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Do democracies spend less on the military?

**Spain as a long-term case study
(1876-2009)**

Oriol Sabaté Domingo

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Institut Català Internacional per la Pau
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ABSTRACT

This paper analyses the influence of political regimes on the level and the economic composition of military expenditure in Spain over the long run. The results suggest that political and strategic variables exerted a significant effect on both the total and the disaggregated military burden throughout the period.

The democratic governments established in the late 1970s and the early 1980s exerted a positive influence on the military burden due to the efforts to reorient the army towards international threats and to involve the armed forces with the newly democratic institutions. These results partially challenge the widely accepted negative relation between democracy and military spending and pose the need for further analyses on political transitions. Additionally, the analysis on the military expenditure composition allows concluding that the international orientation of democratic military policies went along with financial efforts to get a smaller and better equipped army, to confront international military threats.

Subjects: armies-costs; military spending; Spain-military history-economic history; democracy.

RESUM

Aquest document analitza la influència dels règims polítics en el nivell i la composició econòmica de la despesa militar a Espanya amb un enfocament a llarg termini. Els resultats indiquen que durant tot el període algunes variables polítiques i estratègiques tingueren un paper significatiu tant sobre la càrrega militar total com sobre les seves xifres desagregades. Els governs espanyols democràtics formats a finals de la dècada de 1970 i principis de la de 1980 exercien una influència positiva en la càrrega militar pels seus esforços per reorientar l'exèrcit contra amenaces internacionals i per implicar les forces armades en les noves institucions democràtiques. Aquests resultats posen parcialment en dubte l'argument hegemònic segons el qual existeix una relació negativa entre la democràcia i la despesa militar, i plantegen la necessitat d'aprofundir en l'anàlisi de les transicions polítiques. A més, l'anàlisi de la composició de la despesa militar ens permet arribar a la conclusió que l'orientació internacional de les polítiques militars democràtiques anava acompanyada d'esforços financers per aconseguir un exèrcit més petit i més ben equipat, per tal d'afrontar amenaces militars.

Descriptors: costos militars; despesa militar; Espanya-història militar; història econòmica; democràcia

RESUMEN

Este documento analiza la influencia de los regímenes políticos en el nivel y la composición económica del gasto militar en España con un enfoque a largo plazo. Los resultados indican que durante todo el período hubo variables políticas y estratégicas con un papel significativo tanto sobre la carga militar como sobre sus cifras desagregadas. Los gobiernos españoles democráticos formados a finales de la década de 1970 y principios de la de 1980 ejercían una influencia positiva sobre la carga militar por sus esfuerzos por reorientar el ejército contra las amenazas internacionales y por implicar a las fuerzas armadas en las nuevas instituciones democráticas. Estos resultados ponen parcialmente en entredicho el argumento hegemónico según el cual existe una relación negativa entre la democracia y el gasto militar, y plantean la necesidad de profundizar en el análisis de las transiciones políticas. Además, el análisis de la composición del gasto militar nos permite llegar a la conclusión de que la orientación internacional de las políticas militares democráticas iba acompañada de esfuerzos financieros para conseguir un ejército más pequeño y mejor equipado, con el fin de afrontar amenazas militares.

Descriptores: costes militars; gasto militar; España-historia militar; historia econòmica; democràcia

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1. INTRODUCTION

Public resources devoted to enhance military capacity have been one of the main spending items of European state budgets throughout most of the modern period. Although intra-European wars became less frequent during the nineteenth century than before, the new kind of military mobilization and the industrialization of war that emerged in that period demanded substantial resources to fund the armies both in times of peace and war. The rising international tension during the last quarter of the 19th century and the subsequent outburst of the two World Wars increased the financial pressures to keep military spending high, and so did the Cold War, due to the permanent military tension among both blocks.¹ Therefore, even though the relative weight of military spending within national budgets has diminished throughout the modern period (mainly in favour of productive and social expenses), it has remained substantial both in absolute and in relative terms.²

The importance of military spending has been widely recognized by the defence economics literature. Born in the context of the high military expenditure ratios achieved in most western countries during the early Cold War decades, defence economics has analysed in depth the evolution of historical and present military spending figures and its potential determinants. One of its main areas of study has been the effect of political regimes on military spending, in which most studies have supported a negative relation between democracies³ and the military burden (defined as military spending as a share of GDP). This result might be explained by the traditional liberal claims: citizens, when free to choose, prefer educational and social

* This paper is part of my PhD dissertation project under the supervision of Alfonso Herranz and Sergio Espuelas, to whom I am most grateful for their valuable advice. I acknowledge the financial support from the Catalan International Institute for Peace and the Catalan Department of Economy and Knowledge, as well as the Research Project ECO2012-39169-C03-03. I want also to thank the participants of the *I Foro de Doctorandos e Investigadores Noveles en Historia Económica* and the VIII European Historical Economics Society Summer School for their helpful comments, as well as the members of the Department of Economic History and Institutions of the University of Barcelona for their useful advices during the PhD seminars. I am also grateful to Stein Aaslund and Perlo-Freeman for their generous help with the NATO figures and methodologies on military spending, and to the staff of the Study Center for Peace J.M. Delàs for their suggestions on Spanish military expenditure.

¹ For a description of modern military policies, see for instance Rogers (2000) and Colom Piella (2008).

² Eloranta (2008) and Cardoso and Lains (2010). The significant weight of military expenditures within national public budgets has inspired several works about their potential impact on institutional transformations (see, for instance, Besley and Persson, 2009; O'Brien, 2011; Dincecco and Prado, 2012) and on economic performance (see, for instance, Pieroni, 2009; Dunne and Mehmet, 2009).

³ Democracy is usually defined as a political regime with open and competitive political participation with substantial checks and balances on the discretionary powers of the chief executive. See Marshall and Cole (2011).

expenditures rather than military spending. Furthermore, the cost of war (both in terms of resources and in terms of human loss) would constrain their wish to get involved in violent conflicts. Consequently, democratic leaders would be concerned about the potential effects of arm races on warfare dynamics. All in all, democracies would constrain their military burden in comparison with non democratic regimes.⁴

For instance, Sprout and Sprout (1968) point out that the advent of democracy in Great Britain after the First World War pushed down military spending as a percentage of total public budget. Other authors such as Goldsmith (2003) and Fordham and Walker (2005) find similar results when analysing the relationship between democracy and military burden in large international panel datasets from 1886 to 1989 and from 1816 to 1997 respectively. Interestingly, Fordham and Walker (2005) find more significant results when they analyse only the major powers than when they consider all countries. Similarly, Dunne et al. (2003), Dunne and Perlo-Freeman (2003) and Dunne et al. (2008) present the same results for different samples of developing countries during the second half of the twentieth century, while Lebovic (2001) observes the same relation between both variables in a sample of several Latin American countries from 1974 to 1995. Finally, Töngur et al. (2013) also obtain the same results when analysing more than 130 countries for the period 1963-2001.

