STUDY ON DEFENSE EXPENDITURE AND ITS FINANCING

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Abstract

In an era of geopolitical changes stability seems to be in danger. The concept of threat is sometimes artificial taking into account a wide range of challenges in terms of security, including either state and non-state threats or the problems resulting from the rapid dissemination of information and technological developments. In this paper, we will see how to work and put into military or defense of working expenses such as the usage in political and economic environment and we will try to capture aspects of their funding in the domestic, regional, European and international level. In this sense, we will seek to answer the question: Do defense expenditures influence macroeconomic sources and methods of financing? The present study consists in a documentary analysis of the literature regarding defense funding and spending both at a European and international level. The analysis will consist in different correlations between different factors like economic growth, corruption, debt and not finally, the defense industry with the defense expenditures. Following the analysis, we conclude that the level of national defense expenditure has a different dynamics by correlating with economic growth, public debt, the corruption level at country level and the development stage of the defense industry. This dynamics is complex when the analysis is conducted in peacetime, conflict / warfare, or external threats. Defense spending positively influences economic growth and public debt during conflicts / wars and external threats, while in peacetime it is necessary to correlate the level of military expenditure with macroeconomic indicators. Under conditions of existence and manifestation of corruption at country level there is an unjustified increase in the defense expenditures, which negatively influence the economic growth and the public debt. A strong argument in this case is the lack of macroeconomic transparency that practically limits budgetary control. The defense industry can positively influence defense spending in conflict / war situations or the existence of external threats when they create a positive impact on economic growth and debt.

Keywords: defense expenditures, methods and sources of financing, economic growth, public debt, defense industry

Introduction

In a constantly changing European and global environment where the boundaries between peace, crisis and war become more and more unsafe every day, the task of promoting safety and security has become a priority on the government

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agenda of each state. The dimensions of promoting regional security and stability are today more important than ever, given that the various developments in political, social, social, and even cultural processes can generate conflicts in areas of interest.

However, stability seems to be at risk in a time of geopolitical change, the concept of threat is sometimes artificial considering a wide range of security challenges, including both state and non-state threats, as well as the problems resulting from the rapid dissemination of information and technological developments. Practically, addressing such a complex environment is becoming more and more difficult for each country, regardless of the policies and objectives promoted and the resources allocated. Given the increased need for stability, a proper sizing of the necessary financial resources must also be carried out.

Defense spending has experienced a continuous and complex dynamic in the past decades both at the conceptual level and in terms of funding for the defense of each country's own defense objectives. Hartley and Russett (1992) believe that changes in military spending will be influenced by changes in public opinion attitudes and opposition to military expenditure dynamics.

As part of public spending, we consider that national defense spending respect the Law of the German economist of the sec. XIX, Adolf Wagner, considering the absorption of resources that this activity, which is in a trend of expansion, is assumed at present. In this sense, finding sources of financing defense spending it should be apriority on the agenda of every country. The sources arediverse and have a strong correlation with defense policy objectives promoted by leaders or states.

In the following, we will see how to realize and put into operation the military or defense expenditures as they are used in the political and economic environment, and we will seek to capture aspects of their funding in the domestic, European and international environment. This study aims to conduct a review of the literature on defense spending and funding sources of defense activities in the European and international environment, based on the scientific approaches and results validated in the international databases.

In the present approach, we will seek to answer the question: *Does the defense expenditure affect macroeconomic sources and methods of financing?* The conceptual and experimental approach of defense expenditures and funding sources will be made by correlating them with the most influential factors in the literature's analysis, such as economic growth, corruption level, public debt, and not ultimately defense industry. The paper is structured on two directions of action for which conclusions will be drawn. The first takes into account the dynamics and evolution of defense expenditures at European and international state level, and the second refers to the methods and sources of financing of defense expenditures in the European and international environment.

1. Defense expenditures in the architecture of the European and international state economy

According to Stabile *et al*. (2018), national defense expenditure quantifies the strategic component that is the guarantee of national sovereignty and security, which implicitly requires the allocation of significant financial resources. The main objectives financed by these resources are to maintain the operational capabilities of the army, the state within the regional / international military alliances, the granting of military aid to other countries and others. In the field literature it is stated that the extent of military expenditures and, above all, their growth, has a negative influence on the state's economic and social development, both at individual, regional and global level. Moreover, Văcărel *et al*. (2008) argue that the negative influence is based on the increased consumption of human resources involved in the defense industry, the provision of the necessary national defense services and the risks arising from potential foreign imports and borrowings.

