
Macroeconomic Dilemmas of Managing Resource Allocation in the Polish Public System in the Context of Armaments Expenditure

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Abstract:

Purpose: The aim of the study is to conduct structural assessments and evaluations of the effects resulting from the use of military and military security measures and their impact on the electronic system in the Polish public system after 2022.

Design/Methodology Approach: The author analyzes military spending in Poland, broken down by equipment, infrastructure, and personnel, between 2014 and 2025. National defense spending has increased significantly after 2022. He compares this spending with the budget deficit and analyzes the key risks of this process. This creates serious fiscal tensions and a lack of integration between the defense sector, education (R&D), and healthcare. Attention is also drawn to the overlooked social component—the need to build morale and social resilience as a pillar of deterrence.

Practical Implications: The article points out that the rapid modernization of the Polish army was reactive in nature, a response to the war in Ukraine and pressure from the US, rather than the result of a long-term strategy. Massive expenditures on national defense do not translate into high rationality of these expenditures. Defense can only fully develop if it benefits from a stable source of investment over many years and decades. Initiating a proper defense industrial cycle in Central and Eastern European countries requires long-term planning and investment. The article concludes with recommendations for implementing a comprehensive security strategy, stabilizing public finances, and strengthening the link between army modernization and the Polish economy.

Originality value: The situation regarding defense spending differs from the patterns typical of the United States, the United Kingdom, or Germany. Analytical studies have confirmed that individual countries will find it increasingly difficult to develop their own, independent defense systems. The costs are high for Europeans, as individual national development programs face strong international competition and cannot fully exploit economies of scale. The level of national defense spending must be assessed in the context of the constraints imposed by EU fiscal rules and the overarching national goal of stable, balanced, and sustainable economic growth.

Keywords: Rationality, models of capitalism, national defense, public spending, patchwork model of capitalism, NATO.

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1. Managing a State's Military Capability: A Theoretical Approach

The contemporary world is characterized by growing uncertainty in the sphere of military security. After a period of relative stability following the end of the Cold War, we are once again observing increased tensions between states, which are associated with competition for influence, raw materials, and political and military dominance.

This is particularly evident in the context of the war in Ukraine, which has demonstrated that classic armed conflicts still pose a real threat to international security. The size of the state budget and its percentage of GDP are particularly important for the functioning of a state's defense system (Zyzik, 2025; European Commission, 2024).

The main components of this expenditure include funds allocated to maintaining appropriate military personnel, the overall training process, equipping soldiers with appropriate weapons, and ensuring their proper maintenance and operation (Act of, 2015; European Commission, 2024).

In other words, how does the state manage the development of military capabilities by reallocating financial resources? A rapid increase in the share of capital resources is not always correlated with an adequate increase in expenditure on training and organizational development of the armed forces (Wroński, Bąkowski, and Muchorowski, 2025). Assessing the relative value of expenditures is not always meaningful. The point is to assess the quality of these expenditures.

For over three decades, European states have neglected key investments that enhance the military capabilities of their armies (Pugnet and Gemar 2024). It should be noted that this article falls within the scope of research on the economics of national defense, and to a lesser extent within the scope of the economics of armed conflict (Gębska, 2021; Markowska, 2018).

The former focuses on the issues of deterring potential aggressors and the effectiveness of spending aimed at minimizing or even eliminating the likelihood of armed conflict. In peacetime, i.e., in a situation in which the state pursues a standard policy aimed at ensuring the fastest and most stable economic growth possible, translating into an improvement in the standard of living of its citizens (Mierzwa and Maszczyk, 2026).

Europe's contemporary geopolitical situation makes the security of countries located on its eastern borders particularly important. Poland, located at the crossroads of Eastern and Western influence, plays a significant role in NATO's defense system.

Strengthening the so-called eastern flank, meaning the military presence and defense infrastructure in this part of Europe, is crucial to ensuring stability and peace in the region. This thesis can be justified both by political arguments and by references to literature (Panfil, 2024). As a member of the alliance, Poland gains real support, which can prove decisive in a threat situation. In the context of our country's historical experiences, such as World War II, the importance of strong security guarantees is particularly crucial. Literature confirms that unity and cooperation are crucial in the face of danger, and their absence leads to chaos and conflict (Meissner, 2022).