The intensity of democracy has been also discussed in Rota (2011), who analyses the effects of the democratization wave and the subsequent return towards totalitarianism during the period 1880-1938 in a sample of several OECD countries. According to his results, restricted democracies (non-full democracies in Rota's words, in which political participation was based on census suffrage) tended to spend more resources in the military than democracies and autocracies. This is explained in terms of the equilibrium between high fiscal capacity and low regulatory constraints prevailing in restricted democracies, in contrast with the other two types of political regimes (which do not share both features at the same time). Similarly, in their analysis on dyadic militarized disputes, Baliga, Lucca and Sjöström (2011) argue that limited democracies are more aggressive than other regime types (particularly during the period prior to the Second World War), while dyads (pairs of countries in conflict) consisting of two democracies are the least conflict ridden of all.

⁴ Liberal authors use to quote Immanuel Kant and his idea of "Perpetual Peace" as the main theoretical basis of their thoughts on democratic regimes, military spending and warfare (Fordham and Walker, 2005).

Despite widespread consensus on the negative relation between democracy and military spending, some authors have recently questioned it. For instance, Goldsmith (2007) analyses the spending behaviour of political regimes in times of war and peace in an international panel dataset from 1885 to 1997. The author concludes that democracies bear lower military burden than other political regimes in times of peace due to the social preferences of voters, and higher military burden in times of war, due to their higher fiscal capacity and their social legitimacy to go to war. This would be mainly explained by the executive constraints of democratic governments and their willingness to ensure victory in a context of political competition. These results are also in line with Schultz and Weingast (2003), who argue that democratic governments would be more able to borrow more money in times of war than other kind of governments due to their financial reputation. Therefore, the expected negative relation between democracy and the military burden might be altered by the international military scenario.

From a theoretical perspective, Acemoglu, Ticchi and Vindigni (2010) suggest that non-consolidated democracies may have greater incentives than other oligarchic regimes to make concessions to the military in order to ensure their loyalty. According to these authors, given that transitional democracies cannot commit to not reform the military (as a large army devoted to repression is not needed anymore), transitional democracies may pay higher wages to the military than oligarchic regimes in order to avoid coups d'état. Additionally, the involvement in international disputes during transitional periods (where the army becomes necessary for national defence) may help democratic institutions to keep a strong military structure while facilitating the democratic transition. As a consequence, democracies may even sustain higher military expenditures than autocratic regimes during transitional periods.⁵

This paper aims at contributing to this debate by analyzing Spanish military spending from 1876 to 2009. Spain provides an interesting case to study the political

⁵ The core argument used by the authors can also be found in Thompson (1980), according to whom the military-governmental disagreements about what levels of budgetary and material support are necessary for military operations constitute one of the most important sources of tension in civil-military relations. However, the effectiveness of increasing military spending in avoiding coup d'états remains unclear in empirical analyses. For instance, according to Tusalem (2013), who analyses 44 political transitions from 1984 to 2008, the level of the military burden does not significantly affect democratic consolidation. By contrast, Powell (2012) suggests that the level of military expenditures per soldier negatively affect coup attempts, although the author does not restrict his analysis to democratic transitions but to a broad panel dataset of 143 countries from 1961 to 2000. Nevertheless, concerning the aims of this paper, these authors do not analyse whether transitional democracies spend more on the military than other political regimes nor whether they effectively increase military spending.

determinants of military spending from a historical perspective. Since the end of the Third Carlist War (1872-1876), Spain has been ruled by several political regimes, including three long-lasting and fairly stable ones: a restricted democracy during the Restoration (1874-1923), the dictatorship of Francisco Franco (1939-1975) and the present democratic regime (1977-nowadays). It therefore provides an ideal scenario to study the military policies of different political regimes and their potential impact on military spending. The dictatorship of Primo de Rivera (1923-1930) and the democratic Second Republic (1931-1939) may also allow studying the effect of short-lasting political regimes on military spending policies.

To that purpose, this paper analyses a new long-run military expenditure database for Spain that has been made on the bases of the NATO methodological criterion. In line with the Alliance's statistics, the new dataset provides total military spending estimates as well as disaggregated figures on military personnel, pensions, investment (military equipment and infrastructure), and operational expenditures. Disaggregated data on economic items may provide relevant information in order to understand the evolution of total military expenditure. However, given that most quantitative analyses are based on international panel datasets (which generally only offer aggregate figures), the political determinants of military expenditure composition have not been paid much attention so far. The paper tries to fill in this gap by providing a long-term analysis of the evolution of Spanish both aggregate and disaggregated data on military expenditures.⁶

Despite the relevance of military spending within the Spanish public budget in modern times, long-term analyses on its evolution and its main determinants are extremely scarce. To my knowledge, only Gadea and Montañés (2001) have studied this topic from a long-run approach, although they do not provide an analysis on the military expenditure composition.⁷ These authors analyse the political and strategic determinants of the total Spanish military spending for the period 1850-1995 through a

⁶ Analyses on the distribution of other categories of public expenditure, such as social spending, are common in the literature. See, for instance, Lindert (2004) and Espuelas (2012). For short-term analyses on the determinants of military expenditure composition, see Batchelor et al. (2002) and Bove and Cavatorta (2012).

⁷ From another point of view, Comín (2004) describes the historical pattern of military spending in comparison with the pattern of civil expenditure. The author argues that fundamental political changes (mainly the shift from an absolute monarchy to a liberal state in the first half of the nineteenth century) and the development of the Welfare State (throughout the twentieth century, and particularly since the mid-1960s) affected the weight of military spending within total public expenditure. However, the author neither analyzes the military burden (which constitutes the object of study of this paper, as in most of the international literature) nor carries on a systematic quantitative analysis.

cointegration analysis.⁸ According to them, neither political regimes nor the international military scenario have significantly affected the evolution of military spending since the mid nineteenth century to the present; by contrast, they consider GDP (once wartimes and other outliers are controlled for) as the main driving force. In this context, this paper aims at addressing specifically the effects of political regimes on the Spanish military burden evolution by applying a more comprehensive methodological approach on the basis of new disaggregated data.⁹

The paper proceeds as follows. Section 2 and 3 describe the main features of Spanish military policies from the mid nineteenth century to the present, and the new military spending data. Section 4 analyses the incidence of political factors on the level and composition of the Spanish military burden, and Section 5 concludes.

2. MILITARY POLICIES IN SPANISH MODERN HISTORY

According to the military historian Puell de la Villa (2001), military policy in Spain has experienced two major changes in modern times. The first one began with the military reforms initiated in 1844 by Nárvaez, president of the government during the liberal monarchy of Isabel II (1833-1868). The military structure was redefined in order to use the army exclusively to protect the national territory, to defend the external prestige of the monarchy and to guard the State internal constitution, while the fight against banditry and the customs surveillance were entirely transferred to police and paramilitary corps.¹⁰ The second major shift in the nature of the army did not arrived until the democratic period initiated in the second half of the 1970s. The new defence policy reoriented the army to external missions, while the jurisdiction on internal control was transferred to the police corps. This shift implied a very deep restructuring of military forces (including personnel, infrastructure and equipment

⁸ Their data on military spending comes from Comín (1985), which is also used in Comín (2004) and further reviewed in Comín and Díaz (2005).