We consider that the literature approaches of defense expenditures in correlation with economic growth, the state level of corruption, the public debt, and the level of the defense industry are not accidental but rather well chosen and relevant to shape a clear image of the structure and content of defense spending within public spending. Further, we will review the relationship of defense expenditures with the elements mentioned before taking into consideration the findings of several authors.

The relationship of defense expenditures with the level of economic growth of a country is justified and relevant by the necessity and reason that each public expense contributes to the socio-economic development and well-being of society as a whole. In this sense, the major strand of the economic literature has focused on the influence of defense expenditures on economic development. As shown by Popa *et al*. (2012), until World War II and the Cold War, military spending has seen a trend of growth, amid a worsening global conflict and threat situation. After the economic crisis started in 2008, we can talk about a tendency to reduce defense spending (Popa and Pîrvuţ, 2018).

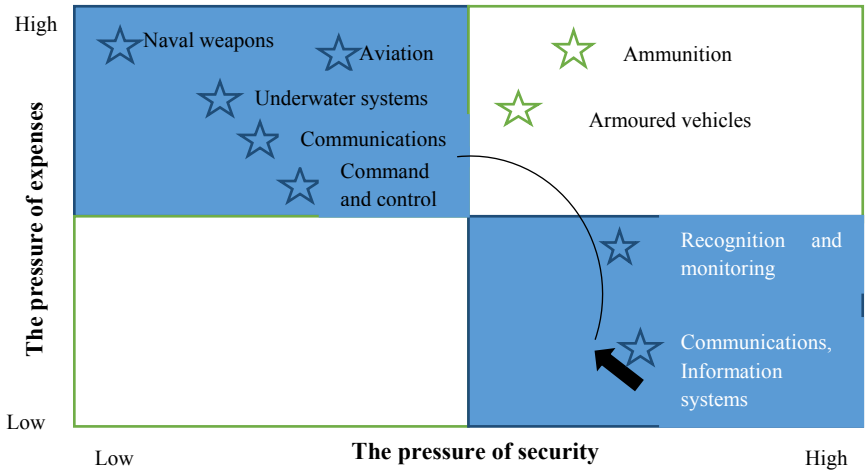
In 1943, Keynesian economist Paul Samuelson predicted the economic effects of reduced defense spending and the reintegration of 10 million soldiers into civilian labour after the Second World War: „when this war is over, more than one in every two workers will depend directly or indirectly on military orders" (Barro and De Rugy, 2013). Several decades later, Loayza *et al*. (1999) had a similar view, considering that the political tensions and those associated with high levels of military spending are likely to dampen a country's long-term economic growth.

In 2016, Dunne and Tian shown that while the economic literature did not find military spending as a significant determinant of economic growth, much of the defense economics literature found effects. The two researchers developed an econometric model to investigate the link between defense spending and the level of economic growth. The model combats and highlights the weaknesses and

deficiencies of established quantitative models such as Feder-Ram, suggesting non-alignment in the field of expertise, simultaneous bias and weaknesses in the theoretical plan of econometrics.

Based on these findings we can say that the empirical evidence on the relationship between economic growth and defence expenditures is widely divergent from the theory. For that matter, we can observe a higher degree of relevance of the analysis in the presence of conjuncture factors such as conflict state, threat or even war. Thus, security is measured by military spending relative to the threat and generating a non-linear effect. They have a positive effect on production when the threat is high and a negative effect when the threat is low. In refining growth patterns, to allow such nonlinearities, defense economists have found a comparative advantage, as they have gained considerable experience in measuring threats and other factors that influence military spending. Thus, there is a theoretical and econometric reason for estimating simultaneous systems that explain both military expenditure and results. The correlation between the level of defense spending and economic growth under the conflict / threat factor is particularly relevant in terms of the dynamics and structure of military spending in a crisis situation. Doval (2007) has managed to capture this relation as shown Figure 1.

