

WAR, BUDGETS AND RESILIENCE: ECONOMIC AND FINANCIAL CHALLENGES OF DEFENCE FINANCING IN A VOLATILE STRATEGIC ENVIRONMENT

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Abstract: *In current strategic environment, characterized by persistent geopolitical tensions and ongoing military conflicts, has significantly influenced national approaches to defence financing. War in Ukraine and other regional security crises have led many states, particularly within NATO and Europe, to increase defence expenditures to strengthen military capabilities and strategic preparedness. However, this growing emphasis on defence investment raises important economic and financial challenges related to fiscal sustainability, budgetary allocation and the long – term resilience of national economies. This paper examines the relationship between defence financing models and economic resilience in the context of a volatile strategic environment. It explores how different approaches to financing national defence systems influence the capacity of states to maintain both security readiness and economic stability. Analysis is focusing on recent trends in defence spending the pressures placed on public budgets and the need for sustainable financial frameworks capable of supporting long – term defence commitments. This study argues that architecture defence financing is essential for balancing military needs with broader economic objectives. Sustainable financing models that incorporate strategic planning, multiannual budgeting and efficient resource allocation can enhance both defence performance and economic resilience, contributing to stronger national security and greater adaptability to evolving security challenges.*

Keywords: defence spending; economic sustainability; military spending; strategic environments

1. Introduction

In contemporary international security environment is increasingly characterized by geopolitical instability, prolonged military conflicts and rising strategic competition among major powers. Recent developments, particularly the war in Ukraine and escalation of regional security tensions, have significantly influenced national defence policies and budgetary priorities. As a result, many countries, especially within NATO and European Union, have increased their defence expenditures to strengthen military capabilities, enhance deterrence and respond to emerging security threats. While these measures are essential for maintaining

national and collective security, they also generate important economic and financial challenges related to fiscal sustainability and long – term economic stability.

In this context, the architecture of defence financing has become a critical element in balancing military requirements with broader economic objectives. Governments are increasingly required to design financing mechanisms that ensure adequate defence capabilities while maintaining sustainable public finances and supporting economic resilience. This relationship between defence spending and economic sustainability has therefore attracted growing attention in the field of defence

economics, particularly considering need to strengthen societal resilience in a rapidly changing strategic environment.

This paper examines economic and financial challenges associated with defence financing in current security context. By combining a bibliometric overview of scientific literature with an empirical analysis of recent defence expenditure trends, the study aims to explore how defence financing models can contribute to both military effectiveness and economic sustainability. This article is structured as follows: the next section reviews relevant literature and presents a bibliometric overview of research trends, followed by the research methodology and an empirical analysis of defence financing and economic resilience. In final section discusses the main findings and outlines the broader implications for defence financing policies in a volatile strategic environment.

2. Literature Review and Bibliometric overview. Research Methodology

Understanding the economic and financial implications of defence financing requires both a theoretical perspective and a systematic examination of existing research trends. In recent years, growing complexity of the international security environment has generated increasing academic interest in the relationship between military expenditure, fiscal sustainability and economic resilience. Consequently, integrating a review of relevant literature with a bibliometric exploration of scholarly contributions and a clear research methodology provides a comprehensive analytical framework for examining the economic challenges associated with defence financing.

This section therefore combines theoretical background, bibliometric overview of scientific literature, and methodological approach adopted in study. First, it reviews main academic contributions addressing to relationship between defence expenditure and economic sustainability. Second, it

presents the results of a bibliometric analysis aimed at identifying the main research trends in field of defence financing. Finally, this section outlines research design, data sources and analytical methods used in empirical part of study.

2.1. Defence Financing and Economic Sustainability

Starting with relationship between military expenditure and economic performance which has been widely discussed in the field of defence economics, scholars have long debated whether defence spending contributes to economic growth or whether it generates negative effects by diverting resources from productive sectors of economy. Early contributions to the literature emphasized the increased government spending, technological innovation and industrial development[1].

More recent research has highlighted the complexity of this relationship, suggesting that economic impact of defence spending depends largely on institutional context, the structure of public finances and efficiency of resource allocation. Some studies argue that defence investment can generate positive spillovers through research and development activities, particularly in high – technology sectors[2]. Conversely, other scholars emphasize potential crowding – out effect of defence spending, which may reduce investments in education, infrastructure or social services and thereby limit long – term economic growth.

In current strategic environment, characterized by increasing geopolitical tensions and renewed interstate conflict, the issue of sustainable defence financing has become particularly relevant. Governments must reconcile the need to strengthen military capabilities with necessity of maintaining fiscal discipline and macroeconomic stability. As a result, this concept of defence financing architecture it is referring to institutional and budgetary mechanisms through which defence expenditures are planned and financed, which gained increasing attention in

academic research.