Therefore, the development of NATO's eastern flank should be considered one of the most important elements of Poland's contemporary security policy. Currently, Poland as a state faces difficult choices regarding its future and development. The lack of stability and resources leads to political tensions, demonstrating the importance of proper financial management and support. Using loans (SAFE, 2026) also carries certain risks.

First and foremost, the state must repay them, which can lead to debt and reduced financial independence. Furthermore, institutions providing support may impose specific conditions that are not always entirely favorable to the state. Armed forces modernization is therefore a key element in ensuring national security in a dynamically changing international environment. This process encompasses not only the modernization of military equipment but also the transformation of organizational structures, operational doctrines, and training and command systems (Aries, Giegerich, and Lawrenson, 2022; Strategic Concept, 2022).

This involves a new allocation of resources and a new structure of state expenditures. Therefore, the economic aspect is crucial. Modern modernization programs focus on integrating advanced technologies such as unmanned systems, artificial intelligence, and cybersecurity solutions (European Defense Agency and European Union Military Staff, 2022).

Their implementation enables increased operational capabilities, reduced response times, and improved operational efficiency in a multi-domain environment. In military and defense terminology, a multi-domain operations environment refers to a modern battlefield in which operations are conducted simultaneously in five interconnected domains: land, air, sea, cyberspace, space, and, increasingly, information/cognitive (Fiott, 2019; Liedel and Piasiecka, 2022). Interoperability is also a crucial aspect of modernization, particularly in the context of cooperation within allied structures. Standardization of procedures and equipment compatibility enable more effective joint operations, which is particularly important within organizations such as NATO.

Economic factors are also significant (Dacewicz, 2024; Supreme Audit Office, 2024). Modernization of the armed forces requires significant financial outlays, which necessitates rational expenditure planning (Mierzwa and Mierzwa, 2016; Panfil, 2024). In this context, it is also important to strike a balance between the purchase of modern technologies and the development of the domestic defense industry.

Modernization of the armed forces is therefore a multidimensional process, requiring a coordinated approach at the strategic, operational, and tactical levels (Mierzwa, Maszczyk, 2025). Its effectiveness depends on the state's ability to adapt to new threats and the effective use of available resources.

2. Research Methodology

In this article, the author presents an analysis of the Ministry of National Defense's defense spending from 2014 to 2025, compared to other selected European countries and all NATO countries. She argues that in Poland, the transition from a "peacetime army" model to a "high-readiness army" model is limiting public resources.

The aim of the article is to demonstrate:

- changes in the structure of defense spending in the face of new international threats, especially after 2022;
- answer the question whether these changes were strategic and planned, or rather reactive and abrupt?
- to what extent defense spending limits public resources.

The scientific contribution of the article is:

- presenting and assessing the structure of the Ministry of National Defense's defense spending as a tool for managing military capability;
- contributing strategic management to research on defense economics and its prospects;
- defense spending and fiscal and organizational tensions in the public sector.

The research methodology will be progressive. Its essence is the identification of the problem and research objectives. A case study approach will be used, covering the 2014–2025 perspective, against the backdrop of NATO countries.

The main research tools included participant observation, expert interviews, descriptive methods, comparative analysis, literature review, heuristic methods, and comparative analysis. Statistical tools and appropriate computational techniques were also employed.

The comparative analysis method was developed by us based on data provided by DG ECFIN (Directorate-General for Economic and Financial Affairs of the European

Commission) and the OECD (Organization for Economic Co-operation and Development). Due to differences between the sources and GDP forecasts in individual countries, as well as the definitions of NATO defense spending and national definitions, the data presented in the report may differ from those reported in the media or included in national budgets. The period of analysis covers 2014–2025, with an emphasis on changes in the values of individual variables over the 10-year period.

NATO collects data on defense spending from Allies and publishes it regularly. Each Allied Ministries of Defense report current and estimated future defense spending according to an agreed definition. These amounts reflect payments made or expected to be made by the national government during the fiscal year to meet the needs of its armed forces, Allied armed forces, or the Alliance.

The following NATO figures and tables also draw on economic and demographic information provided by the European Commission's Directorate-General for Economic and Financial Affairs (DG ECFIN) and the Organisation for Economic Co-operation and Development (OECD).