Figure 1. Dynamics of defense spending in the security crisis



Source: Expenses Matrix - National Security (after Doval, 2007)

We believe that the link between defense spending and economic growth has been a matter of concern in the field of defense economy, a significant part of the literature focusing on the effect of increasing military expenditure in developing countries. However, as stated by Hou and Chen (2013), we appreciate that the existing literature is inconclusive about the effect of defense on economic growth

due to the application of different theoretical models, empirical techniques and samples.

Furthermore, we will focus on the *relationship of defense expenditures with corruption*. In recent years, an increased attention has been paid to understanding the economic motives and consequences of corruption. According to Gupta *et al*. (2001), the existing literature can be divided into two major directions. The first focuses on the determinants of corruption while the second on the consequences of corruption in exchange for its determinants.

Research studies have shown that the phenomenon of corruption is likely to have a negative impact on the economic efficiency, growth, equity and general well-being of a society. Gupta *et al*. (2001) states that, in early literature, ethical considerations were aside, corruption being seen as a means to achieve a higher degree of economic efficiency by simplifying governance rules and overcoming cumbersome government rules.

The evidence presented in the literature that the countries perceived as having a higher level of corruption tend to spend more on the army are suggestive, but not conclusive. The results are robust enough for different model specifications, estimation techniques and data sources assembled in the econometric model.

The main political and economic conclusions of specialists are that we can expect policies targeted on reducing corruption to change the structure of government spending towards more productive, non-military expenditure. Or, as Gupta *et al*. (2001) consider, corruption in military procurement can, of course, be reduced by greater transparency and reduced patronage among officials receiving bribes. In this sense, we believe that in order to remove one of the factors influencing corruption, which is the lack of transparency, defense contracts could also be included in the freedom of information legislation, when available. Similarly, arms procurement contracts could be subject to supervision through standard budget control, such as audit procedures and legislative approval, as well as other spending programs in the budget. Deficiencies in budgetary surveillance and associated corruption are not unique to the defense sector. Elaborating, implementing and reporting the transparent budget, as well as subjecting tax information to independence and integrity insurance, are measures that we consider necessary steps to limit corruption.

We note that in the literature, the defense spending approach is carried out in some cases and in correlation with the defense industry of the states. This sector is somewhat opposite to the defense sector. As Loayza *et al*. (1999) point out, each country has to dispose of a disproportionate part of its endowment of the economic resources to military „unproductive spending". Nevertheless, the defense industry sector develops military capabilities, attracts investment and exports and creates jobs in a manner appropriate to the geographical area and the state in which it operates. A similar opinion have Goyal *et al*. (2002) who note that the US defense industry offers a natural experiment to examine how changes in growth opportunities affect the level and structure of corporate debt. Moreover, compared

to other firms, growth opportunities for defense business operators have increased substantially during the development of defense capabilities. The reduction in military spending after the 2008 crisis year has generated a reshaping of production in the defense industries. The governments of the countries did not diminish defense industry funding due to the low demand of the market. Under these circumstances, the structure of military spending has changed, mainly by cutting down on strategic arms and military equipment purchases.

Referring to the European space, attention is drawn to the procurement and defense industry of the United Kingdom, which, in the well-known Brexit approach, raised questions about national security following the outflow of the EU (Uttley and Wilkinson, 2016). We believe that Britain has both an important technological advantage and freedom of movement, which gives it the potential to choose. Indeed, as early as 2015, UK has revised the national security and defense strategy. The government has recognized the important role of defense procurement spending and internal defense and security spending on economic growth and prosperity.

The fragmentation of the European defense market creates even more inefficiencies as a result of the existence of several small national industries and the production of similar military equipment. Regardless of the initiatives designed to remedy this situation at declarative and practical level, the European defense market remains unconsolidated (Toje, 2011).

Literature has increasingly focused on the relationship between the growth of a defense industry firm and its financial opportunities and policies. Since the defense industry has undergone a sharp shift in its investment opportunity over the last few years, it provides a natural experiment to examine the longitudinal relationship between growth opportunities and the various variables of corporate policy.