⁹ In contrast with the lack of long-term analyses, several authors have described the Spanish military expenditure evolution throughout the recent democratic decades (although without studying its political determinants). See, among others, Sánchez Gijón (1982), Fisas Armengol (1982), Valiño Castro (2001), García Alonso (2007) and Oliveras and Ortega (2007).

¹⁰ The list of wars in Spain from 1834 to 2009 is provided in Annex A.

endowments), in which democratic governments tried to get a smaller but better equipped army.

In between these two major transformations, the Spanish army and the military policy experienced several other significant (although probably minor) changes. Firstly, the liberal monarchy of Isabel II and, especially, the Liberal Union Government of 1858-1863, were more active in military external interventions than the following regimes, carrying out numerous military actions in Africa, America and the Pacific, and undertaking the military repression of the Dominican secessionist insurgents.¹¹ By contrast, the establishment of the Restoration (1874-1931), which re-established the monarchical regime of the Bourbons after the Revolutionary Period initiated in 1868,¹² gave place to a military withdrawal based on a neutral policy in the main international conflicts.¹³ The only external military interventions during the first decades of the Restoration were aimed at the defence of North African possessions and overseas colonies. According to several military historians, this military policy consolidated a very nationalist army devoted essentially to grant domestic public order.¹⁴ Meanwhile, the navy was becoming obsolete because of the fast technological improvements of the period and its wearing down due to intensive use during the monarchy of Isabel II.¹⁵

The Restoration's governments of the twentieth century set up a significant shift in the Spanish military policy. According to Torre del Río (2003), the defeat in the 1898 war against the US (that implied the loss of the last overseas colonies in America and the Pacific, and the destruction of the Spanish navy) and the increasingly aggressive French policy in Morocco gave place to a new expansionist Spanish policy in North Africa. The 1909 war in Melilla started a period of discontinuous military interventions that lasted until 1927 with the defeat of the Moroccan insurgency by the Spanish and French armies. The main military interventions took place from 1909 to 1914 (with the Melilla war and the repression of insurgency in Melilla and Ceuta) and from 1921 to 1927 (after the Spanish defeat in Annual). This expansionist policy went also along with the growth in domestic social conflict (mainly led by the workers' movement and peripheral nationalist claims) during the interwar period, and the beginning of the corporatist

¹¹ Pereira (2003).

¹² The re-establishment of the monarchical regime of the Bourbons went along with higher political participation than in the monarchy of Isabel II, especially after 1890, in which male universal suffrage was established.

¹³ This was only partially altered by the agreement with Germany in 1877 and the Mediterranean Agreement in 1887 (linked to the Triple Alliance).

¹⁴ López Garrido (1982), Ballbé (1983), González Calleja (1998), Cardona (1983, 2008).

¹⁵ Pereira (2003).

interventions by the army (clearly seen in the so-called *Juntas de Defensa*). All in all, the early twentieth century saw an increase in militarism and a more prominent role of the army in the social and the political agenda, which ended in 1923 with the establishment of Primo de Rivera's military dictatorship (1923-1930).¹⁶

In line with this shift in the external policy, Velarde (2000) argues that the first decades of the twentieth were also characterized by a gradual implementation of the German model based on the encouragement of a national military industry and rearmament. The adoption of the German and Italian model of industrial mobilization in Spain has been studied by San Román (1999), who argues that the Spanish mobilization process was mainly supported by the army. It was mostly based on the modernization plan implemented by the Ministry of the Navy, José Ferrándiz, in 1907 (designed to modernize the navy yards, to construct new warships and to acquire new weapons and equipments), the Royal Order passed in 1926 (on extraordinary works and services on infrastructure, equipment and general material costs for the three armies) and the acquisition of military airplanes during the late 1910s and the 1920s.¹⁷ This industrial policy would be reinforced in the 1940s and the 1950s during the autarkic period of Franco's dictatorship (1939-1975).

The Second Republic (1931-1939) established after the Primo de Rivera's dictatorship tried to change the former military policies by reducing the presence of the military in domestic conflicts and establishing a new neutral and pacifist international policy (especially during the first two years of left-wing governments). This had its major success in the Spanish participation in the International Conference for Disarmament and the creation of the Group of Eight in 1932.¹⁸ The first governments of the Republic also tried to transform the military budget in favour of better military equipment and endowment (even a consortium of military industries was established in 1932 in order to promote national military production)¹⁹, while carried on the most ambitious plan to reduce the number of chiefs and officials.²⁰ However, the conservative governments

established after the 1934 election reversed most of these new policies in favour of the former military model.²¹

The establishment of the dictatorship of Francisco Franco after the military uprising against the Republican government (and the subsequent Civil War of 1936-1939) gave place again to an army mainly focused on internal threats, except for the early attempts to become involved in the Second World War together with the Axis powers.²² However, despite this continuity in the army's domestic orientation, the dictatorship changed the character of the military policy. Firstly, the army handed over the majority of public control functions to the police and paramilitary corps, keeping only the last resort actions (such as fighting the guerrillas in the mountains, especially until 1947) and the military trials on public order turmoil.²³ Secondly, the military agreement with the United States in 1953 (renewed periodically thereafter) granted technical assistance and military and economic aid to Spain in exchange for the establishment of several US military bases in the Iberian Peninsula (due to the geostrategic position of Spain in the Mediterranean Sea in the context of the Cold War). Therefore, the domestic orientation of the army was since then associated with the security provided by the United States.²⁴

As has been said before, the democratic transition of the second half of the 1970s involved a profound transformation of the military policy. The new democratic governments reoriented the army to external missions and reinforced the military agreement with western countries, mainly through Spain's membership in the North Atlantic Treaty Organization (NATO) in 1982 (although the incorporation to its military structure had to wait until the end of the 1990s) and in the Western European Union (WEU) in 1984 (and as a full right member in 1990).²⁵ This newly international orientation went along with the acquisition of new military equipment and the modernization of military forces. In this regard, although some preliminary efforts to modernise the army had already been undertaken in the late 1960s, it was the new democratic regime who gave the major impulse to those reforms. According to Gómez

¹⁶ Cardona (1983), Puell de la Villa (2001).

¹⁷ San Roman (1999).

¹⁸ Aiming also to reduce the military burden within public budgets. See San Roman (1999).

¹⁹ The consortium was finally abolished in 1934 after the riots in Asturias. See Cardona (1983).

²⁰ According to Jordana and Ramió's (2005) data, the number of chiefs and officials was reduced from 18,102 in 1931 to 8,911 in 1934. As has been described by Cardona (1983), the plan was designed to encourage the voluntary retirement of military chiefs and officials by guaranteeing their complete salary during their retirement period. Although this reform significantly reduced the official corps, it also increased the public duties on military pensions.

²¹ Cardona (1983), Puell de la Villa (2000), Pereira (2003).

²² Olmeda (1988), Cardona (2008).

²³ According to Cardona (2008), this shift aimed to reduce the *de facto* power of the army and to avoid the appearance of any alternative military leadership.

²⁴ In line with these pacts, Spain joined the United Nations in 1955, the International Labour Organization in 1956 and several international institutions (such as the International Monetary Fund, the World Bank and the Organization for European Economic Cooperation) in 1958. See Pereira (2003) and Viñas (2010).