2.2 Bibliometric Trends in Defence Financing Research

To better understand of evolution of scholarly research on defence financing and its economic implications, a bibliometric analysis was conducted. Bibliometric methods allow researchers to systematically analyse scientific publications and identify patterns related to research productivity, thematic development and citation networks[3].

Bibliographic data used in this study were collected from international database, which provides extensive coverage of peer-reviewed publications in economics, security studies and international relations. To further explore intellectual structure of research field, a bibliometric mapping of keyword co – occurrence was conducted using VOSviewer. Results are illustrated in Figure 1, which highlights main thematic connections within literature on defence financing and military expenditure.

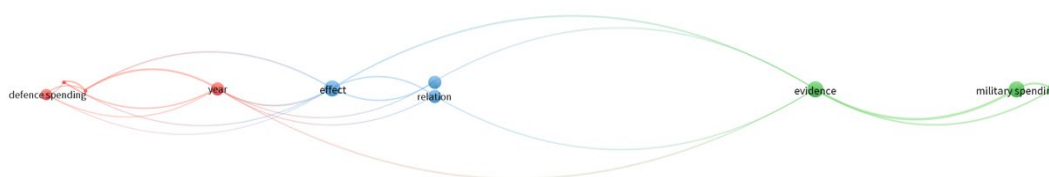


Figure 1. Bibliometric Mapping in Defence Financing and Military Expenditure Literature

Figure 1 illustrates keyword co-occurrence in field of defence financing and military expenditure research. Visualization highlights central role of terms such as “defence spending” and “military spending”, which are closely linked to concepts like “effect”, “relation”, “evidence”. This structure indicates that literature is primarily focused on analysing impact of defence expenditure through empirical and analytical approaches. Overall, figure reflects growing emphasis on evidence – based research and interdisciplinary nature of the field.

2.3 Research methodology

Empirical analysis presented in this study adopts a mixed – method research design, combining bibliometric analysis with a descriptive and comparative examination of defence expenditure data. This approach allows for a comprehensive understanding of both evolution of academic research and economic dynamics associated with defence spending.

Data used in study were obtained from several internationally recognized sources, including Stockholm International Peace Research Institute (SIPRI) – Military Database Expenditure, NATO defence

expenditure reports and macroeconomic indicators provided by World Bank. These datasets provide reliable information on defence spending levels expressed both in absolute values and as a percentage of gross domestic product (GDP).

This analysis focuses on several key indicators relevant to the study of defence financing and economic sustainability. This covers defence spending as a share of GDP, trends in national defence budgets, and fiscal effects of higher military expenditure. By examining these indicators, study aims to identify the economic and financial challenges that governments face when attempting to strengthen military capabilities in an uncertain strategic environment.

All in all, this combination of bibliometric insights and empirical data analysis provides a comprehensive framework for assessing how defence financing models influence both national security objectives and broader economic resilience.

Empirical data were processed and analysed using STATA statistical software, which enabled the computation of descriptive indicators and comparison of defence expenditure levels across the selected countries. Using STATA commands,

variables capturing initial and final values of military expenditure and defence burden (as a percentage of GDP) were generated for each country in dataset. This analysis also included calculation of absolute changes and percentage growth rates in defence expenditure over the analysed period, allowing a clearer assessment of dynamics of defence financing in current strategic environment.

3. Empirical Analysis: Trends and Economic Challenges of Rising Defence Expenditure

This section presents an empirical analysis of evolution defence expenditures in selected NATO member states and evaluates the economic implications of rising military budgets in current strategic environment. Empirical study focuses on four European NATO countries: Germany, Poland, Romania and United Kingdom. These countries were selected because they represent different patterns of defence spending within European security architecture. Germany and United Kingdom are among the largest defence spenders in Europe, while Poland and Romania

represent Eastern European states that have significantly increased their military investments in response to regional security threats.

Empirical analysis was conducted using STATA statistical software, which allowed processing of defence expenditure data and calculation of key indicators such as absolute changes and percentage growth rates. Using STATA commands, analysis compared the initial and final levels of military expenditure for each country in the dataset and measured the magnitude of budgetary increases over the analysed period. This approach provides a clearer understanding of how defence spending has evolved in response to changing strategic environment.

3.1. Evolution of Defence Expenditure in Selected NATO Countries

To identify the magnitude of changes in military spending, the analysis compares initial and final levels of defence expenditure for each country. The results are summarized in Table 1, which presents absolute change in military spending and corresponding growth rate for analysed countries.

