

Military Spending and Economic Growth in the WAEMU: A Simultaneous Equations Analysis

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Abstract

Faced with rising insecurity, the question of allocating budget shares to military spending has become a crucial issue and a priority for countries. The West African Economic and Monetary Union (WAEMU). In this context, this study analyzes the link between military spending and economic growth in the eight WAEMU countries over the period 2000-2023. To do so, we use a simultaneous equations model estimated by the three-stage least squares (3SLS) method on panel data. The results reveal that a 1% increase in military spending leads to a 0.21% decrease in economic growth. Conversely, a 1% increase in economic growth stimulates military spending by 1.66% in the region. Furthermore, the causality test of Dumitrescu and Hurlin (2012) confirms a bidirectional relationship between the two variables. These results highlight the need to consider the development of military industries and the pooling of all operational capabilities.

Keywords

Military Spending, Economic Growth, Simultaneous Equations, WAEMU, Panel Data

1. Introduction

The 21st century is profoundly marked by a resurgence of armed conflicts, terrorist attacks, and asymmetric warfare. These realities have a lasting impact on the economic, social, and political dynamics of nations, particularly in developing countries. Economic literature highlights that political and security instability constitutes a major obstacle to growth, affecting investment, stakeholder confidence, and the allocation of public resources (Alesina et al., 1991; Blomberg, 1996; Azam et al., 1996).

West Africa, in particular, is facing an intensification of security threats, notably through the rise of intercommunal conflicts, and cross-border crises. This

situation is forcing states to reorient their budgetary priorities toward military and security spending, often at the expense of productive and social investments (Dunne & Tian, 2013; Heo & Ye, 2016). According to SIPRI (2019), global military spending reached \$1.8 trillion in 2018, an increase of 2.6% compared to 2017. Within the G5 Sahel region, Mali (339%), Niger (288%), and Burkina Faso (238%) recorded the largest increases in their defense budgets between 2010 and 2020.

The relationship between military spending and economic growth is the subject of theoretical controversy. On the one hand, Keynesians argue that public spending, including military spending, can stimulate aggregate demand (Keynes, 1936; Benoit, 1973). On the other hand, neoclassical economists believe that military spending diverts resources away from productive sectors (Ball, 1983; Dunne & Tian, 2013). Empirically, the results are also controversial. Some authors support the positive effect of military spending on economic growth (Yildirim et al., 2005; Benoit, 1978), while others argue for a negative effect (Azam, 2020; Chang et al., 2011). These controversial results encourage us to take an interest in the WAEMU, an area facing security crises in recent decades and whose security expenditures now represent between 15% and 25% of public budgets (IMF, 2020; WAEMU, 2022).

The overall objective of this article is to examine the relationship between military spending and economic growth. To achieve this objective, we ask the following questions: (i) Is there a bidirectional relationship between military spending and economic growth? (ii) What is the effect of military spending on economic growth? (iii) How does economic growth influence military spending?

The hypotheses being tested are:

- (i) Military spending has an effect on economic growth;
- (ii) Economic growth has a significant effect on military spending;
- (iii) There is a bidirectional causal relationship between the two variables.

The plan of this article is as follows: Literature review (section 2); data and methodology (section 3); results and discussion (section 4) and finally conclusion, recommendations and limitations (section 5).

2. Literature Review

2.1. Effects of Military Spending on Economic Growth

Several contemporary empirical studies have been conducted with the same perspective to explain this negative relationship in various contexts. The main ones are presented below. Azam (2020) examined the impact of military spending on economic growth in non-OECD (Organization for Economic Co-operation and Development) countries. The results clearly show a negative effect of this spending on growth, as it does not contribute favorably to its determination. Similarly, Hou and Chen (2012), Lim (1983), and Klein (2004) observed a negative and statistically significant impact of military spending on economic growth in many

countries. [Chang et al. \(2011\)](#) also highlighted the adverse consequences of such spending in developing countries.

