Should Portuguese economy invest in defense spending? A revisit

Muhammad Shahbaz [a,*], Nuno Carlos Leitão [b,c], Gazi Salah Uddin [d], Mohamed Arouri [e], Frédéric Teulon [f]

[a] Department of Management Sciences, COMSATS Institute of Information Technology, Lahore, Pakistan
[b] Polytechnic Institute of Santarém, ESGTS, Portugal
[c] CEFAGE, Évora University, Portugal
[d] Department of Management & Engineering, Linköping University, SE-581 83 Linköping, Sweden
[e] EDHEC Business School, France
[f] IPAG Business School, IPAG Lab, France

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ABSTRACT

In this paper, we investigate the causal relationship between defense spending and economic growth in Portugal during the period of 1980–2010. We apply the ARDL bounds testing approach in the presence of structural break. The ARDL–ECM estimation results disclose that the relations between defense spending, capital, labor and economic growth are country specific. The interesting finding of this study is that there is a U-shaped relationship that exists between defense spending and economic growth. In addition, the unidirectional causality from defense spending to economic growth exists in the case of Portugal. Therefore, defense spending can play an important role in economic development of Portugal.

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1. Introduction

With the advent of globalization, the discussion over the link between defense spending and economic growth has been widespread. The direction between these variables has been an emerging area of investigation in recent decades. While a positive interaction between defense spending and economic growth is usually expected, findings in the existing literature do not necessarily confirm to this stereotyped direction. Two views of the existing literature explained that defense spending affects economic growth through the domestic production. According to the Keynesian framework, military spending raises the aggregate demand by generating output and creating employment opportunities in the country (Chan, 1995; Gold, 1990). In addition, it has spill-over effects on human capital applying the expenditures on education, research and technological enhancements (see Adam and Gold, 1987; Barro, 1991). Furthermore, it also promotes the investment climate and stimulates the international business opportunities in the economy (Heo, 2010). In contrast, however, the neoclassical model explained that military spending has crowding-out effect on both public and private investment that will negatively influence economic growth (Sandler and Hartley, 1995). In general the public sector is less concerned about the cost of production rather than the private sector. Therefore, the concept of technical efficiency is absent in the public sector.

Based on the earlier literature debate on defense spending and economic growth nexus, the examining the relationship between these variables on a country-by-country basis becomes important. Despite enormous amounts of literature on defense spending and economic growth, we will mainly focus on these studies because defense spending and economic growth can be different due to the different countries' characteristics such as different public and private investment, structure of investment, political and economic histories, cultures, social security system and institutional arrangements. A series of studies found that defense spending neglected/reduced the economic growth [Smith, 1977; Boretsky, 1975; Sivard, 1977; Atesoglu, 2002; Ocal and Brauer, 2007; Smith and Tuttle, 2008]. However, opposite evidence also exists in the earlier literature that defense spending promotes economic growth [Benoit, 1973, 1978; Halicioglu, 2003, 2004; Wijeweera and Webb, 2009; Atesoglu, 2009; Wijewerra and Webb, 2011]. Therefore the relationship between defense spending and economic growth is still inconclusive in the literature.

An upward movement in economic growth and defense spending has raised some questions in Portugal's perspective such as: (1) Is there any long-term relationship between these variables? (2) What are the short-run relationships between these variables? (3) What are the directions of the causality? (4) What are the policy implications of the findings? Our study attempts to answer these questions in the context of Portugal. We also consider the influence of capital and labor within the growth–defense nexus. The empirical analysis of this study employs the ARDL bounds testing approach (Pesaran, 1997; Pesaran and Shin, 1999; Pesaran et al, 2001). This approach has a number of advantages compared to other cointegration techniques such as Engle and Granger (1987), Johansen (1988), Johansen and Juselius (1990) and Johansen (1995). Firstly, it allows for smaller sample sizes. Secondly, It can be used regardless of whether the variables are purely I(0), purely

* Corresponding author.
E-mail addresses: shahbazmohd@live.com (M. Shahbaz), nunocarlosleitao@gmail.comm (N.C. Leitão), gazi.salah.uddin@liu.se (G.S. Uddin), Mohamed.arouri@u-clermont1.fr (M. Arouri), f.teulon@ipag.fr (F. Teulon).

I(1), or mutually cointegrated. Thirdly, it provides unbiased long-run estimates and valid t-statistics. Fourthly, this approach provides a method of assessing the short-run and long-run.

In the case of Portugal, we found few empirical studies investigating the relationship between defense spending and economic growth but provided inconclusive results. For example, Kollias et al. (2004) examined the direction of casual relationship between defense spending and economic growth in EU countries. They found that both variables have cointegration relation but neutral effect is validated between defense spending and economic growth. Dunne and Nikolaidou (2005) found inverse impact of defense spending on economic growth and economic growth Granger causes defense spending. Killer et al. (2006) concluded that military draft retards economic growth in OECD countries including Portugal. Recently, Odehnal and Neubauer (2012) also reported the unidirectional causality running from economic growth to defense spending. The findings of the above empirical studies are not helpful to policy makers in designing a comprehensive defense and economic policy in the case of Portugal. The other issue with these studies is that authors do not consider the importance of economic reforms such as European Free Trade Association (EFTA), European Economic Community (EEC), Stability and Growth Pact (SGP), Economic Adjustment Program (EAP), Financial and Economic Support Package (FESP) implemented by the Portuguese government to improve the macroeconomic performance and to mitigate the detrimental impacts of recent financial crisis in Europe. These economic reforms influenced macroeconomic indicators of Portugal. In such circumstances, traditional unit root tests and cointegration approaches provide biased and inefficient results. This is the main motivation for authors to conduct a study to examine the relationship between defense spending and economic growth accommodating the structural breaks arising in the series. This study is a humble effort to fill the gap in existing defense economics literature regarding Portugal.

