effects (Dunne & Tian, 2015).

In contrast, Neoclassical Growth Theory emphasizes that excessive government spending on defence may crowd out investments in more productive sectors such as education, health, and infrastructure, ultimately limiting long-term economic growth (Benoit, 1978). This perspective suggests that resources allocated to military budgets are often unproductive in fostering sustainable economic development. Additionally, funding military expenditure through borrowing or increased taxation may reduce private investments, highlighting the impact of public sector decisions on private investment (Lipow and Antinori, 1995).

Adding to these theories, Conflict Economics provides a framework for understanding resource allocation in conflict-affected states. It highlights the dual role of military expenditures in stabilizing fragile environments while potentially exacerbating fiscal imbalances and institutional weaknesses (Collier et al., 2021). Meanwhile, political stability, measured through indices such as the Political Stability Index, further influences these dynamics. The Institutional Economic Theory argues that stable governance enhances economic growth by fostering investor confidence, reducing uncertainties, and ensuring efficient resource allocation (Aisen & Veiga, 2013). Conversely, political instability undermines these processes, redirecting public resources toward short-term security priorities at the expense of long-term growth.

2.2 Military Expenditures and Economic Growth

The assessment of the economic effects of military expenditures is a burning issue among policymakers and economists (Dimitriou, Goulas, Kallandranis, & Drakos, 2024). Countries are increasing their military spending quickly, leading to worldwide poverty. The military expenditure outlay has surpassed the two trillion US dollar mark for the first time in 2021. While the case of public spending is viewed as imperative fiscal stimulus to

growth, a case in point being that of (Barro, 1990; Irmen & Kuehnel, 2009; Wu, Tang, & Lin, 2010; Kollias & Paleologou, 2013) among several others, yet no government composition of spending can have similar implications regarding outcome on economic growth across nations.

Conventional reasoning would imply that military expenditures are an economic burden. On the contrary, this burden is examined through the demand, supply, and security channels. Conversely, the demand effect is a concept that falls under the paradigm of Keynesianism and describes how government expenditures have positive externalities, such as (e.g. Ram 1995; Mylonidis 2008; H.-C. Chang, Huang, and Yang 2011; D' Agostino, Dunne, and Pieroni 2011; T.P. Wang, Shyu, and Chou 2012; Khalid and Noor 2018; Raju and Ahmed 2019, etc.). On the other side, the supply channel deconstructs the Keynesian approach since the military budget crowds out the scarce resources, especially for less developed countries, drawing off both public and private investment; this is a phenomenon that becomes stronger in the case of financing of the military budget by international markets (J.P. Dunne, Smith, and Willenbockel 2005; D'Agostino, Dunne, and Pieroni 2011; J. P. Dunne 2012; J. P. Dunne and Nikolaidou 2012; Dimitraki and Ali 2013; Nikolaidou 2016; Dimitraki and Kartsaklas 2018, etc.). The last channel through which the growth of military expenditures can be explained is security. Security/protection of population and private property is considered a crucial factor for the survival and good functioning of any economy, leading to positive externalities for the military spending and growth relationship via foreign investors (e.g. Benoit 1973; Musayev 2013).

Contrastingly, many researchers argue that high military expenditures hinder economic growth by diverting resources from productive sectors. Alptekin and Levine (2012) conducted a meta-analysis across conflict regions and concluded that defence spending often imposes fiscal burdens, exacerbating economic inefficiencies. Ullah et al. (2024) counter that defence spending often imposes fiscal constraints, reducing the availability of funds for critical development sectors such as healthcare and education. They demonstrate that the opportunity costs of defence allocations significantly hinder long-term growth. For Afghanistan, Hassani (2020) highlighted that while military spending was necessary for security, its economic returns were limited due to weak governance and reliance on foreign aid.