3. Research Results and Discussion

Comparative analysis of Poland's defense spending structure compared to other NATO countries in 2014–2025. The available literature on the subject does not address the institutional determinants of state policy in the area of national defense (Chałubińska-Jentkiewicz, 2024; Podleśny, 2024). This creates a research gap in the literature on the analysis of institutional determinants of national defense expenditures, which this study attempts to at least partially fill. Moving on to the results of the empirical analysis, it is important to note the most important trends.

The data presented in the literature (Mierzwa and Maszczyk, 2026) indicate that, excluding the United Kingdom and the United States, the countries of the patchwork model allocated the relatively highest percentage of GDP to national defense, both in 2014 (1.43% of GDP) and 2023 (2.60%).

In the final year of the analysis, this percentage was even higher than in the United Kingdom (2.28% of GDP). The results showed that the patchwork model of capitalism characteristic of the 11 new EU member states reproduces most of its negative features, primarily in terms of the low ability to anticipate challenges, as well as the lack of learning and self-correction (lack of institutional memory), in an area as crucial to the state as national defense. The results presented in this study open up a discussion on the directions of national defense spending and fit into the broader context of research and the effectiveness of this spending.

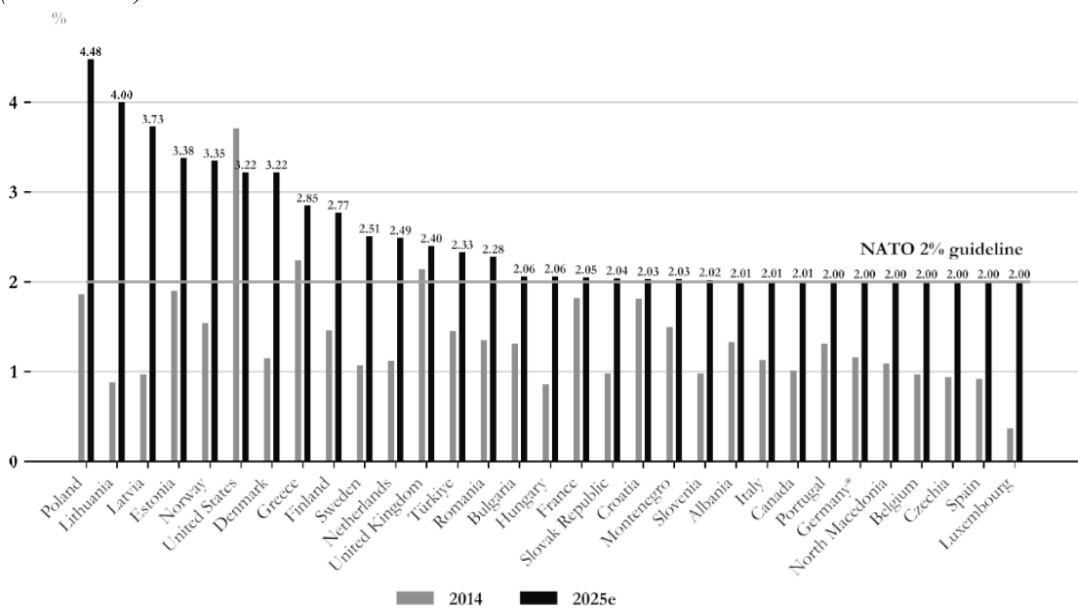
Figure 1 presents NATO member states' defense spending as a percentage of their GDP. Poland holds the leading position, allocating the highest percentage of its Gross Domestic Product to this purpose in the entire alliance (4.48%). This result even

exceeds the United States' (3.22%). The 2% reference line represents the required GDP threshold. Most countries currently meet this criterion. This is a significant change since the 2014 summit in Wales. The Baltic states (Lithuania, Estonia, Latvia) occupy the top spots. This is due to the imminent geopolitical threat.

Luxembourg and Spain, among others, rank at the bottom of the rankings. Their spending has traditionally been among the lowest. This illustrates the classic problem of free-riding. Rich countries (e.g., Germany, Spain) spend relatively little, relying on security guarantees financed primarily by the US and front-line countries. There is a strong correlation between the geographic proximity of a potential conflict (Ukraine/Russia).

At the NATO summit in The Hague in 2025, allies committed to investing 5% of GDP annually in basic defense needs and defense and security-related spending until 2035. Of this amount, at least 3.5% must go directly to hard military capabilities, and up to 1.5% must go to, among other things, critical infrastructure protection, cybersecurity, and civilian resilience. The chart perfectly illustrates the monumental shift in Europe's response to Russia's full-scale aggression against Ukraine. In conclusion, it's worth noting the process that has begun, which has drastically accelerated in the following years (2024–2026). Political pressure from the US and the real threat of war have led most countries (including Germany) to raise the 2% NATO reference threshold.