Table 1. Evolution of Defence Expenditure in Selected NATO Countries

Country	Initial Expenditure (USD mil.)	Final Expenditure (USD mil.)	Absolute Change	Growth Rate (%)
Germany	44,977	86,301	41,323	91,9
Poland	11,206	34,488	23,281	207,8
Romania	2,877	8,065	5,188	180,3
United Kingdom	65,199	77,390	12,190	18,7

Source: Author's calculations using STATA based on SIPRI military expenditure data

Results presented in Table 1 reveal significant differences in dynamics of defence expenditure among analysed countries. Poland recorded the most substantial growth, with defence spending by more than 200% during the analysed period. Romania also experienced a considerable increase in military expenditure, reflecting its commitment to

NATO defence spending targets and its strategic objective of strengthening national defence capabilities.

Germany shows a significant increase in absolute terms, reflecting its strategic shift toward strengthening its military capacity in response to deteriorating security environment in Europe. Following Russian invasion of Ukraine in 2022, Germany

announced major defence modernization initiatives, including the creation of a special defence fund aimed to accelerating military investments[4]. In contrast, United Kingdom displays a more moderate growth rate compared to other countries analysed, although it remains one of the largest

defence spenders in Europe.

For a better illustrate of evolution of defence expenditure among selected countries, the graphical representation in Figure 2 highlights these differences in growth rates and spending dynamics.

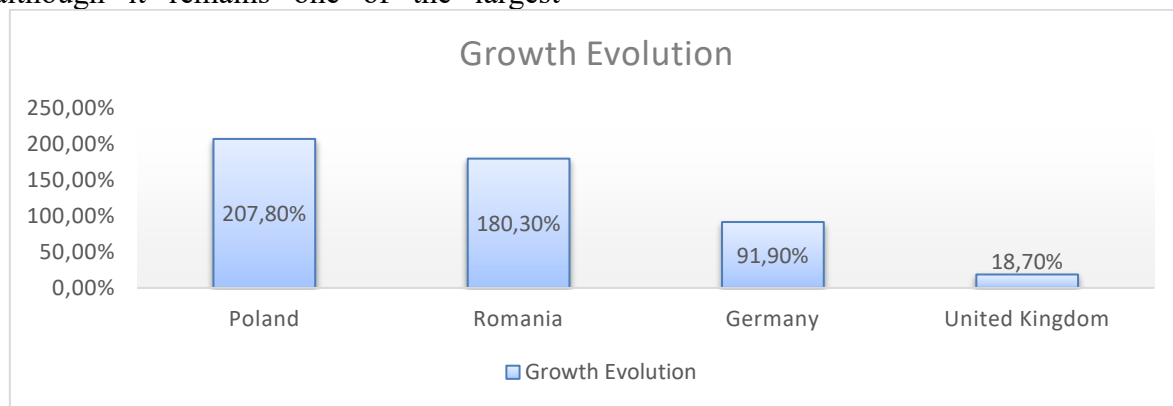


Figure 2. Growth Rate of Defence Expenditure in Selected NATO Countries (author's calculations using STATA based on SIPRI data)

This graphical representation confirms results observed in Table 1 and clearly illustrates substantial differences in defence expenditure growth among analysed countries. Poland and Romania display the most significant increases in military spending, reflecting heightened security concerns of countries located in Eastern Europe and in proximity to regions affected by geopolitical instability.

Germany also demonstrates a strong upward trend in defence expenditure, largely driven by the reassessment of its defence policy following deterioration of the European security environment. Meanwhile, United Kingdom exhibits a more stable growth pattern, consistent with its already high level of defence expenditure and its established military capabilities.

Overall, both tabular and graphical indicate that defence spending has increased significantly across Europe in response to evolving strategic environment.

3.2 Economic and Financial Challenges of Rising Defence budgets

Rapid increase in defence expenditure observed in analysed countries raises several important economic and financial

challenges. One of the main concerns relates to the sustainability of public finances, as higher military budgets may place additional pressure on government spending and fiscal balances. In many cases, governments must reconcile increased defence investments with existing fiscal constraints and competing public policy priorities.

Another challenge concerns the opportunity costs associated with defence spending. Allocating a larger share of public resources to military expenditure may reduce availability of funds for other sectors such as infrastructure, education, healthcare or social welfare programs. This issue has become particularly relevant in context of economic uncertainty and rising public debt levels[5].

At the same time, increasing scale of defence expenditure highlights the importance of developing more effective defence financing architectures capable of supporting long – term military investments while maintaining fiscal sustainability. Instruments such as multiannual defence planning, long – term procurement programs and defence industrial cooperation mechanisms can help governments manage rising defence budgets

more efficiently[6].

Empirical findings therefore suggest that while rising defence spending may strengthen financing frameworks that balance security objectives with economic sustainability.