Conversely, some results prove positive. [Yildirim et al. \(2005\)](#) also provide empirical insights into the positive relationship between military spending and economic growth in the Middle Eastern countries and as a whole. Through cointegration tests, the authors concluded that there is a positive long-term relationship between military spending and gross domestic product. Building on this, [Sezgin \(2001\)](#) assesses the case of Türkiye over the period 1956-1994 by simultaneously estimating several interdependent economic relationships (eg, between growth, military spending, savings, and the trade balance). The results explain that military spending has a positive effect on overall economic growth but does not have a significant impact on certain macroeconomic aggregates such as savings and the trade balance. Finally, [Benoit \(1978\)](#) analyzed the impact of military spending on the Economic growth in developing countries using a cross-sectional approach from 1950 to 1965. The results showed a positive correlation between military spending and GDP growth. This refers to a multiplier effect of public spending, including military expenditures.

2.2. Effects of Economic Growth on Military Spending

The economic literature identifies several determinants of military spending, with economic growth playing a central role. Numerous empirical studies indicate that increased national income and fiscal capacity tend to encourage higher defense budgets ([Smith, 1980](#); [Hewitt, 1991](#); [Benoit, 1973](#)). Beyond economic factors, other major determinants have been highlighted in the literature, namely security threats, geopolitical factors, and institutional quality. For example, [Looney \(1989\)](#) and [Rosh \(1988\)](#) explain the role of regional tensions and military alliances, while [Nordhaus et al. \(2012\)](#) emphasizes the influence of the international security environment. [Albalade et al. \(2012\)](#), for their part, find that institutional characteristics and governance play a decisive role in the allocation of military spending.

In the African context, [Tambudzai \(2011\)](#), in a study covering 12 Southern African countries between 1997 and 2004, showed that GDP per capita is a major explanatory factor for military spending. Similarly, [Batchelor et al. \(2000\)](#), using South African data, highlight a positive correlation between income level and military allocations. This trend is also observed in China, where [Sun and Yu \(1999\)](#) established that Gross National Product growth was a significant driver of military spending.

3. Data and Methodology

3.1. Data and Variables

The study covers eight WAEMU countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo) over the period 2000-2023, rep-

representing 192 annual observations. Data on variables such as economic growth, population, financial development, remittances, trade openness, rule of law, political stability, democracy, regulatory quality, and foreign direct investment (FDI) are from the World Bank. Military expenditure data come from the SIPRI (Stockholm International Peace Research Institute) database. Research Institute.

Growth economic (GDP per capita) is measured by the GDP per capita growth rate in this study. This choice East based on the study recent work by [Saba and Ngepah \(2019a\)](#). The variable “Expenditure” military spending public allocated to the security sector, including the acquisition equipment, recruitment, staff remuneration and investments in research and development, expressed as a percentage of GDP. This choice of variable is similar to that of [Saba and Ngepah \(2019a\)](#) and [Saeed \(2025\)](#). Financial development, measured in this study by the financial credit granted by banks to the sector private serves as a transition variable. According to the results of [Dutta and Saikia \(2024\)](#); a sign positive East expected in this article. The opening trade, measured by the ratio of trade value trade on GDP, that is, the sum of exports and imports and GDP. This choice East Finally motivated by the study of [Saeed \(2025\)](#). We expect a positive relationship between growth rates economic and open. The population is approximated by the population growth rate (POP) as in [Agbékponou and Kebalo \(2019\)](#). This variable is chosen in accordance with [Nugroho and Purwanti \(2021\)](#). Political stability and the absence of violence correspond to the assessment of the risk of destabilization. or the overthrow of the government, that this either by means institutional or by the use of force, this choice East motivated in the literature by the study of [Nugroho and Purwanti \(2021\)](#). The democracy index (demo) is retained in the study to capture the quality of institutions, in accordance with [Kengdo et al. \(2023\)](#), a sign positive East expected in this work. Regulatory quality (RQ) encompasses policies that could disrupt the proper functioning of the market, including measures such as price controls. [Asongu and Nwachukwu \(2016\)](#) show that this variable has an effect positive on spending military, a sign positive East expected in this work. The rule of law encompasses all laws and regulations established in a country in order to ensure the protection of the interest general and to structure the daily lives of citizens. Following [Nugroho and Purwanti \(2021\)](#), we choose this variable. The IDE East a shape transnational investment in which a resident of one country holds controlling power or a significant influence on the management of a business located in another country. [Yao and Asongu \(2025\)](#) uses this variable to analyze its effect on growth in ECOWAS. The authors found an effect positive impact of FDI on growth Economically, we expect a sign positive in this article. Net remittances from migrants (RM) are evaluated in adding up workers’ remittances, employees’ remuneration as well as capital transfers made by migrants. [Dutta and Saikia \(2024\)](#) found an effect positive on growth economy. **Table 1** presents the description of the variables and the data sources.