Figure 1. National defense spending in constant 2021 prices as a percentage of GDP (2014-2025)



Source: NATO. 2025 (June 12). Defense spending of NATO countries (2014-2025).

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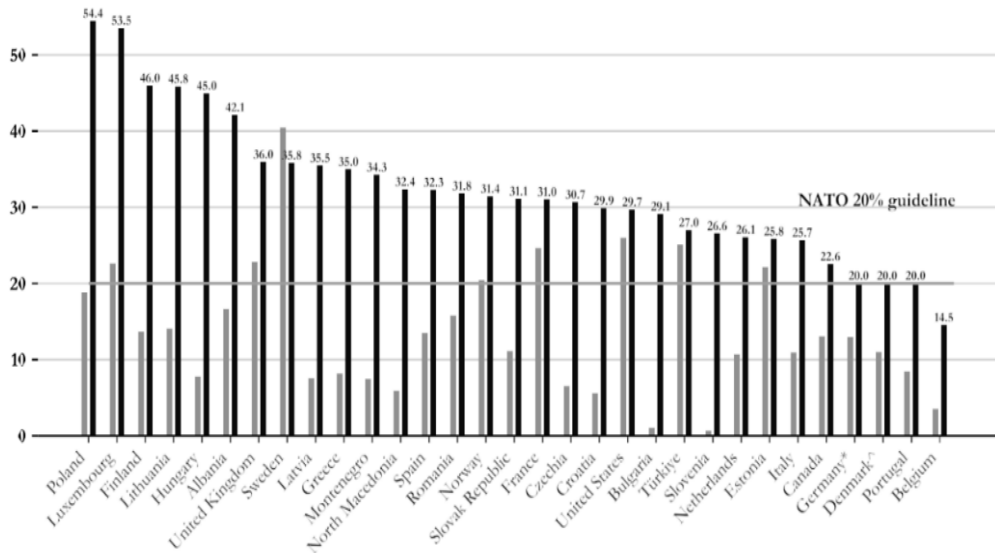
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National defense spending fits into the broader context of research and its effectiveness. The key added value of this research will be to demonstrate how international security conditions have changed (especially after 2022) and how the state manages the development of military capabilities through the allocation of resources and funds.

The research's emphasis on assessing the effectiveness of these expenditures will demonstrate whether growing investment expenditures (equipment purchases) are offset by expenditures on training, personnel, and institutional development.

The research results demonstrate the effectiveness of state institutions. In other words, an attempt was made to examine whether, and to what extent, the diversity of capitalism among NATO countries translates into variations in public sector spending on national defense.

Figure 2. Military equipment spending as a percentage of NATO member states' total defense budgets



Notes: Data as at 3 June 2025, based on 2021 prices and exchange rates. Figures for 2025 are estimates. For those Allies that did not provide estimates for 2025, the respective estimates are shown as blank. * Germany has made a political commitment to invest at least 20% of defence expenditure in major equipment, but will only be able to provide figures when the national budget for 2025 has been approved by the German parliament.
^ Denmark has declared that it has allocated more than 20% of defence expenditure to major equipment.

Source: NATO. 2025 (June 12). *Defense spending of NATO countries (2014-2025)*.