The remainder of this paper is structured as follows: Section-2 explains military spending in Portugal. Section-3 outlines a review of the literature on output–defense nexus. Section-4 we outline the econometric specification and estimation methodology and discuss how various hypotheses are tested, while section-5 provides a discussion of our empirical results. Finally, Section-6 discusses major findings and concludes the paper.

2. Portuguese context

Portugal is one of the first countries that joined the North Atlantic Treaty, signed in Washington, D.C. on 4 April 1949, besides Belgium, the Netherlands, Luxembourg, France, United Kingdom, United States, Canada, Italy, Norway, Denmark, and Iceland. Based on the national laws, the Portugal military mission is to protect the territorial integrity of the country and provide humanitarian assistance and security at home and abroad (CIA World Factbook, 2012). An important moment in Portugal's military history was the left-wing military coup in Lisbon, made by Portuguese military officers, in 1974, that toppled the Caetano government. The main objective of this action was obtaining a radical change in government attitudes. Moreover, since 1975, this general military context has new changes: Portugal participation in peace-keeping missions in East Timor, Bosnia, Kosovo, Afghanistan, Somalia, Iraq (Nasiriyah), and Lebanon. In addition, the elimination of compulsory military service since 2000s has accelerated the growing trend of military spending (Dunne and Nikolaidou, 2005).

The Portuguese armed forces have been claimed in the international arena with regard to international security. There are many examples of Portuguese military missions. Portugal is a full member of the Atlantic Alliance, European Union, United Nations, and Portuguese speaking African countries (PALOP). According to the data collected from the Ministry of Defence, in 1995 the mission that took place in Bosnia and Herzegovina (IFOR) had a contingent of nine hundred soldiers. To add to this sum, in 1999, Portugal secured a very significant presence in the Balkans and East Timor. In terms of humanitarian missions should be noted the presence in Kosovo and East Timor (INTERFET). In 2001, Portuguese military forces were in Ukraine. The Portuguese military intervention was still in Afghanistan, Iraq and Lebanon. The prestige and recognition of Portuguese military forces have increased considerably in recent years. The participation in international missions by the Portuguese armed forces strengthened the bonds of Portugal with the European Union, the North Atlantic Alliance, and was decisive in the case of Timor East, reinforcing Portugal's position in the United Nations.

Thus, the amount of military spending had a positive trend in the period of 2005–2009, based on the rise of GDP rates, even if the military spending as percent of GDP decreased. If the military spending increased from US$ 403.919 billions, in 2005, to US$ 459.405 billions, in 2009, the military spending as percentage of GDP decreased from 2.11%, in 2005, to 1.97%, in 2009. In this analyzed period, the maximum level of military spending as percent of GDP was 2.11%, registered in the year 2005, and the minimum level was 1.89%, obtained in 2007. In the rest of the years, the military spending as percent in GDP was 2.02% in 2006, and 1.91% in 2008. In this case, the military spending as percent of GDP, in the 2005–2008 periods, show a U-shape curve, but the real amount of military spending increases permanently.

In this context, the total real amount of military spending increased in tandem with the GDP growth rates. According to Nikolaidou (2008), the reduction of Portuguese military burden after 1974 is attributed to the end of the dictatorship but most importantly to the end of the Colonial Empire. Moreover, the author stresses that the domestic defense industry was supplying arms and munitions to the army, but Portuguese defense industry is small, inefficient, and underdeveloped.

3. Review of the literature

Despite enormous amounts of literature on defense spending and economic growth, we will mainly divide the results from earlier studies on the defense–growth nexus into two broad categories: 1) positive link between defense spending and economic growth and 2) negative link between defense spending and economic growth. Since the pioneering work of Benoit (1973, 1978) found a positive linkage between military spending and economic growth through positive spill-over effects, the validity of relationship also exists in the other studies [Kennedy, 1974; Deger, 1986; Kollias, 1995; Sezgin, 1997, 1999]. Theoretical and empirical evidences suggest that defense expenditures influence the aggregate demand by stimulating output and creating employment opportunities in the country (MacNair et al., 1995). The positive nexus is also true for Turkey and Greece (Sezgin, 2001). Yildirm et al. (2005) found a positive interaction between military spending and economic growth for OECD countries applying the dynamic panel data approach. The similar result was also found in the case of Fiji which includes exports in production function (Narayan and Singh, 2007). Recently, using the VAR approach, positive linkage is also evident for Sri Lanka (Wijeweera and Webb, 2009); for US (Atesoglu, 2009); for South Asia (Gupta et al., 2010); and for India (Tiwari and Shahbaz, 2012).

The second line of research provides empirical evidence about the negative impact of military spending on economic growth [Deger and Smith, 1983; Fredericksen and Looney, 1982; Faini et al., 1984; Birdi and Dunne, 2002]. The result is found for both time series and cross section analysis. The similar result is true for African economies (Lim, 1983); South Korea (Heo, 1999); Egypt, Israel and Syria (Abu-Bader and Abu-Qarm, 2003); Peru (Klein, 2004); Turkey (Karagol, 2006); Malaysia (Tang, 2008); South Asia (Robert and Alexander, 2012); Pakistan (Shahbaz and Shabbir, 2012), (Shahbaz et al., 2013) and India (Tiwari and Shahbaz, 2012).

The third line of research from earlier studies on causality falls into three broad categories: 1) bidirectional causality, 2) unidirectional causality from defense spending to economic growth, and finally 3) unidirectional causality from economic growth to defense spending. The findings