Table 1. Variable summaries and sources.

	Source	Literature	Anticipated signs
Dependent Variable: GDP			
Military expenditures (% GDP)	SIPRI	Saba & Ngepah (2019a), Saeed (2025)	-
Foreign direct investment (FDI) (% of GDP)	WDI	Yao, Soro, & Asongu (2026), Nugroho & Purwanti (2021)	+
Population	WDI	Saba & Ngepah (2019a), Yao & Asongu (2025)	-
Financial development (% GDP)	WDI	Yao & Asongu (2025)	+
Remittances (% of GDP)	WDI	Dutta & Saikia (2024)	-
Dependent Variable: Military Expenditures (% GDP)			
GDP per capita	WDI	Saba & Ngepah (2019a), Saeed (2025)	+
rule of law	WDI	Nugroho & Purwanti (2021)	-
Political stability	WDI	Maher & Zhao (2022), Nugroho & Purwanti (2021)	-
Democracy	WDI	Keho (2012)	+
Quality of regulations	WDI	Yao & Asongu (2025)	+
Trade openness (% of GDP)	WDI	Njamenkengdo & Kouladoun (2018), Saeed (2025)	+

Source: Literature.

Table 2. Descriptive statistics results.

Variables	Mean	Standard deviation	Minimum	Maximum
Military spending	11.5889	6.9127	1.6585	35.5407
GDP per capita	1.4473	2.7663	-7.4042	11.9585
FDI	2.1968	2.3466	-2.5745	13.4387
Remittances	4.066	3.039	0.522	11,251
Financial development	15,894	7834	0.383	32,372
Population	2834	0.440	2000	3867
Trade opening	52.9520	10.6427	30,368	80.9905
Quality of regulations	-0.6539	0.3938	-1.5960	0.24791
rule of law	-0.6026	0.7262	-2.7291	0.8215
Political stability	-0.3718	0.4714	-1.3835	0.4129
Democracy	-0.8290	0.3762	-1.8064	0.0696

Source: Author, WDI and SIPRI data.

Table 2 presents the descriptive statistics. The average military expenditure is

11.59%, with a high standard deviation (6.91) reflecting significant heterogeneity between countries. The minimum (1.66%) and maximum (35.54%) suggest substantial differences, likely linked to specific security contexts. Growth shows a low average of 1.45% with marked variability (standard deviation of 2.77).

✓ VIF Test

Since we are dealing with several variables, we will also perform a multicollinearity test of the variance inflation factor (VIF). The VIF assesses whether the factors are correlated with each other (multicollinearity), which could influence other factors and reduce the model's reliability. If the VIF is greater than 10, we have high multicollinearity: the variation will appear larger, and the factor will appear more influential than it actually is. If the VIF is close to 1, then the model is much more robust because the factors are not influenced by correlation with other factors. **Table 3** and **Table 4** show an absence of multicollinearity in our data.

Table 3. Multicollinearity test based on VIF calculation model 1.

Variables	VIF	1/VIF
Military spending	1.94	0.5149
Population	2.08	0.4802
Foreign direct investment	1.55	0.646
Remittances	1.45	0.6894
Financial development	2.66	0.376
Trade opening	2.31	0.4321
Mean	2.00	

Source: Our calculations based on SIPRI and WDI data.