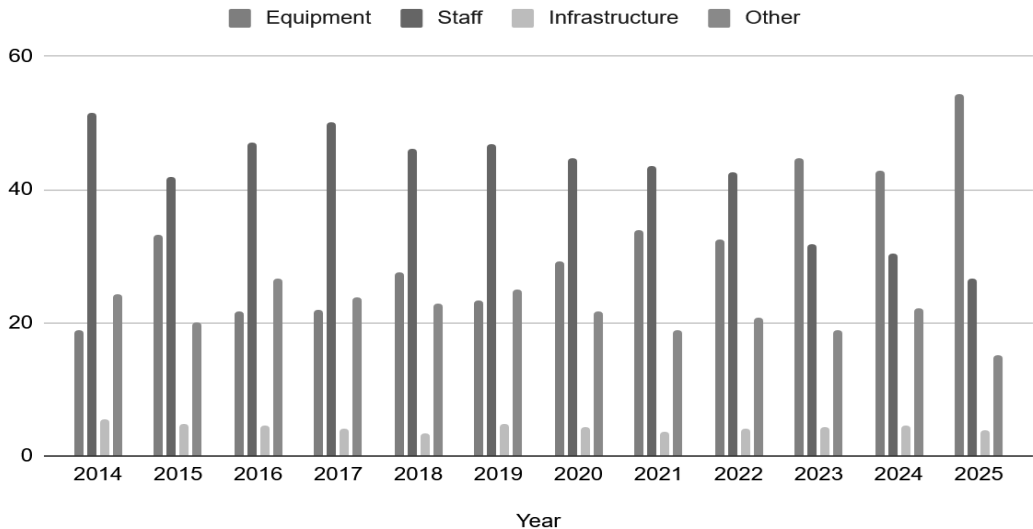
Figure 2 shows that all NATO countries have increased their military equipment spending. Poland leads the ranking (at the top of the chart, with the highest share of 54.4% in 2025). The Baltic States, Luxembourg, have 54.5%, followed by Hungary (45.0%) and Albania (42.1%). Central European countries range between 36% and 35%. Most countries are above 20%, while Germany, Denmark, and Portugal maintain spending at 20%.

The 20% benchmark represents the level of measures taken by member states to ensure the continuous modernization of their armies. With the exception of Belgium, all countries meet this requirement. The increase in military modernization spending has occurred over the past decade. The upward trend began after the annexation of Crimea in 2021 and the full-scale invasion of Ukraine.

Poland leads the way. More than half of the funds go directly to the purchase of modern weapons, equipment, and military technologies. This is a direct result of the modernization programs of the Polish Armed Forces.

However, it should be noted that these are relative numbers and the analysis should not end there. For comparison, the author presents Figure 3. which perfectly illustrates the complete shift in priorities in the Polish defense budget.

Figure 3. Defense spending of the Republic of Poland in 2014-2025 (in %)



Source: Prepared based on data provided by DG ECFIN (Directorate-General for Economic and Financial Affairs of the European Commission) and OECD (Organization for Economic Co-operation and Development).

For most years (2014-2022), personnel costs accounted for the largest share of budget revenue, reaching a peak of 51.45% in 2014. Since 2023, the trend has reversed, with modernization and arms procurement spending taking first place. In 2025 estimates, these expenditures reach a record level of 54.45% of the entire defense budget, while personnel costs decline to 26.75%. Infrastructure spending has remained stable throughout this period, fluctuating around 3.5%-5.5%.

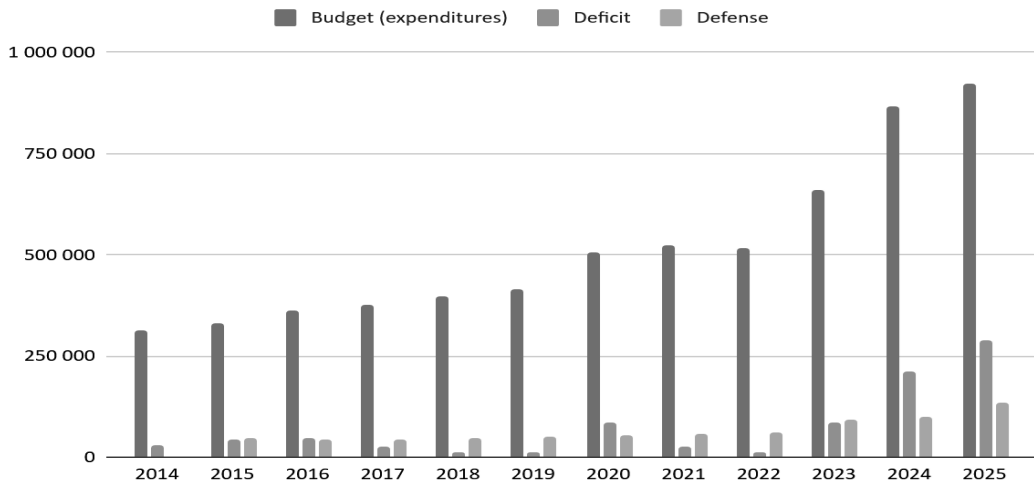
The relationship between defense spending and other areas of public spending (e.g., health and education) is based on competition for the same limited public resources. State financing is a zero-sum game, in which record-breaking militarization of the budget directly determines the financial capacity of other sectors.