Evidence presented by the literature suggests that growth opportunities are the main determinant of corporate financial policies. As growth opportunities in the defense industry declined, firms increased their debt levels, prolonging the maturity structure of their debt. In practice, they reduced their private debt and mostly used public debt trying to reduce their total debt. This industry and others who have experienced radical changes in how to grow, offer the opportunity to study how growth opportunities affect other corporate interest variables such as payment policy, investment policy, and governance structure (Goyal *et al*., 2002).

In order to exemplify the significant impact of defense spending on the EU economy following Brexit's production, according to the European Defense Agency (EDA), any reduction of 100 million euro in EU defense industry spending would amount to EUR 150 million euro of EU GDP, a fall of € 40 million in EU tax revenues and a loss of 2,870 jobs, of which 760 are qualified.

In fact, as Toje (2011) has shown, most European states simply do not spend enough for defense. According to the Stockholm International Peace Research Institute (SIPRI, 2006, p. 164), in 2005 Europe was the only region in the world

where military spending has fallen by about 1.7%. In 2008, military spending in Europe amounted to $ 413 billion, up 1.4% in real terms compared to 2007. In the same period, Eastern Europe, especially Russia, saw an increase of 11% (Toje, 2011).

Public debt, in its forms, is another variable with which defense expenditures are correlated with the analysis carried out in the field studies. The allocation of public resources is mobilized both to maintain capabilities and to develop new ones. Efforts to equip the armed forces are greater and more costly than ordinary efforts to maintain military capabilities. The example of South American countries is relevant in terms of engaging in medium and long-term military expenditure without taking into account macroeconomic indicators and regional and international circumstances.

The debt crisis that hit South American countries in the 1980's led to a severe recession and chronic economic problems. We believe that there is a potentially important contributor to the growth of external debt, i.e. military spending. Taking into account the factual experience in Argentina, Brazil and Chile, there is no evidence that the military burden has had any impact on debt developments in these countries. Some evidence show that the military burden has tended to increase debt in Chile. At the same time, Chile was the least affected by the three acute financial crises due to debt, although their relative indebtedness was as high or higher. As Dunne *et al*. (2005) suggests, military burden can be important in determining state debt, but it is important only when it is not correlated with other macroeconomic and international factors.

In the European environment, following a study by Kollias and Paleologou (2010), a group of 15 European countries (Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Spain Sweden and the UK) with the aim of investigating the defense potential of the European Security and Defense Policy (ESDP), we can see that the results obtained do not indicate a consistent quantitative relationship between defense spending and economic growth or investment. This situation leads us to believe that although these European states have a high level of economic development and a need to ensure both the inviolable and regional security and defense, they do not promote reasonable investment policies and defense and security spending.

In our opinion, the defense expenditures correlated with the level of economic growth, the state level of corruption, the development of defense industries and public debt have a complex dimension, weight and structure with both positive and negative influences in the economic architecture of a state. Developing defense capabilities leads to adequate public and external public spending. In this respect, the budgetary effort at country, European and international level should be permanently correlated with macroeconomic indicators and internal and external conjuncture factors.

2. Financing defense spending in European and international environment

In the current literature, both at national, regional and European level, there have not been many studies on alternative financing options for public institutions, especially the national defense domain.

In Romania, a NATO member state and the EU, internal funding is based on the budgetary allocations made available on the institutionalized budget financing system and the own revenues achieved in the areas for which the military institution is competent.

In the European and international environment, external financing of military spending is based on reimbursable or non-reimbursable funds made available by programs run by international organizations and bodies and on external credits made available through external credit / external lending. The latter have government guarantees and have a share in the public debt of a country.

The funding of defense expenditure is based on the expenditure structure (Văcărel *et al*., 2008). Typically, the personnel and material expenses for the maintenance of military capabilities are funded from budgetary or governmental allocations. For the purpose of endowing with modern, meditative or strategic capabilities, the defense expenses are funded through international body programs such as NATO programs or government-backed foreign government loans contracted with international financial and banking institutions.