Table 4. Multicollinearity test based on the calculation of the VIF model 2.

Variables	VIF	1/VIF
GDP per capita	1.09	0.915
rule of law	5.16	0.193
Population	1.71	0.584
Trade opening	1.43	0.699
Political stability	1.78	0.561
Democracy	2.82	0.354
Regulatory quality	3.38	0.295
VIF mean	2.48	

Source: Our calculations based on SIPRI and WDI data.

3.2. Methodology

3.2.1. Justification of the Methodology

We use Triple least squares (3SLS) estimator. This choice is based on several ar-

guments. Firstly, it allows for better handling of endogeneity problems and mitigates heteroscedasticity. Secondly, the 3SLS estimator is thus more robust for estimating systems of simultaneous equations. Compared to two-stage least squares (2SLS) and the GMM of Arellano and Bond, 3SLS offers increased efficiency by reducing the simultaneity bias. Furthermore, [Greene \(2005\)](#) emphasizes that among the various instrumental variable-based methods, the 3SLS estimator is asymptotically efficient. This approach relies on a first step where each equation is estimated using two-stage least squares (or an instrumental variable method), followed by a second phase where the resulting residuals allow us to evaluate the correlation of errors between the different equations.

3.2.2. Model Specifications

Following the work of [Deger and Smith \(1983\)](#), we treat military spending and economic growth as jointly endogenous.

First equation: GDP per capita

According to the literature, our equation representing economic growth is specified as follows:

$$GDP_{i,t} = \beta_0 + \beta_1 DPM_{i,t} + \beta_i X_{i,t} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

Or i represents the country, t the time dimension. DPM represents military spending, X is a vector of control variables intended to influence growth. γ_i represents the individual specific effect which can be fixed or random, μ_t the time-specific effect and $\varepsilon_{i,t}$ the error term of the model.

Second equation: military spending

Empirical studies on the determinants of military spending have employed a variety of econometric techniques. Furthermore, these studies have also highlighted the potential influence of political, geographic, and socioeconomic factors on the structure and evolution of military spending. Finally, we specify a second equation in which military spending is explained separately by development.

Based on the empirical frameworks proposed by [Albalade et al. \(2012\)](#) and [Töngür et al. \(2015\)](#), the following empirical model is specified.

$$DPM_{i,t} = \theta_0 + \theta_1 GDP_{i,t} + \theta_i X_{i,t} + \omega_i + \varphi_t + \varepsilon_{i,t} \quad (2)$$

The empirical model

Finally, the simultaneous equations model that we retain consists of the two equations (1 and 2):

$$\begin{cases} GDP_{i,t} = \beta_0 + \beta_1 DPM_{i,t} + \beta_2 POP_{i,t} + \beta_3 FDI_{i,t} + \beta_4 trade_{i,t} \\ \quad + \beta_5 RM_{i,t} + \beta_6 FD_{i,t} + \gamma_i + \mu_t + \varepsilon_{i,t} \\ DPM_{i,t} = \theta_0 + \theta_1 GDP_{i,t} + \theta_2 pop_{i,t} + \theta_3 stability_{i,t} + \theta_4 trade_{i,t} \\ \quad + \theta_5 RL_{i,t} + \theta_6 QR_{i,t} + \theta_7 Demo_{i,t} + \omega_i + \varphi_t + \varepsilon_{i,t} \end{cases} \quad (3)$$

3.2.3. Identification: Order Condition

The order condition is being studied equation by equation. For each equation, we have:

GDP per capita equation

$$GDP_{i,t} = \beta_0 + \beta_1 DPM_{i,t} + \beta_2 POP_{i,t} + \beta_3 FDI_{i,t} + \beta_4 TRADE_{i,t} + \beta_5 RM_{i,t} + \beta_6 DF_{i,t} + \gamma_i + \mu_t + \varepsilon_{i,t}$$

In this equation:

- **Endogenous included:** GDP, DPM $\rightarrow g' = 2$

Exogenous included: POP, FDI, TRADE, RM, DF $\rightarrow k' = 5$

Let's apply the order condition

$$g - 1 = 2 - 1 = 1$$

$$g - g' + k - k' = 2 - 2 + 5 - 1 = 4$$

Conclusion: $1 < 4$, therefore the equation is over-identified.