This is a classic macroeconomic dilemma. Increased defense spending protects the state physically (external security), but comes at the expense of investments in human capital (education) and citizen well-being (health), which in the long term may slow the country's economic development and increase the budget deficit (Figure 4).

Total budget expenditures almost tripled during the analyzed period – from PLN 312 billion in 2014 to a projected PLN 921.6 billion in 2025. Nominally, military spending

grew systematically from PLN 37.7 billion in 2014 to PLN 61.9 billion in 2022, reaching a record PLN 133.7 billion in 2025. The greatest acceleration is visible after 2022. Figure 4 shows the high projected deficit level for 2024 (PLN 210.9 billion) and 2025 (PLN 288.8 billion). For comparison, in 2017-2019 and in 2022, the deficit was maintained at a low level (below PLN 26 billion).

Figure 4. Poland's defense spending, budget vs. deficit, 2014-2025 (in PLN billion)



Source: Prepared based on data provided by DG ECFIN (Directorate-General for Economic and Financial Affairs of the European Commission) and OECD (Organization for Economic Co-operation and Development).

There is a strong direct relationship between the rapid growth rate of the budget deficit and the rapid increase in Poland's military spending, as clearly seen in the presented chart between 2022 and 2025. Looking at the entire timeframe of the chart, both indicators have grown dramatically, although their dynamics differ over time. Military spending increased from PLN 37.7 billion in 2014 to PLN 133.7 billion in 2025.

This represents a 3.55-fold increase. The budget deficit increased to the projected PLN 288.8 billion in 2025, representing a 9.96-fold increase. Why is there a direct relationship between them? To understand this relationship, the analyzed period was divided into two periods. The stabilization period (2014-2022), during which defense spending grew very steadily and slowly (PLN 37.7 billion to nearly PLN 62 billion), was followed by a period of stabilization (2014-2022), during which defense spending grew very steadily and slowly (PLN 37.7 billion to nearly PLN 62 billion). At the same time, the budget deficit was escalating, but the Polish state managed to keep it in check, reducing it to just PLN 10.4 billion in 2018 and to PLN 12.4 billion in 2022. Explosion of war costs (2022-2025),

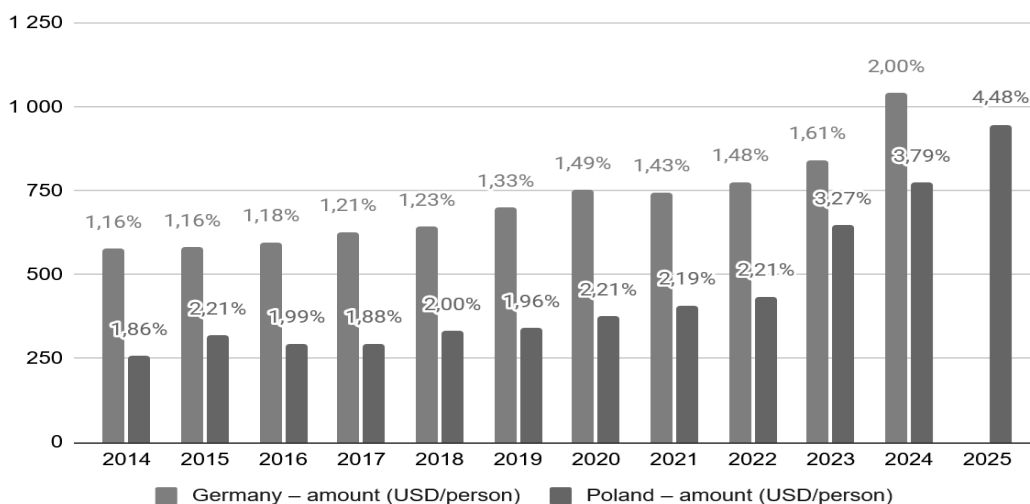
Following Russia's full-scale invasion of Ukraine in 2022, Poland's financial priorities have radically shifted. Military spending increased by PLN 71.7 billion (more than

doubling from PLN 61.9 billion to PLN 133.7 billion). The budget deficit skyrocketed to PLN 276.4 billion (from PLN 12.4 billion to PLN 288.8 billion). Rapid rearmament (purchases of tanks, aircraft, and missile systems) requires massive financial outlays, which the state budget cannot cover with current taxes. As a result, to finance such massive military purchases, the state must drastically increase its debt.