The achievement of the budget effort quantifies both the responsibilities of each state and their interest in the modernization of the armed forces. In 2018, for example, according to data presented in the last IIS Report (2019), the global defense spending amounted to over $1.67 trillion, higher spending been made by Western countries, especially the United States. The European nations contributed to the global trend in 2018, so, after years of reducing spending, most of the NATO's European member states increased their defense budgets by 4.2% in real-terms. When analysing the share of military spending in the GDP, only 4 of the 27 European NATO member states met in in 2018 the 2% symbolic threshold: Estonia, Greece, Lithuania and the United Kingdom. In what concerns our country Romania is not far behind, with 1.93% of military expenditures in GDP.

As stated in the literature, in the case of developed countries, i.e. United States, the public opinion influences the government policy in the field of military expenditure. Despite the findings of other researchers, institutions that maintain public control over government may lose their effectiveness. Hartley and Russett (1992) consider that these are solid evidence in line with the hypothesis that public opinion influences government policy, although the requirements of the arms race and budget deficit have been equally important or more influential.

We assume that there are certain economic and social scenarios about the economic situation of a country at a certain time and which are used by government institutions with responsibilities to finance sectors deemed deficient. The military expenditures of a highly developed state and internationally and

world-wide targets, as in the case of the United States, can be relatively short-lived without significant economic consequences.

Clearly, the financing of defense spending as part of public spending is subject to the control of the competent bodies according to their definition and functioning in each country.

In the European environment, in the Netherlands, the management of reform contracts was introduced in a large number of governmental organizations to achieve this goal (Mol, 1996). Thus, the production objectives are based on explicit agreements between the central management units and the decentralized organization units. By mutual consent, these goals would be trusted reference points to assess performance based on the results.

Accounting responsibility should provide the performance measurement techniques required to implement this management of the contract. Specifically, the development of an indicator system for organizational unit activities was to provide the government with the necessary tools. Assessing the effectiveness of funding for input-output ratios calculated from these indicator systems should create an appropriate substitute for price signals in another part of the market. The idea of contract management triggered the development of indicator systems in many governmental organizations, including the national defense (Mol, 1996).

In this sense, we consider that the financing budget control implies an algorithm to build an indicator systems like: allocated budgets, used budgets, achieved results and achieved effects. Moreover, there should be relevant indicators for the activities involved. Practically, it can be noticed that management reports will focus on these deviations rather than on their explanation of any criterion of economy, efficiency or effectiveness. Finally, the relevance and consistency of applied indicator systems allows us to judge the extent to which a pledged commitment to performance control (or contract management) within organizations is accompanied by instructive evidence. While performance controls can be formally recognized, managers in many organizations - both civilian and military - continue to favour internal controls centred on effort and not on results. The deficiencies of the indicator systems used may draw attention to this fact (Mol, 1996).

As shown by Groshek (2000), the funding of defense spending may have shortcomings in method and practice, on how current procedures generate differences between budgeted out-of-US operational expenditure and subsequent payments. We can see the exposure of the army's finance department to fluctuations in exchange rates. Unlike fluctuations in inflation and interest rates affecting general government operations, the fluctuation of the exchange rate imposes additional uncertainty on a set of operational expenditure.

The quantified negative consequences of this risk led to the establishment and maintenance of an insurance fund of the operational budgets of the Ministry of Foreign Affairs. Instead of an ex-post budgetary reaction, the policy maintained a reserve of public funds to offset exchange rate changes. As a result, we can easily

see financing shortcomings, moreover in the ongoing process a formal neglect of exposure to exchange rate fluctuations, which in itself is speculative.

The failure to respond to currency fluctuations entails costs for the finance department in regulating losses through the hedge fund, uncertainty in budget execution and adverse operational effects when funding is limited. Given the consistent exchange rate volatility and a limited understanding of foreign exchange markets, Groshek (2000) shows that the application of forward contracts as a solution offers a means of reducing the uncertainty and the cost of maintaining US military operations abroad.

In our opinion, the financing of military spending on programs is a way of internal as well as external financing in most developed countries and members of military alliances. In the US, for example, as Heo and Bohte (2012) pointed out, there are many other variables that influence defense financing decisions, including the partisan of the president, congressional ideology, unemployment, economic growth, inflation, tax revenues and the size of national debt. In this sense, we note that financing defense programs requires understanding and appreciation of complex permutations between a variety of policies and economic variables. Due to this complex link of variables, attempts to investigate how the governments have funded their defense programs require a common strategy in estimating multiple equations to analyse how military spending was funded through taxes and budget deficits or different monopolies.