Equation 2:

$$DPM_{i,t} = \theta_0 + \theta_1 GDP_{i,t} + \theta_2 pop_{i,t} + \theta_3 stability_{i,t} + \theta_4 trade_{i,t} + \theta_5 RL_{i,t} + \theta_6 QR_{i,t} + \theta_7 Demo_{i,t} + \gamma_i + \mu_t + \varepsilon_{i,t}$$

- **Endogenous included:** GDP, DPM $\rightarrow g' = 2$

Exogenous included: POP, STABILITY, TRADE, RL, QR, DEMO, $k' = 6$

$$g - 1 = 2 - 1 = 1$$

$$g - g' + k - k' = 2 - 2 + 6 - 1 = 3$$

Conclusion: $1 < 3$, therefore the equation is over-identified.

4. Results and Discussion

4.1. Estimation Results

A. Dependency Test

The dependence test allows us to choose the unit root tests best suited to our study model. Since our study period is longer than the number of individuals, we will therefore use the Breusch-Pagan dependence test (Breusch & Pagan, 1980) to test the hypothesis of non-dependence between individuals.

The principle of the test is as follows:

H0: dependency;

H1: independence.

Table 5. LM independence test, Breuch-Pagan test.

Breusch-Pagan LM test of independence: $\chi^2(28) = 69.740$

Pr = 0.000***

Source: Author. Note: ***, ** and * indicate statistical significance at 1%, 5% and 10% level respectively.

The results of this test show that the p-value associated with the test statistic is less than 1%, therefore we reject the null hypothesis of independence. Consequently, the individuals in the study are interdependent. Given the presence of dependence between the individuals, it is therefore obvious to apply stationarity

tests. To confirm our results, we also performed the Pagan LM test, and the results do indeed show the dependence between the individuals.

B. Stationarity Tests

The results of the dependency test (**Table 5**) indicate the presence of cross-dependency between our data; in this context, we use second-generation unit root tests, including CIPS and CADF, proposed by Pesaran (2004, 2007).

CIPS is defined by:

$$CIPS = \frac{1}{N} \sum_{i=1}^N t_i(N, T) \quad (4)$$

CADF expresses itself as follows:

$$\Delta Y_{it} = \varnothing_i + \theta_i Y_{it-1} + \rho_i \bar{Y}_{it-1} + \sum_{j=0}^p \gamma_{ij} Y_{it-1} + \sum_{j=1}^p \beta_{ij} \bar{\Delta Y}_{it-1} + \varepsilon_{it} \quad (5)$$

Here, $\bar{Y}_{it-1}$ represents the lagged mean value, while $\bar{\Delta Y}_{it-1}$ corresponds to the mean of the differentiated values for each series.

Table 6. Unit root tests.

Variables	At level		In difference	
	IPS	CADF	IPS	CADF
Military spending	-1.791	-1.582	-4.659***	-2.790***
Economic growth	-4.261***	-2.950***	-5.879***	-4.258***
Democracy	-1.092	-1.018	-4.502***	-3.379***
IDE	-2.458***	-2.484**	-4.829***	-3.484***
Financial development	-2.499**	-2.420**	-2.499**	-3.470***
Trade	-1.812	-1.977	-4.371***	-3.013***
Population	-2.105	-1.634	-2.978***	-2.434**
Political stability	-2.328*	-2.073	-5.096***	-3.497***
rule of law	-1.220	-0.741	-4.646***	-2.254**
Regulation	-1.504	-1.102	-4.976***	-2.570***
Remittances	-1.993	-1.640	-4.424***	-2.638***

Source: Author. Note: ***, ** and * indicate statistical significance at 1%, 5% and 10% level respectively.