2.3 Political Stability and Economic Growth

Political stability is another key determinant of economic growth, particularly in fragile states. Studies have demonstrated that political instability, characterized by frequent government changes, internal strife, and weak institutions, undermines investor confidence, disrupts economic activities, and hinders structural reforms (Aisen & Veiga, 2013; Cox & Weingast, 2018). For Afghanistan, the political landscape between 2001 and 2021 was marked by frequent regime changes, ongoing negotiations with insurgent groups, and fluctuating levels of governance capacity. These factors not only influenced the allocation of military resources but also impacted the broader economic environment.

Political stability is central to determining economic outcomes, particularly in conflictprone regions. Aisen and Veiga (2013) showed that political instability disrupts investment, trade, and policy implementation, creating an uncertain environment detrimental to economic growth. For Afghanistan, decades of governance instability, regime changes, and insurgency activities have undermined developmental efforts, reinforcing a cycle of conflict and economic stagnation.

Empirical research indicates that political stability enhances economic performance by fostering investor confidence, enabling long-term planning, and facilitating effective policy execution (Cox & Weingast, 2018). Countries with stable governance structures are better positioned to leverage military expenditures for productive outcomes, as demonstrated in post-conflict recovery cases like Rwanda and Bosnia. Conversely, instability redirects public spending toward short-term security needs and away from infrastructure, health, and education, thereby constraining long-term growth. For Afghanistan, Yildirim and Öcal (2020) highlighted that political instability amplified the fiscal pressures of military spending, exacerbating economic vulnerabilities.

2.4 Interplay Between Military Expenditures, Political Stability, and Economic Growth

The interaction between military expenditures and political stability is particularly relevant for Afghanistan. While increased military spending is often justified to stabilize conflict-affected regions, its effectiveness depends on the underlying governance environment. Hassani (2020) suggested that political instability in Afghanistan undermined the economic benefits of defence spending, creating a dependency on foreign aid without fostering self-sustaining growth.

Recent studies by Collier et al. (2021) and Shahbaz et al. (2021) argue that the long-term economic impact of military expenditures is moderated by political stability. For instance, stable governance enables efficient allocation of defence budgets and facilitates economic recovery, while instability exacerbates fiscal inefficiencies and reduces developmental impact.

Despite substantial research on the economic effects of military spending and political stability, Afghanistan-specific studies remain limited. Hassani (2020) noted that previous research largely ignored the moderating role of political stability in Afghanistan's unique socio-political environment. This study addresses this gap by integrating the Political Stability Index into the analysis, examining its interaction with military expenditures and their collective impact on economic growth. Afghanistan's dependence on international aid, persistent governance challenges, and high military spending create a distinct case for evaluating these relationships. Focusing on the short- and long-term dynamics between military expenditures, political stability, and economic growth, this research contributes to the literature on post-conflict recovery and fragile state economics.

3. Research Methodology

The study investigates the relationship between military expenditures (percentage of GDP), military imports, political stability, and economic growth (GDP%) in Afghanistan. Economic growth (GDP%) is the dependent variable, while military expenditures, imports, and political stability are independent variables. This study uses time-series data for the analysis. The data is taken from the 2002-2022 period which, unfortunately, because of the internal war in Afghanistan, there was no data available before 2002, so we are taking data for 20 years. The data are extracted from different sources; the military expenses are taken from the Stockholm International Peace Research Institute (SIPRI), and the two other variables, the change in GDP and political stability index, are taken from the World Development Indicator (WDI).

The analysis utilizes a Johansen co-integration test and Vector Error Correction Model (VECM) to capture short-run and long-run relationships among the variables, building on the foundation of stationarity testing and Johansen co-integration analysis.

3.1 Johansen Cointegration Test

After establishing stationarity, the **Johansen co-integration test** is applied to identify long-term equilibrium relationships among the variables. The test involves two key components:

- Trace Test: Tests the null hypothesis that there are no cointegrating relationships (r=0r = 0r=0) against the alternative of one or more cointegrating vectors (r≥1r \geq 1r≥1).
- 2. **Maximum Eigenvalue Test**: Tests whether the number of cointegrating relationships is rrr versus r+1r+1r+1.

The existence of co-integration indicates that the variables move together in the long run, supporting the use of the VECM for further analysis.