²⁵ Puell de la Villa (2001), Pereira (2003). The Spanish army started participating in international military missions in 1989 with the UN intervention in Angola. Since then, more than 100,000 Spanish soldiers have been mobilized in about 67 missions under the structure of international organizations such as the UN, the EU, NATO, the WEU, the OSCE, or specific international coalitions. See Melero Alonso (2012).

Castañeda (1985), it was not until 1965 when the dictatorship passed the first legislation to programme the acquisition and construction of new military equipment (Law 85/1965), and until 1971 that it designed an eight year plan for investments, maintenance and reposition of material and major equipment (Law 32/1971).²⁶ However, due to the high inflation rates of the mid 1970s (which reduced the purchasing power of the 1971 program), major investments in new equipment had to be supported with the Royal Order 5/1977 and several subsequent laws during the early democratic period.²⁷

These military policies went also along with several plans aimed at reorganizing the military structure and reducing military personnel (particularly in the land forces), such as the Law 20/1981, which reduced the number of officials, the General Plan for the Modernization of the Army (META, Spanish acronym) in 1983, the Plan for the Reorganization of the Army (RETO) in 1990, the Plan for the New Organization of the Army (NORTE) in 1994, and more recently, the reorganization of the army set by the Royal Order 416/2006. These plans were initially accompanied by increases in voluntary recruitment (in order to compensate for the reduction in the number of conscription months) and growing retributions to military personnel, which finally gave place to the Royal Order 359/89 to put military retributions at the same level as civil ones.²⁸ According to Narcís Serra, Minister of Defence from 1982 to 1991, this modernization policies (including the new investments on military equipment and the external reorientation of the army) and the aforementioned increases in the military retributions were both part of the military transition and subsequent military democratic consolidation (generally placed from 1975 to 1989)²⁹ aimed to get more competitive armed forces and to involve them with the newly democratic institutions, in order to avoid military attempts to restore the former dictatorial regime.³⁰

²⁶ Before this period, most new equipment arrived via international aid from the United States thanks to the pacts signed in 1953 by both countries.

²⁷ See also Puell de la Villa (2001), García Alonso (2007). According to Ortega Martín (2008) and Pérez Munielo (2009), the plans on new military equipment that were included in those laws were fairly accomplished until 1990; since then, final investments were much lower than the planned ones.

²⁸ See Puell de la Villa (2000), Pérez Munielo (2009). The reductions in military personnel went also in line with the objective of professionalization of the army; in this regard, the Law 17/1999 suspended the mandatory military service, giving place in 2002 to an army fully composed by professional soldiers. See also Pérez Munielo (2009).

²⁹ The military transition itself is generally placed from 1975 to 1982, while the process of military democratic consolidation is placed from 1982 to 1989. See Barrios Ramos (2006), Serra (2008).

³⁰ Serra (2008). See also Agüero (1995), who argues that the army's professional decay during Franco's regime gave civil elites the opportunity to link the military modernization with the political democratization.

3. THE SPANISH MILITARY BURDEN (1876-2009)

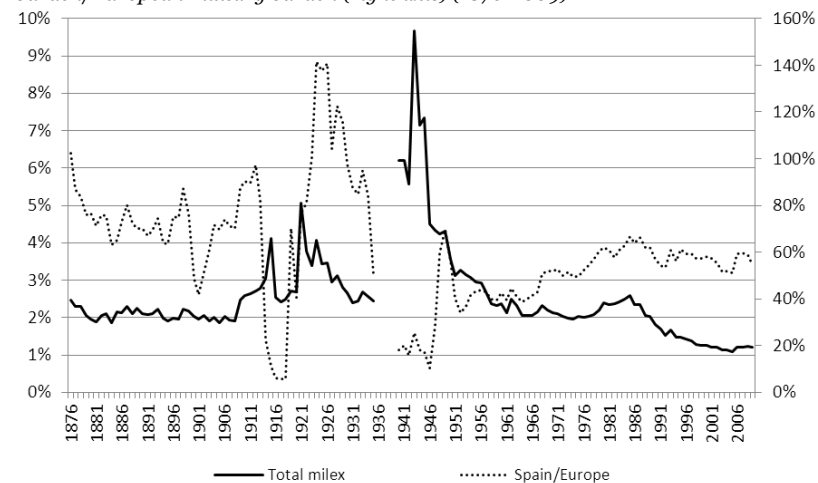
The analyses presented in the next section are based on a new dataset on total military spending in Spain and its economic composition from 1876 to 2009.³¹ The series have been elaborated following the NATO methodological criterion, which is one of the most comprehensive and widespread criteria on military spending and is used by several international institutes and organizations such as the Stockholm International Peace Research Institute (SIPRI), the Arms Control and Disarmament Agency (ACDA, now part of the US Department of State) and the International Institute of Strategic Studies (IISS). According to NATO, defence expenditure is defined as payments made by a national government specifically to meet the needs of its armed forces or those of allies. It mainly includes salaries and social benefits to military personnel, operational and maintenance expenditures, procurement expenditures on equipment and other goods, expenditures on infrastructure construction, research and development, military aid to other countries and contributions to international organizations. Unlike other standard criteria, NATO also includes pensions to military personnel (also to civil personnel devoted to military activities), procurements on credit, the United Nation peacekeeping missions and the humanitarian and disaster relief.³²

Figure 1 presents the evolution of Spanish military spending as a percentage of GDP (military burden) from 1876 to 2009 (solid line). The series shows some severe fluctuations during the period before the Civil War of 1936-39, such as those of the early 1910s and 1920s, in which the military burden reached levels close to 5 per cent of GDP. After the war, the military burden reached its historical maximum near 10 per cent of GDP, which was followed by a rapid decrease during the 1950s and the 1960s. The lowest ratios of the whole period were reached in the 1990s and the 2000s, when they stabilised at a level well below 2 per cent of GDP.

³¹ The analysis starts with the establishment of the Restoration regime (1874-1923), although it excludes its two first years as they were extraordinarily distorted by the end of the formerly ongoing Third Carlist War (1872-1876). Although there is available data on Spanish military spending for some previous decades, homogeneous data on European military expenditure based on the same methodological criterion than mine (which is needed for the analysis) does not start until the 1870s in Hobson (1993).

³² For a methodological discussion on the NATO criterion and the elaboration of the Spanish military spending series, see Sabaté (2013).

Figure 1. Spanish military spending/GDP (left axis) and Spanish military burden/European military burden (right axis) (1876-2009)



Sources: for Spanish military burden, my own estimates from 1876 to 1986; from 1987 on, NATO data (<http://www.nato.int>). Military spending data for the sample of European countries (except for Portugal) comes from Hobson (1993) for the period 1876-1913, from the Correlates of War Project for 1914-1948 and from the NATO database for 1949-2009. Data for Portugal comes from Valério (2001) for 1876-1948 and from the NATO database for 1949-2009. The figures on nominal GDP and exchange rates for the period 1876-1948 are from the databases of Global Finance (<http://eh.net/databases/Finance/>), Historical National Accounts (<http://www.ggd.net/databases/hna.htm>), Measuring Worth (<http://www.measuringworth.com/>) and Jones-Obstfeld (<http://www.nber.org/databases/jones-obstfeld/>).