Table 7. KAO test model 1.

	Statistic value
Modified Dickey-Fuller t	14.72000.0000
Dickey-Fuller	11.30030.0000
Augmented Dickey-Fuller t	5.42860.000
Unadjusted modified Dickey-Fuller t	16.40250.0000
Unadjusted Dickey-Fuller t	11.40950.0000

Source: Author.

✓ Cointegration test

The cointegration test will allow us to test for the existence of a long-term relationship between the variables in the model (Table 6). The ideal test would be the Pedroni test but against Given the large number of variables (more than 7), we cannot so do not use This test. Therefore, we will use the Kao test (Table 7).

C. Model estimation results

Table 8. Model estimation results.

	<i>Cof.</i>	<i>P</i> > <i>z</i>
Endogenous variable model 1: GDP per capita		
Military spending	−0.2110***	0.003
Foreign Direct Investment	0.3100***	0.004
Remittances	−0.0537	0.488
Financial development	0.2458***	0.000
Population	−1.9112***	0.012
Trade Opening	−0.0770***	0.007
Constant	9.0209***	0.003
Endogenous variable model 2: Military spending		
GDP per capita	1.6609**	0.012
Population	−4.7521***	0.000
Quality of regulations	7.7035***	0.004
Trade Opening	0.1131***	0.022
rule of law	−3.3868	0.189
Political stability	−5.9934***	0.000
Democracy	1.6272	0.307
Constant	15.9885***	0.009

Source: Author. Note: *, ** & *** denotes the significance 10%, 5% and 1% level respectively.

Statistically, several variables in the model explaining GDP per capita are significant. Military spending has a significant negative effect at the 1% level ($p = 0.003$) (Table 8).

D. Causality analysis in the sense of Dumitrescu and Hurlin (2012)

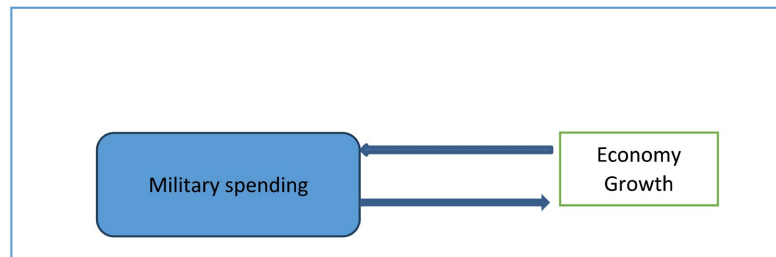
The objective of this section is to present the results concerning the causal relationship between military spending and economic growth in the WAEMU. The results presented in Table 3 provide strong evidence of a bidirectional causal relationship (feedback relationship) between military spending (MSW) and economic growth. Indeed, the null hypothesis of no causality is rejected in all models, with panel test statistics being significant at the 1% level, which confirms the existence of a dynamic interaction between the two variables. These observations are consistent with the findings of Lai et al. (2005), Kollias et al. (2004), Kollias et al. (2007); Lee and Chen (2007a, 2007b); Tiwari and Shahbaz (2013); and Saba and

Ngepah (2019b) in 12 African countries. Thus, each of these two variables influences the other: any change (up or down) in defense budgets has a proportional impact on the level of economic activity. For the countries concerned, these results indicate that defense and growth policies are designed to reinforce each other. They also appear to be closely linked, to the point that a change in one necessarily affects the other (Figure 1, Table 9).

Table 9. Causality results in the sense of Dumitrescu and Hurlin (2012).

Hypothesis H_0	W-bar	Z-bar	p-value	Optimal lag	Decision (5%)
Military spending does not cause economic growth	17,819	9,650	0.000	6	Rejection of H_0
Economic growth does not cause military spending	9.927	3.206	0.001	6	Rejection of H_0

Source: Author.



Source: Author.

Figure 1. Graphical representation of the causal relationship.