The VECM extends the Vector Autoregression (VAR) framework by incorporating an error correction term (ECT) that adjusts for deviations from the long-term equilibrium identified through the Johansen test. The general form of the VECM is:

Where:

 $\begin{array}{ll} \Delta \mathrm{Yt} = \mathrm{First-difference} \\ \mathrm{of \ the \ dependent} \\ \mathrm{variable} \end{array} \qquad \Delta Y_t = \alpha + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + \Pi Y_{t-1} + \varepsilon_t \end{array}$

Γi = Short-run impact coefficient matrices for lag iii

 Π = Speed of adjustment coefficient, which shows how quickly deviations from the long-run equilibrium are corrected

Yt-1 = Error correction term from the co-integration equation

 ϵt = White noise error term

4. Data Analysis

a. Stationarity:

Table 1

Result of Augmented Dickey-Fuller Test & Phillips-Peron Test

Variables	Augmented Dickey-Fuller				Phillips - Peron statistic: with Remark				
	statistic: with trend and			trend and constant.					
	consta	nt							
	At leve	1	First di	fference	At leve	1	First diff	erence	
	Critical Value at 5 %	Trace- Statistic Value	Critical Value at 5 %	Trace- Statistic Value	Critical Value at 5 %	Trace- Statistic Value	Critical Value at 5 %	Trace- Statistic Value	
GDP	-3.920	-3.649	-3.971	-6.896*	-3.963	-2.085	-4.967	-6.962*	I (1)
ME	-3.964	-3.460	-3.976	-4.207*	-3.976	-2.908	-3.963	-4.857*	I (1)
MI	-3.972	-3.339	-3.971	-6.339*	-3.967	-2.681	-3.985	-4.681*	I (1)

PSI	-3.977	-3.453	-3.986	-4.585	-3.969	-2.113	-3.986	-4.585	I (I)

The first step in analyzing time series data is to check its stationarity. To determine whether the data is stationary, the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test are commonly used (Dickey & Fuller, 1979; Phillips & Perron, 1981).

The table above provides statistics used to assess stationarity, including critical values at the 5% level and Trace Statistics for variables such as the percentage change in gross domestic product (GDP), military expenditure as a percentage of GDP, total military spending, and the political stability index. The data is considered stationary if the absolute value of the Trace Statistic exceeds the corresponding critical value at the 5% level. The results show that all variables are stationary at the first level, as confirmed by the ADF and PP tests, with Trace Statistics exceeding the critical values.

Table 2

Lag Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-103.3919	NA	0.954366	11.30441	11.50324	11.33806
1	-53.68250	73.25597	0.028876	7.756053	8.750199	7.924302
2	-20.18391	35.26167*	0.006046*	5.914096*	7.703559*	6.216944*

Lag 2 is identified as the optimal choice for the VAR model based on lag selection criteria, as it minimizes the Final Prediction Error (FPE), Akaike Information Criterion (AIC), and Hannan-Quinn Criterion (HQ). While the Schwarz Criterion (SC) also points to Lag 2, most of the criteria strongly support this lag, suggesting it offers better model fit and predictive accuracy. Therefore, using Lag 2 is a well-founded decision for analyzing the dynamics between GDP, Military Expenditure (ME), Military Imports (MI), and the Political Stability Index (PSI).

b. Johansen Cointegration Test

Table 3

Result of Johansen Co-integration/ Max-Eigen Test

Hypothesiz		0.05			0.05		
ed	Trace	Critical		Max-Eigen	Critical		
No. of CE(s)	Statistic	Value	Prob.**	Stat.	Value	Prob.**	
None *	85.77361	47.85613	0.0000	51.72386	27.58434	0.0000	
At most 1 *	34.04975	29.79707	0.0152	21.30143	21.13162	0.0473	
At most 2	12.74831	15.49471	0.1244	10.79536	14.26460	0.1648	
At most 3	1.952952	3.841466	0.1623	1.952952	3.841466	0.1623	