Notes: Spanish military expenditure could not be estimated for the Civil War period (1936-39) due to the lack of available data. Concerning the sample of European countries, data for French military burden is not available for 1944-1949; data for Italian military burden is not available for 1942-1950; and data for Germany is not available from 1914 to 1924 and from 1939 to 1952. In those cases (all of them related to wartimes and postwar periods), the European average is estimated on the basis of the available data.

Figure 1 additionally shows the relative effort of Spanish military burden in terms of a sample of European countries, which accounts for the average military burden of France, Germany, Italy, Portugal and United Kingdom (dashed line). As can be seen in the graph, the two world wars gave place to very sharp decreases in the Spanish relative effort, reaching less than 20 per cent of European military burden. By contrast, the 1920s appear to be the only period with higher ratios in Spain than in the core sample of European countries (except for the higher ratio also achieved in 1876). Finally, the second half of the twentieth century shows a convergence pattern between the two military burdens, although it ends in the late 1980s when Spain achieved some 75 per cent of European burden.

In line with the NATO accounts, the new dataset provides not only total military spending estimates but also its economic disaggregation among personnel (payments to active personnel and pensions), military investment (major equipment and infrastructure costs) and operational expenditures (which includes other goods and services such as food, clothes, fuel, munitions, maintenance of equipment, etc.).³³ My series additionally provide another further disaggregation by recording the pensions received by the militaries and their families in a separate category, which are usually included by NATO within the personnel budget. Figure 2 presents the evolution of the different categories of Spanish military spending as a percentage of GDP for the period 1876-2009. It clearly shows the prominence of personnel expenses throughout most of the period, only approached (or even surpassed) by operational and investment expenditures in periods with high spending volatility.

³³ The NATO dataset distinguishes between equipment and infrastructure expenditures, but I had to aggregate those two categories due to the lack of enough information in the Spanish original sources.

4. THE EXPLANATORY FACTORS OF THE EVOLUTION OF SPANISH MILITARY SPENDING (1876-2009)

This section presents two different analyses aimed at studying whether political regimes significantly determined the patterns of military expenditure in Spain over the long-run. Firstly, I run a breaking point test based on Ben-David and Papell (2000) and Vogelsang (1997) for both total and disaggregated military burden series (military spending as a share of GDP). This test identifies the main statistical shifts in the series (regardless of whether a unit root is present) and allows testing whether political changes match with the major shifts in the military spending patterns throughout the period. Secondly, I carry out an OLS regression analysis for every military spending series, to find out the aggregated effect of each political regime on Spanish military burden when controlling for the influence of other potentially conditioning factors (apart from political changes).

4.1 STRUCTURAL BREAKS IN SPANISH MILITARY SPENDING (1876-2009)

Following Ben-David and Papell (2000), the breaking points analysis is based on an extension of the $SupF_t$ test developed by Vogelsang (1997). The Vogelsang test for linear trending data involves estimating the following regression for every possible break point:

$$y_t = \mu + \theta_1 DU_{2t} + \beta t + \gamma_1 DT_{1t} + \sum_{j=1}^k c_j y_{t-j} + \varepsilon_t \quad (1)$$

where $DU_{1t} = 1$ if $t > T_{B1}$, 0 otherwise, and $DT_{1t} = t - T_{B1}$ if $t > T_{B1}$, 0 otherwise, being T_{B1} every possible breaking point in the series. Equation (1) is estimated sequentially for each possible break year. The $SupF_t$ statistic is the maximum, over all possible trend breaks, of twice the standard F -statistic for testing $\theta_1 = \gamma_1 = 0$. The null hypothesis of no structural break is rejected if $SupF_t$ is greater than the critical value. For each choice of T_{B1} , the value of the lag length k is selected according to the criteria suggested by Campbell and Perron (1991). Following Ben-David and Papell (2000), I have set the upper bound of k at 8 and the criterion for significance of the t -statistic on the last lag has been set at 1.60.

Ben-David and Papell (2000) extended this procedure to allow for multiple breaking points. The equation to be estimated is the same as equation (1) but allowing for two additional dummy variables:

$$y_t = \mu + \sum_{i=1}^m \theta_i DU_{it} + \beta t + \sum_{i=1}^m \gamma_i DT_{it} + \sum_{j=1}^k c_j y_{t-j} + \varepsilon_t \quad (2)$$

where m is the number of breaking points. When $m = 1$, the expression is the same as the Vogelsang equation. When $m = 2$ the procedure becomes a test of one-break null against a two-break alternative. This time, $DU_{2t} = 1$ if $t > T_{B2}$, 0 otherwise, and $DT_{2t} = t - T_{B2}$ if $t > T_{B2}$, 0 otherwise, and T_{B1} is fixed by the year chosen by estimation of the one-break models. Equation (2) is estimated sequentially for each potential break year (T_{B2}), and the $SupF_t$ statistic is calculated as described above. Critical values have been taken from Ben-David and Papell (2000), who account for until five breaks with 120 observations.³⁴ As usual in stability tests, the first and last years of the sample have not been included in the testing procedure. Here I have limited the sample to $0.1T < T_{Bm} < 0.9T$, with a required separation between break dates of at least five years. Following Ben-David and Papell (2000), the significance of the individual coefficients of every breaking point are also reported. Positive signs on coefficients θ reflect positive changes in the levels of the series, while positive signs on coefficients γ reflect positive changes in the slope of the series (and the opposite with negative signs).

Table 1 shows the results. The series of total military spending and of personnel and operational expenditures have five breaking points, most of them common across different series, while investment and pension expenditures do not show any significant break. Before the Civil War (1936-1939), all structural changes seem to be related with the long-lasting Moroccan war (1909-1927) and the modernization policies prevailing since the late 1900s. Concretely, the beginning of the war and the intensification of the military operations in the Moroccan Rif region fairly correspond to the breaking points found in 1908 and in 1920 (most of them positive in levels) in both the total military burden and the personnel and operational expenditures. Despite the negative results on coefficients γ found in the 1920 break on operational expenditures and total military burden (capturing the beginning of decreasing paths during the last stages of the war), both ratios remained slightly higher than in the pre-war period (see Figure I and II).

³⁴ Pons and Tirado (2004), who estimated the critical values for a sample of 125 observations, obtained almost identical values.