4.2. Discussion of Results

The significant negative impact of military spending on economic growth, measured here by GDP per capita, confirms a thesis widely supported by the literature on developing savings. Funds allocated to military spending represent resources not invested in productive sectors such as education, health, or economic infrastructure (Barro, 1991). This finding aligns with the neoclassical view that military spending is unproductive or, at best, makes little contribution to long-term economic growth. These results on military spending confirm those previously obtained by Maher and Zhao (2022), Dunne et al. (2002), Shahbaz et al. (2013), and Dunne and Tian (2013). Furthermore, the negative impact of population on economic growth can be attributed to increased pressure on natural resources, infrastructure, and public services, consistent with the predictions of Mankiw, Romer, and Weil (1992). In WAEMU countries, rapid population growth can make it difficult to improve living standards, especially if investments in education, health, and infrastructure do not keep pace. This finding contradicts that of Yao and Asongu (2025), who found a positive effect of population growth on economic growth in ECOWAS. However, this result aligns with that of Saba and Ngepah (2019a) in Africa and Nugroho and Purwanti (2021). These authors found a neg-

ative effect of population growth on economic growth. The positive effect of financial development on economic growth is positive, which is consistent with the literature showing that well-developed financial systems facilitate access to credit, reduce transaction costs, and improve resource allocation. The study's findings confirm those of previous work by Dutta and Saikia (2024), Levine et al. (2000), and Beck et al. (2000).

Conversely, the results indicate that economic growth has a positive and significant impact on military spending. Specifically, a 1% increase in growth, all other things being equal, translates into a 1.66% increase in military spending as a percentage of GDP in WAEMU countries. According to Dunne (2010), higher per capita income stimulates aggregate demand, thereby encouraging the hiring of new workers and the expansion of investment. This finding aligns with the conclusions of Collier and Hoeffler (2007), who observed a positive and significant effect on military spending using GDP per capita. The positive and significant coefficient for regulatory quality suggests a direct correlation between a well-regulated institutional environment and increased military spending. This relationship can be explained by the fact that strong regulatory institutions facilitate better management of public finances, including those related to defense. This aligns with the argument put forward by Asongu and Nwachukwu (2016) that improved institutional governance can paradoxically strengthen the state's coercive capabilities, even within a democratic framework. The positive effect of trade openness on military spending can be interpreted through the lens of economic security. Greater openness exposes countries to external risks (piracy, cross-border insecurity, strategic dependence), thus justifying increased spending to protect economic interests. This finding is consistent with Kim's (2011) conclusions that integration into the global economy increases security needs, particularly for securing trade corridors and strategic infrastructure.

5. Conclusion, Recommendations and Limitations of the Study

The effect of military spending on economic growth remains a major issue that is still widely debated in the empirical literature. The overall objective of this article was to analyze the link between military spending and economic growth in the WAEMU region. The study period extends from 2000 to 2023. This period was dictated by the availability of the study data. We used the three-stage least squares method and the causality test of Dumitrescu and Hurlin (2012), respectively. The results revealed a positive effect of economic growth on military spending and a negative effect of military spending on economic growth in WAEMU. The causality analysis revealed a bidirectional relationship between the two variables.

Based on our empirical findings, we suggest some solutions. First, the existence of a bidirectional causal relationship between military spending and economic growth indicates an interdependence between military expenditures and economic growth. Consequently, the implementation of economic growth policies

should not be systematically prioritized at the expense of defense spending, the security of which remains fragile. Second, WAEMU countries are advised to improve the quality of their institutions to promote more efficient management of military spending and stimulate economic growth. The negative impact of military spending on growth suggests a need for a judicious trade-off between military expenditures and economic growth objectives.

Future research could incorporate other macroeconomic variables, including investment, debt, and unemployment. Furthermore, future studies could adopt a non-linear approach inspired by [Gonzalez et al. \(2005\)](#). Finally, comparative studies between the WAEMU and the MENA (Middle East and North Africa) or SADC (Southern African Development Community) would be more effective in informing economic policy.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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