Eviews 8.1 output

The results of the Johansen Co-integration Test indicate the presence of long-term equilibrium relationships among the model variables. For the hypotheses "None" and "At most 1," the trace statistics (85.77361 and 34.04975, respectively) surpass their corresponding critical values (47.85613 and 29.79707) at the 5% significance level, with probabilities well below 0.05. This leads to rejecting the null hypotheses for up to "At most 2," suggesting the existence of two co-integrating equations. These findings are corroborated by the Max-Eigen Test, which also confirms co-integration for up to two

equations. However, for "At most 2," the null hypothesis cannot be rejected, indicating no additional co-integrating relationships. The results demonstrate that the three variables are co-integrated, confirming a stable long-term relationship. Consequently, the Vector Error Correction Model (VECM) is appropriate for analyzing short-run dynamics.

c. Vector Error Correction Model

Table 4

Results Of Vector Error Correction Model

Cointegrating Eq:	CointEq1			
GDP(-1)	1.000000			
ME(-1)	-5.250244			
	(0.78310)			
	[-6.70443]			
MI(-1)	-5.765417			
	(0.59866)			
	[-9.63046]			
PI(-1)	17.49515			
	(2.04378)			
	[8.56021]			
С	79.56629			
Error Correction:	D(GDP)	D(ME)	D(MI)	D(PI)
CointEq1	-1.427062	0.060745	0.006461	-0.009071
	(0.44894)	(0.01438)	(0.02282)	(0.00902)
	[-3.17873]	[4.22391]	[0.28315]	[-1.00594]
D(GDP(-1))	0.087357	-0.021652	0.020111	0.001914
	(0.27394)	(0.00878)	(0.01392)	(0.00550)
	[0.31889]	[-2.46730]	[1.44432]	[0.34792]
D(ME(-1))	-5 894876	-0 307872	-0 465339	-0 079464
	(6 36572)	(0.20392)	(0.32357)	(0.12786)
	[-0.92604]	[_1 50978]	[_1 43816]	[-0.62149]
	[-0.92004]	[-1.50770]	[-1.45010]	[-0.02149]
D(MI(-1))	14.81423	-0.899368	1.322321	0.088314
2 (111 (1))	(8.27702)	(0.26514)	(0.42072)	(0.16625)
	[1.78980]	[-3.39199]	[3.14303]	[0.53121]
	[1]	[0.07177]	[0111000]	[0.001=1]
D(PI(-1))	3.092872	-1.326232	-0.865300	0.148400
	(13.7913)	(0.44179)	(0.70100)	(0.27701)
	[0.22426]	[-3.00197]	[-1.23438]	[0.53572]
С	-0.596453	-0.166413	-0.179992	-0.010936
	(1.99802)	(0.06400)	(0.10156)	(0.04013)
	[-0.29852]	[-2.60002]	[-1.77230]	[-0.27249]
		-	-	_

The co-integration results reveal a significant long-run equilibrium relationship between GDP growth and the independent variables: military expenditure (ME), military imports (MI), and the political stability index (PI). In the long run, military expenditure negatively

impacts GDP growth with a coefficient of -5.25, indicating that higher military spending reduces economic growth. Similarly, military imports have a strong negative impact, with a coefficient of -5.76, suggesting that excessive reliance on military imports harms the economy. In contrast, political stability positively influences economic growth, with a substantial coefficient of 17.49, underscoring the importance of a stable political environment for fostering economic development.

The error correction term is statistically significant for GDP and military expenditure, confirming the existence of a robust adjustment mechanism that corrects deviations from the long-run equilibrium. For GDP, the negative coefficient (-1.42) implies that about 142% of disequilibrium is corrected annually, reflecting a rapid adjustment process. On the other hand, military expenditure shows a positive error correction coefficient, indicating a quick adjustment in spending levels to restore equilibrium.

In the short run, the results suggest that past GDP growth, military expenditure, military imports, and political stability have minimal or statistically insignificant effects on current GDP growth. This highlights that the key drivers of economic growth in Afghanistan are primarily long-term structural factors rather than short-term fluctuations in these variables.