Table 1. Sequential trend break tests (1876 - 2009)^a

	Total military burden	Personnel	Operational	Spain/Europe
Trend breaks				
T _{B1}	1935 ^{L+,S+}	1935 ^{L+,S-}	1920 ^{L+,S-}	1934 ^{L-,S+}
T _{B2}	1945 ^{L-,S-}	1920 ^{L+,S-}	1935 ^{L+,S+}	1913 ^{L-,S+}
T _{B3}	1920 ^{L+,S-}	1951 ^{S+}	1966 ^{L-,S+}	1923 ^{L+,S-}
T _{B4}	1908 ^{S+}	1908 ^{L+}	1908 ^{S+}	1899 ^{L-,S+}
T _{B5}	1978 ^{S+}	1978 ^{L+,S-}	1986 ^{L-,S-}	1977 ^{L+,S-}
SupF statistics^b				
T _{B1}	21.68**	28.92***	22.92***	18.5**
T _{B2}	114.34***	28.88***	27.00***	52.68***
T _{B3}	39.62***	27.78***	80.02***	29.00***
T _{B4}	13.84*	22.82***	36.42***	19.90**
T _{B5}	13.82*	25.74***	35.10***	13.14*
Coefficients^c				
μ	0.0206 (7.93)	0.0134 (9.87)	0.0068 (8.18)	0.7091 (7.28)
β		-0.0000 (-4.48)		
θ ₁	0.0391 (10.31)	0.0073 (10.26)	0.0128 (11.79)	-0.5861 (-7.53)
γ ₁	0.0056 (4.50)	-0.0003 (-2.22)	-0.0019 (-14.58)	0.0201 (1.92)
θ ₂	-0.0518 (-10.50)	0.0030 (6.90)	0.0149 (14.02)	-0.8125 (-10.04)
γ ₂	-0.0046 (-3.77)	-0.0003 (-7.10)	0.0005 (5.98)	0.0467 (4.03)
θ ₃	0.0154 (6.53)		-0.0019 (-2.46)	0.3552 (3.48)
γ ₃	-0.0014 (-6.03)	0.0005 (3.62)	0.0008 (11.86)	-0.0908 (-5.61)
θ ₄	0.0087 (4.19)	0.0022 (5.81)		-0.2324 (-3.95)
γ ₄			0.0007 (7.67)	0.0254 (3.76)
θ ₅	0.0072 (3.64)	0.0019 (4.78)	-0.0029 (-4.04)	0.1196 (3.01)
γ ₅		-0.0000 (-2.86)	-0.0002 (-4.66)	-0.0045 (-2.33)

Notes: a) L+(-) refers to positive (negative) changes in level; S+(-) refers to positive (negative) changes in slope, b) *** Rejection of the null hypothesis at the 1% significance level; ** Rejection of the null hypothesis at the 5% significance level; * Rejection of the null hypothesis at the 10% significance level, c) t-statistics in parenthesis.

Sources: see text.

These results suggest that neither the establishment of Primo de Rivera's dictatorship (1923-1930) nor the advent of the Second Republic (1931-1939) can explain the major structural changes of the Spanish military spending series. As has been stated in previous historical studies, Primo de Rivera did not set up many significant changes in the army, but carried on the war of Morocco (intensifying the operations in 1924) and the modernization plans initiated during the previous decade (particularly by increasing the aeronautical endowment).³⁵ On the other hand, the reforms initiated by the first left-wing government of the 2nd Republic were rapidly interrupted after the political shift of the 1933 elections; additionally, the first democratic governments partially sustained the modernization efforts initiated well before, in the late 1900s. Therefore, the 2nd Republic kept similar military burden ratios to those achieved during the late 1920s.

The next structural changes on Spanish military spending series, in 1935 and 1945, are the last ones directly related to wartimes. The former, which affects the total military burden and the two budgetary items, reflects the impact of the Spanish Civil War (1936-1939) and the immediate postwar years. Although military spending is not available for the four years of conflict, the positive sign on the level of the break reveals the high military resources demanded by the war. Additionally, the positive result on the slope seems to be the result of the Spanish participation in the Second World War and the violent domestic opposition against the new dictatorial regime.³⁶ On the other hand, the 1945 break in the total military burden (with negative signs on both the level and the slope) marks the beginning of a long-lasting decreasing path, most likely due to the end of the Second World War and the weakening of the violent domestic turmoil.

In contrast to the former war-led results, the 1978 break in total military burden fairly coincides with the end of Franco's dictatorship and the establishment of the present democratic regime. It marks the beginning of a short-lasting increase in the ratio levels (from 1978 to the second half of the 1980s) and a subsequent long-lasting decreasing path (leading to the minimum levels of the whole period under study). This military spending pattern seems partially led by the operational expenditures series, which underwent a very similar path (although their initial increase in levels started earlier, in 1966, most likely due to the modernization plans designed in 1965 and extended afterwards). Similarly, personnel expenditures show a gradual decreasing path since the end of the 1970s, also preceded by an increase (although tiny) in levels. These

³⁵ Cardona (1983).

³⁶ This effect cannot be observed in the different budgetary items due to lack of disaggregated data for 1940-45.

patterns might be the result of the aforementioned plans of transitional governments to get a better equipped army and to increase military retributions, which may have initially mitigated the democratic pressure to push down the military burden.

In summary, wars seem to explain the main military burden structural changes, particularly until the mid-1940s. On the other hand, the change in the political regime in the 1970s would help to explain some of the main structural changes of military expenditure afterwards. In contrast to these results, the test does not find any significant break on investment expenditures and military pensions, showing the lack of significant shifts in their long-term patterns (regardless of non-permanent changes in both series). Anyhow, beyond the structural changes, Figure 2 shows that investment expenditures have experienced several short-lasting shocks that seem largely related with the formerly mentioned historical events. Firstly, both the Moroccan wartime and the early years of Franco's regime also show high investment burden levels. The Moroccan wartime levels might be also related to the modernization plans initiated in 1907 by the Ministry of Navy José Ferrándiz and reinforced afterwards by the Royal Order of 1926 and the subsequent military aircrafts acquisitions. Secondly, the period from the second half of the 1970s to the late 1980s show again a short-lasting increase in levels (even higher than the ones seen in operational and personnel expenditures), which suggest that investment expenditures may have also led the current increasing path of total military burden. As has been said before, this seems to be the result of the described efforts to modernize the army during the transition to democracy.

The fourth column of Table 1 reinforces these conclusions by showing the results found in the series of Spanish military burden as a percentage of European military burden. The 1913 and 1934 breaks (both negative in levels) seem to reflect the outburst of the two World Wars and the increasing international military tension prevailing during the second half of the 1930s, which gave place to an enormous divergence between the Spanish military burden and that of the sample of European countries.³⁷ By contrast, the 1923 break (positive in levels) reflects the increasing military effort done by Spain in the interwar period. This suggests that the Spanish increasing ratios during the 1920s were not driven by international military tension but by other domestic factors, such as the military intervention in Morocco in 1924. It would reflect the war effort done by Primo de Rivera's dictatorship, despite the intensification of military

³⁷ The first break found in 1899 might be related to the second Anglo-Boer War (1899-1902), as British military burden accounts for a significant part of the European average.

interventions in Morocco started earlier, in the first 1920s.³⁸ Finally, the last break in 1977 (also positive in levels) suggests, once more, that the short-term increase during the transition from dictatorship to democracy was not driven by international military tension but by domestic factors, such as the aforementioned plans of transitional governments to modernize the army and to increase military retributions.