As Heo and Bohte (2012) state, the ways in which military spending was achieved has seen two important economic sources of the state, such as taxes, and the budget deficit. The empirical models and the judgments used describe the methods of using sources of financing at macroeconomic level.

The relationship between taxes and defense expenditures is based on the assumption that an increase in defense spending can be funded by raising taxes (Hartley and Russett 1992). According to Deger (1986), defense spending leads to increased levels of defense fees; this, in turn, influences inflation, domestic economies and various other public programs (see also Jog and Mintz, 1989, p. 1291). „Although it is politically difficult to raise taxes during the peace period, the public tends to support tax increases in cases security threats or involvement in war." In this sense, we can notice that the US government has long relied on taxes as an instrument to finance army expenditures. Also, we believe that most people believe there is a budget compromise between defense spending and welfare spending, such as public health and education (see also Jog and Mintz, 1989). The reason is that increasing defense spending requires a higher level of financial support. This support comes mostly from the civil sector, unless total GDP increases, generating more government revenue (Hartley and Russett, 1992).

In addition to the above-mentioned measures, tax increases and budget compromises, the defense programs can be funded through deficit spending. This approach is likely to be used when tax and tax increases are not a viable option due to poor economic performance. For example, it is noted that to support the war on

terror, defense spending has increased significantly, while taxes have been reduced as part of the Bush administration's plan to boost the economy after the September 11, 2001 terrorist attacks.

A large literature also notes that defense spending is often used to stimulate the economy. According to the Keynesian school of thought, economic recessions arise when the production capacity of the economy is not fully utilized (Heo and Bohte, 2012).

As pointed by Heo and Bohte (2012), we can see that at a time of unprecedented federal spending, the US administration has hired tax cuts in the hope of boosting economic growth. At the same time, democrats are likely to get stuck in misunderstandings the deficit spending at a time when questions arise if foreign nations that already have a large part of US debt have the capacity or the desire to continually finance large budget deficits in future (Schiff, 2009). These points suggest that the way in which the United States uses different fiscal policy instruments to pay for defense spending will be a subject of academic attention for the future.

Taking into account the approaches of the literature, we observe that both the methods and the economic sources for financing defense expenditures are constantly changing in terms of manifestations, but are relatively constant and perennial in regard to sources of origin. We can also notice that, depending on the state of peace, conflict or threat of the country, the structure and dynamics of military expenditures are correlated with the public policies.

Conclusions

Following the analysis, we conclude that the level of national defense expenditure has a different dynamics in correlation with economic growth, public debt, the corruption level at country level and the development stage of the defense industry. This dynamics is complex when the analysis is carried out in peacetime, conflict / warfare, or in the presence of external threats. The defense expenses have a positive influence on economic growth and public debt during conflicts / wars and external threats, while in peacetime it is necessary to correlate their level with macroeconomic indicators.

In our opinion, in what concerns corruption, when the corruption level is high, there is an unjustified increase in the defense expenditures which negatively influence the economic growth and the public debt. A strong argument in this case is the lack of macroeconomic transparency that practically limits budgetary control.

Thus, we consider that the defense industry can positively influence defense expenditures in conflict / war situations or in the presence of external threats when they create a positive impact on economic growth and debt. Moreover, the development of state, regional and international defense capabilities can lead to adequate public and external public spending. At European regional level, defense

spending and the promotion of its funding are relatively underdeveloped in relation to their economic potential and national and regional security objectives.

Funding of internal defense spending is done through the allocation of public or governmental resources, while the external ones through programs of economic organizations and / or military alliances or external credits. The latter influence the growth of public debt. The funding sources can be tightened by methods such as raising taxes and budget funding.

We conclude that there is a strong direct link between defense spending and sources and funding methods:the sources and methods are influenced by the need to adapt defense capabilities to internal and external conjuncture factors. In this respect, it can be noticed that some methods of financing may affect the structure or the size of military expenditure.

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