Table 5

Results of Vector Error Correction Model

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-1.427062	0.448941	-3.178728	0.0073
C(2)	0.087357 E 804876	0.273942	0.318889	0.7549
C(3)	-3.894876 14.81423	6.363716 8 277024	-0.926035	0.3713
C(4) C(5)	3.092872	13.79129	0.224263	0.8260
C(6)	-0.596453	1.998022	-0.298522	0.7700

The summary of the vector error correction model provides further clarity on the dynamics of the relationships. The error correction term, with a coefficient of -1.427 and a p-value of 0.007, is highly significant, reaffirming that GDP growth adjusts swiftly to restore equilibrium during short-term shocks. However, the short-run coefficients for lagged GDP, military expenditure, military imports, and political stability are largely insignificant, indicating that these variables do not strongly influence economic growth in the short term. The only exception is the lagged coefficient for military imports, which shows weak significance (p = 0.096), hinting at a minor delayed effect on GDP.

The model diagnostics indicate a reasonably good fit, with an R² of 62.76%, meaning the model explains a substantial portion of the variation in GDP growth. After accounting for degrees of freedom, the adjusted R2 of 48.44% reflects a moderate explanatory power. The F-statistic (p = 0.014) confirms the collective significance of the independent variables in explaining GDP growth.

The findings emphasize that long-term factors heavily influence Afghanistan's economic growth. Military expenditure and imports significantly negatively impact GDP growth over time, while political stability emerges as a critical driver of economic progress. However, these variables exhibit minimal influence in the short term, underscoring the

37

importance of sustainable, long-term policy measures to improve Afghanistan's economic prospects. The robust adjustment mechanism ensures that deviations from the long-term equilibrium are corrected efficiently.

Conclusion

This study investigates the interplay between economic growth, military expenditures, military imports, and political stability in Afghanistan from 2002 to 2022. The results demonstrate a significant long-term equilibrium relationship among these variables, with notable findings highlighting the adverse impact of military expenditures and military imports on financial growth. The findings have both theoretical and policy implications. Theoretically, this study contributes to the literature on the economic effects of military expenditures and political stability in conflict-affected economies, emphasizing the need for balanced policy measures considering their long-term effects. Practically, the results provide actionable insights for policymakers in Afghanistan. Reducing military expenditures and imports and targeted investments in political stability can significantly enhance the country's economic prospects. Prioritizing governance reforms and fostering stability could create a more conducive environment for development, minimizing the negative trade-offs of military spending on economic growth.

Implications

The findings highlight that while military expenditures may address immediate security concerns, their long-term impact on economic growth is detrimental. Policymakers must adopt a balanced approach by addressing governance challenges and reallocating resources towards sectors that yield sustainable growth. Afghanistan can achieve the dual objectives of security and development by fostering political stability and creating a conducive environment for economic diversification.

Limitation and Future Direction

Despite its contributions, the study has some limitations. Data availability was constrained to a limited time frame (2002–2022), which may not fully capture the broader historical context of Afghanistan's economic and political dynamics. Afghanistan's unique geopolitical challenges limit the generalizability of these findings to other regions. Future research should expand on these findings by exploring non-military factors, such as infrastructure development, education, or foreign aid, which may also be critical in shaping economic growth. Comparative studies across conflict-affected nations could offer broader insights into the balance between military expenditures and economic development. Moreover, examining the role of international partnerships and foreign investment in fostering political stability and growth could further enrich the policy discourse. By addressing these avenues, future studies can build a more comprehensive understanding of the pathways to sustainable development in fragile economies like Afghanistan.

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About the Authors

Mr. Shahzad Anwar, Assistant Professor, Department of MBA, Kardan University, Kabul Afghanistan. <s.anwar@kardan.edu.af>

Mr. Faizan Ahmad, Assistant Professor, Department of Business Administration, Kardan University, Kabul, Afghanistan. <f.ahmad@kardan.edu.af>