4.2 THE EXPLANATORY FACTORS OF SPANISH MILITARY SPENDING (1876-2009)

The breaking point test only provides preliminary evidence on the impact (or lack of) of political changes on Spanish military spending. A more comprehensive analysis on this issue would be provided by the OLS estimation of the following equation:

$$MB_t = \alpha_0 + \alpha_1 POLITICAL_t + \alpha_2 Z_t + \varepsilon_t \quad (3)$$

where MB_t is the military burden in time t , $POLITICAL_t$ is the kind of political regime in time t and Z_t stands for a group of control variables that are usually included in the analysis of military expenditure determinants. This analysis can also be carried out for each of the military spending components, as in equation 4:

$$ECONCOMP_t = \alpha_0 + \alpha_1 POLITICAL_t + \alpha_2 Z_t + \varepsilon_t \quad (4)$$

where $ECONCOMP_t$ is each component of the military expenditure (personnel, pensions, investment and operational expenditures) in time t , expressed as a percentage of GDP and as a percentage of total military spending.

Political factors are captured by two dummy variables on democracy (namely, the Second Republic from 1931 to 1936 and the current democracy from 1977 to the present)³⁹ and dictatorship (Primo de Rivera's dictatorship from 1923 to 1930, and Franco's dictatorship from 1939 to 1975). The semi-democratic Restoration regime (1876-1923) stays as the reference period for the analysis, so coefficients are to be interpreted relative to this category. As for the control variables (Z_t in equations 3 and 4), the explanatory factors of military spending that are usually considered by the literature are related with the outburst of wars, the international military scenario and

³⁸ The increasing Spanish ratios of the 1910s and the early 1920s do not appear in the results of this series probably due to the major military efforts made by the sample of European countries during the First World War and the early postwar period.

³⁹ Although the Second Republic did not extend the suffrage to all adult women until 1933, the whole republican period has been considered as "democratic".

the economic environment. To account for the former, I use a dummy variable for the civil wars, the main wars in the Moroccan protectorate and the military intervention in European conflicts.⁴⁰ As expected, all studies indicate a strong correlation between wars and military spending, both for civil and international contests.⁴¹

Regarding the international scenario, the military threats posed by potential external enemies and the effects of military alliances are the most frequent variables in the literature. In the case of external threats, the Security Network theory suggests that military spending is affected by the spending behaviour of neighbouring countries and other relevant countries within the international scenario (Rosh, 1988; Dunne and Smith, 2007).⁴² As some of the past and present threats for European countries come from non-formal groups and cannot be measured (in the case of Spain, insurgency groups in the overseas colonies and in the Morocco protectorate represented some of the main threats during the second half of the nineteenth and early twentieth century), I use military spending data on the aforementioned sample of European countries in order to capture the systemic risk in the international scenario.⁴³ On the other hand, the incidence of military alliances (defined usually as a group of nations bound to provide protection to all members from aggression by common enemies) is generally included in order to capture either potential free-riding scenarios or social pressures to push up the members' military spending.⁴⁴ To control for these potential effects, I use a dummy for the alliance with the United States since 1953 to nowadays and another for the entrance in the North Atlantic Treaty Organization since 1982.

Among economic factors, income level and openness are often included in this kind of studies, although the results on the incidence of these factors are not conclusive. Some authors suggest a negative relation between income per capita and the military burden, due to a trade-off with other more productive expenditures; by contrast, others suggest a positive relation on the basis of the neorealist theory. According to the latter, the

⁴⁰ Although Spain only participated in the Second World War with a military division from 1941 to 1943 (despite some of their soldiers remained in the front line until 1944), there was high military tension in the peninsular frontiers until the end of the conflict. For this reason, the war variable includes the whole Second World War. On the other hand, the dummy variable does not account for the overseas colonial wars as they were not financed by the Spanish Treasury but by the Cuban Treasury (and therefore do not appear in the series).

⁴¹ See, among others, Goldsmith (2003) and Dunne et al. (2003).

⁴² See, for instance, Ades and Chua (1997), Looney and Frederikson (2000) and Dunne et al. (2008).

⁴³ The lags on the military spending series of some European countries may pose some problems due to the lack of homogeneity throughout the period. The analysis has been also run by using the British military burden (which has no lags in the whole series) as an alternative variable. Results remain the same.

⁴⁴ For a comprehensive review on alliances and military spending, see Murdoch (1995). Among the most recent analyses, see Goldsmith (2003), Eloranta (2007) and Whitten and Williams (2011).

ruling anarchy in the international arena forces States to devote the maximum available resources to national security (implying that countries can spend more resources as a share of GDP when income per capita is higher).⁴⁵ Similarly, the expected effect of economic openness is not clear. A negative correlation between openness and military spending would be associated to the higher benefits that politicians can obtain from economic competition, rather than from military conflict (Rosh, 1988). Alternatively, the neorealist theory argues that deeper contacts between States can encourage conflict and, therefore, boost up military spending.⁴⁶ In line with this literature, I include both GDP per capita and the sum of exports and imports in terms of the GDP as control variables.

Beyond these commonly used variables, I also include in the analysis as a control variable the level of internal military repression exerted annually by the government. This variable is aimed at capturing the effects of domestic turbulences in public order throughout the whole time-period; this is especially important in the Spanish case, as the army has been recurrently in charge of repression tasks, together with the police and the paramilitary corps. This factor is approached through a variable that accounts for the percentage of days that were annually under war state (locally and nationally declared). War states were declared in times of domestic turmoil in order to transfer the public order responsibility directly to the army. Other minor exceptional states, such as the precaution state and the alarm state, have not been included, because they did not involve the transfer of repression tasks from civil to military hands (Ballbé, 1983; González Calleja, 1998). Finally, a dummy variable on the professionalization of the army since 2002 is also included in the analysis, which aims to capture the potential effects of this major institutional change.

The time series analysis requires the data to be first tested for stationarity. The KPSS test specifies the null hypothesis of stationarity, while the Augmented Dickey-Fuller test postulates the presence of a unit root as the null. Table 2 shows the results of applying both tests to all the variables considered in the analysis. The null hypothesis of a unit root can be rejected for all dependent variables except for military pensions/GDP and military pensions/total military spending. The presence of a unit root cannot either be rejected in the case of pc GDP and economic openness. The KPSS test rejects stationarity for military personnel/GDP, military operational costs/GDP, military

⁴⁵ See, for instance, Smith (1977), Goldsmith (2003) and Dunne and Perlo-Freeman (2003). For a general approach to the neorealist theory, see Waltz (1982). The impact of the rates of economic growth on military spending has also been analysed by authors such as Goldsmith (2003) and Cypher (2007).

⁴⁶ See, for instance, Dunne et al. (2003) and Dunne et al. (2008).

personnel/total military spending and military pensions/total military spending, pc GDP and economic openness.

On the basis of those results, the regression analysis is only carried out with the stationary variables.⁴⁷ The variables military personnel/GDP, military operational costs/GDP, military pensions/GDP and military personnel/total military spending are also used assuming weak stationarity, although their coefficients must be interpreted cautiously as the tests do not offer conclusive results.

Table 2. ADF and KPSS test (1876 – 2009)

VARIABLES	Test specification	ADF	KPSS
Military burden	constant	-3.526***	0.328
Military personnel/GDP	constant, trend	-3.761**	0.308***
Military investment/GDP	constant	-3.474***	0.309
Military operational costs/GDP	constant	-3.588***	0.350*
Military pensions/GDP	constant	-1.748	0.118
Military personnel/total military spending	constant, trend	-3.655**	0.250***
Military investment/total military spending	constant, trend	-3.967**	0.058
Military operational costs/total military spending	constant	-2.830*	0.308
Military pensions/total military spending	constant	-1.673	0.499*
European military burden	constant	-3.007**	0.179
Repression	constant, trend	-4.639**	0.089
GDP per capita, in logs	constant, trend	-0.359	0.408***
Economic openness	constant, trend	-1.698	0.366***

Notes: *** Rejection of the null hypothesis at the 1% significance level; ** Rejection of the null hypothesis at the 5% significance level; * Rejection of the null hypothesis at the 10% significance level.