3.3 Implications for Defence Financing Architecture

Empirical findings presented in previous sections demonstrate that rising defence expenditure are not only a response to the evolving strategic environment, but also a major driver of economic and financial transformation at national level. Significant increases in military spending observed particularly in Poland, Romania, and Germany highlight necessity of rethinking the architecture of defence financing to ensure both strategic effectiveness and long

– term economic sustainability. In this context, defence financing architecture can be understood as a set of institutional, budgetary and strategic mechanisms through which defence resources are planned, allocated and managed. The growing scale and complexity of defence budgets require a shift from annual budgeting approaches toward more integrated and adaptive financing models capable of addressing both security needs and economic constraints.

For a better point of view of relationship between strategic environment, rising defence expenditure and resulting economic challenges, Figure 3 presents a conceptual framework of defence financing architecture in a volatile environment.



Figure 3. Conceptual Framework of Defence Financing Architecture in a Volatile Strategic Environment

As illustrated in Figure 3, current environment, characterized by geopolitical instability and ongoing military conflicts, has led to a substantial increase in defence expenditure across European states. This upward trend generates significant economic and financial challenges, including increased pressure on public budgets, risk of fiscal imbalances and need to manage opportunity costs associated with reallocating public resources toward defence.

In response to these challenges, governments are required to develop more sophisticated and resilient defence financing architectures. One of the most important components of such frameworks is the adoption of multiannual budgeting mechanisms, which allow distribution of large – scale defence investments over longer time horizons. This approach enhances budgetary predictability and reduces short – term fiscal pressures, particularly in case of major procurement

programs and military modernization initiatives[7].

Another key element concerns improvement of strategic planning and resource allocation. Efficient defence financing requires an alignment of budgetary decisions with long – term security objectives, ensuring that investments in military capabilities are both economically sustainable and strategically relevant. In this context, optimization of procurement processes plays a critical role in minimizing inefficiencies and avoiding cost overruns, which are frequently identified as major challenges in defence spending[8]. Furthermore, increasing complexity of defence financing highlights the importance of international cooperation, particularly within NATO and the European Union. Joint procurement initiatives, collaborative defence projects and development of a stronger European defence industrial base contribute to reducing costs and improving efficiency. These mechanisms are especially

relevant for smaller economies, which may face greater fiscal constraints when attempting to increase defence expenditure[9].

Finally, framework presented in Figure 3 emphasizes that effective defence financing architectures contribute not only to military capability development but also to broader economic sustainability and societal resilience. By integrating defence spending within comprehensive fiscal and economic strategies, governments can ensure that increased military investment does not undermine long – term economic stability.

Overall, analysis suggests that transformation of defence financing architecture is a necessary response to evolving strategic environment. Development of adaptive, efficient and cooperative financing models represents a key condition for balancing security requirements with economic sustainability in the context of rising defence expenditure.

4 Conclusions, limitations and future research

Analysis conducted in this paper highlights growing importance of defence financing in context of an increasingly volatile environment. Empirical findings confirm that resurgence of geopolitical tensions and ongoing military conflicts have led to a significant increase in defence expenditure across European NATO member states. This trend is particularly evident in countries located in Eastern Europe, such as Poland and Romania, which have accelerated their defence investments in response to heightened security threats.

Results of empirical analysis demonstrate that while rising defence budgets contribute to strengthening military capabilities and enhancing strategic preparedness, they also generate substantial economic and financial challenges. These challenges include increased pressure on public finances,

potential fiscal imbalances and reallocation of resources from other key sectors of economy. As such, expansion of defence expenditure must be carefully managed to avoid undermining long – term economic sustainability.

Study highlights that rising defence expenditures, driven by evolving strategic environment, generate both strategic benefits and significant economic challenges. While increased military spending enhances national security and deterrence capabilities, it also places pressure on public finances and requires careful resource allocation. Findings emphasize the importance of developing efficient and adaptive defence financing architectures based on multiannual planning, strategic coordination and international cooperation. Ultimately, sustainable defence financing is essential for maintaining balance between security objectives and long – term economic resilience.

Limitations and Future Research

Despite its contributions, this study has several limitations. First, empirical analysis is based on a limited number of countries, which may restrict generalizability of findings. Second, analysis relies primarily on descriptive statistical methods, without incorporating advanced econometric modelling that could provide deeper insights into causal relationships between defence expenditure and economic performance.

Future research could expand the scope of analysis by including a larger sample of countries and by applying more sophisticated quantitative methods, such as panel data econometric models. Additionally, further studies could explore long – term impact of defence financing on economic growth, innovation and industrial development, as well as the role of emerging technologies in shaping future expenditure patterns.

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