This directly generates a sharp increase in the budget deficit visible in the figures for 2024 and 2025. Per capita in Poland (37.6 million citizens admitted), the budget deficit increased from PLN 771 in 2024 to a record PLN 7,681 in 2025. The breakthrough in defense spending and overall state costs meant that in just three years (between 2022 and 2025), the amount of debt per Polish citizen increased more than 23-fold (from PLN 330 to PLN 7,681). On the other hand, per capita defense spending in Poland increased from PLN 1,003 in 2014 to PLN 3,558 in 2025. For the first nine years (2014-2022), the annual cost of the military grew very steadily – by just over PLN 600 per person. After the outbreak of the war, this amount increased to 1,900 PLN per capita.

For comparison, the author chose Germany – a country with a more stable economy. This country does not have to use EU support programs such as SAFE (Security Action for Europe).

Figure 5. Poland, Germany; National defense expenditure as a percentage of GDP and per capita (2014-2025)



Source: Prepared based on data provided by DG ECFIN (Directorate-General for Economic and Financial Affairs of the European Commission) and OECD (Organization for Economic Co-operation and Development).

The presented data reveal a fundamental change in the security architecture of Central and Eastern Europe and the divergent budget strategies of the two countries. Germany

has demonstrated stable, almost linear growth per capita over 11 years. This amount increased from USD 577 (2014) to a projected USD 1,041 (2025), representing a near-doubling of expenditure per citizen. Starting from a level less than half that of Germany (USD 257 in 2014), Poland recorded a surge in military investment per capita to USD 948 (2025), increasing the total 3.6-fold, becoming one of the leaders in growth dynamics in the region.

German restraint during most of the analyzed period (2014-2022) saw German spending hover around 1.9%-2.2% of GDP. A clear acceleration is evident in the index's jump to 3.7% in 2023 and a record 4.48% in 2025, signaling the implementation of the announced Bundeswehr modernization.

The geopolitical shift after 2022 clearly documents the timeline. After a period of stable, slow growth, both countries' budgets reacted sharply to the changing security situation in Central and Eastern Europe. Although Germany spends more nominally per capita, Poland is experiencing a much higher percentage growth and a revolutionary shift in the scale of its military funding.

4. Summary and Conclusions

Summarizing the analysis of NATO defense spending, with particular emphasis on Poland, from 2014 to 2025, the following observations and conclusions can be formulated:

1. **The Modernization Leap Syndrome:** Poland's defense policy in 2014–2025 was based on reactive catching up on long-standing structural backlogs (from 1989–2010). The rapid increase in financial outlays and the size of the armed forces after 2022 was the result of a geopolitical shock (the war in Ukraine) and external pressure within NATO, not the result of an internally developed, long-term national strategy.
2. **The Risk of Low Allocation Efficiency:** The unprecedented scale and pace of modern weapons purchases raise questions about the effectiveness of the funds spent. Allocating huge budgets for the import of ready-made combat systems, while simultaneously lacking appropriate expenditure on the R&D sector and personnel education, prevents the development of technological sovereignty and the substitution of imports with domestic production.
3. **Threat to fiscal stability:** Maintaining such a high percentage of GDP devoted to defense in the medium and long term is impossible without systemic reforms of public finances. The lack of correlation between increasing military spending and reforming the tax system or optimizing other fixed state expenditures generates serious budgetary tensions, threatening macroeconomic stability.
4. **Lack of institutional complementarity:** The national defense sector in Poland operates in isolation from other state subsystems (education, healthcare, social security). Unlike countries with well-established institutional structures (e.g.,

- Germany), which adjust the pace of modernization to the capacity of the economy, the Polish model exhibits ad hoc characteristics, hindering the country's sustainable development.
5. The crucial role of informal institutions: The deterrent potential of armed forces depends not solely on the technological advancement of the military, but on social capital. A key, yet overlooked, element of security strategy remains building strong morale, a community identity, and a widespread public belief in the need to defend the state, even at the expense of current prosperity and consumption.
 6. Harmonizing the pace of modernization with economic capacity: The process of expanding the armed forces should be aligned with economic cycles and the army's actual absorption capacity (the ability to quickly deploy and operate new equipment). This will avoid logistical chaos and the waste of public funds in the name of pursuing purely political goals.

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