Sources: See text.

Table 3 shows the regressions results. As can be seen in Model 1, which tests the effect of political, strategic and economic variables on total military burden, democracy does not seem to have any significant effect on total military burden. Although the present democratic period has achieved the lowest military burden ratios of the whole series (during the 1990s and the 2000s), the relatively high levels kept by the Second

⁴⁷ GDP pc and economic openness are analysed in first differences (that is, capturing the growth ratios) in order to account for the presence of a unit root in the series in levels. The KPSS test does not reject the null hypothesis of stationarity in either of those two variables in first differences, while the ADF rejects the null hypothesis of a unit root.

Republic (1931-1936) and by the transitional governments of the late 1970s and early 1980s may explain this lack of significance. According to Models 2 to 4, which provide the results for investment/GDP, personnel/GDP and operational/GDP ratios respectively, personnel expenditures were the ones that contributed most to push down the military burden during democratic periods, mainly due to the effort to reduce the costs of chiefs and officials during the Second Republic and to the reorganization plans developed during the present democratic period (although the former was initially mitigated by increases in salaries). By contrast, democracy does not show any significant effect on investment and operational costs, which reflects the priority given to material expenditures rather than personnel endowments.⁴⁸

⁴⁸ Similar results are found in Models 6 to 8, which provide additional insights on the effects of political regimes on investment, personnel and operational expenditures expressed as a percentage of total military spending.

Table 3. Regression results for military spending in Spain, 1876 – 2009

VARIABLES	Model1 Military burden	Model2 Investment /GDP	Model3 Personnel /GDP	Model4 Operational costs/GDP	Model5 Pensions /GDP	Model6 Investment share	Model7 Personnel share	Model8 Operational costs share
Dictatorship	0.00743* (0.00382)	0.000419 (0.000827)	-0.000615 (0.000653)	0.00218 (0.00230)	-0.000772** (0.000365)	0.00238 (0.0180)	-0.0456* (0.0255)	0.0846** (0.0374)
Democracy	0.00375 (0.00426)	0.000228 (0.000928)	-0.00237*** (0.000813)	-0.000902 (0.00251)	0.000941 (0.000697)	0.0267 (0.0208)	-0.0770*** (0.0278)	0.0282 (0.0412)
War	0.00739*** (0.00219)	0.00179*** (0.000425)	0.00125*** (0.000357)	0.00328*** (0.000923)	-0.000533*** (0.000159)	0.0448*** (0.0109)	-0.0559*** (0.0123)	0.0570*** (0.0164)
Alliance USA	-0.0131*** (0.00335)	-0.00331*** (0.000763)	-0.00286*** (0.000746)	-0.00597*** (0.00203)	-0.000174 (0.000593)	-0.0546*** (0.0148)	0.0798*** (0.0264)	-0.0429 (0.0338)
Alliance NATO	0.00530** (0.00207)	0.00224** (0.000863)	0.00157*** (0.000590)	0.00364*** (0.00103)	-0.00159*** (0.000460)	0.0561** (0.0238)	-0.0380** (0.0152)	0.0743*** (0.0180)
European military burden	0.0364** (0.0156)	-0.00239 (0.00171)	-0.00180 (0.00214)	-0.00197 (0.00497)	-0.000260 (0.000632)	-0.0495 (0.0384)	-0.0656 (0.0895)	0.112 (0.0853)
Repression	0.00808*** (0.00245)	0.000155 (0.000384)	0.00112** (0.000530)	0.00150** (0.000666)	0.000170 (0.000200)	-0.0162* (0.00946)	0.0127 (0.0101)	0.00832 (0.0125)
Professionalization	0.00434** (0.00187)	0.00283*** (0.000589)	0.000657 (0.000579)	0.00342*** (0.00110)	-0.00135*** (0.000420)	0.142*** (0.0162)	-0.119*** (0.0126)	0.0813*** (0.0256)
GDP pc (in differences)	-0.0149 (0.0151)	-0.00340 (0.00249)	-0.00523** (0.00263)	-0.00386 (0.00413)	-0.000486 (0.00179)	-0.0312 (0.0762)	-0.0124 (0.0726)	0.0286 (0.0983)

Table 3. Regression results for military spending in Spain, 1876 – 2009 (continuation)

VARIABLES	Model1 Military burden	Model2 Investment /GDP	Model3 Personnel /GDP	Model4 Operational costs/GDP	Model5 Pensions /GDP	Model6 Investment share	Model7 Personnel share	Model8 Operational costs share
Econ. Openness (in differences)	-0.000150 (0.000270)	-2.29e-05 (4.15e-05)	-9.60e-05** (4.03e-05)	-0.000184 (0.000153)	1.44e-06 (2.58e-05)	0.00101 (0.00119)	-0.000234 (0.00154)	-0.00160 (0.00264)
Constant	0.0203*** (0.00204)	0.00250*** (0.000487)	0.0131*** (0.000501)	0.00406*** (0.000693)	0.00220*** (0.000248)	0.112*** (0.0170)	0.599*** (0.0139)	0.195*** (0.0158)
Observations	129	122	122	122	129	121	122	121
R-squared	0.789	0.631	0.870	0.692	0.373	0.710	0.835	0.664

Notes: Robust standard errors used because of the presence of heterokedasticity and autocorrelation in the residuals. Time trends effects not reported in the table.

Sources: See text

These results partially challenge the widely accepted conclusions on the effects of democracy on military spending. Although the latest democratic governments have kept the lowest personnel burden of the series, the restructuration and modernization of the Spanish army carried out during the transition to democracy may have compensated the democratic push to reduce the military financial burden. In line with Acemoglu, Ticchi and Vindigni (2010), increasing military salaries and a higher involvement in international affairs has been identified by military historians as part of the Spanish military transition from dictatorship to a consolidated democracy. The modernization policies associated with the renewed international orientation seem to have pushed up operational and investment expenditures during the transitional period, while increasing salaries initially mitigated the military personnel reductions set up by the early democratic governments. On the other hand, the short duration of the Second Republic and the modernization policies prevailing during the inter-war period may have also compensated the lower burdens of the present democracy.

On the other hand, dictatorships show a (slightly significant) positive impact on the military burden. The relatively small coefficient might reflect the military priority given to domestic threats (particularly since the 1953 pacts with the United States and its subsequent entrance into multilateral international institutions), which would not require major military endowments. Regarding the economic expenditure composition, personnel costs/total military spending were negatively affected by this kind of regime, while the opposite effect held in the case of operational costs/total military spending.⁴⁹ This negative impact of both dictatorships and democracies on personnel expenditures (although smaller in dictatorships) seems to suggest that Restoration governments (which are the reference period in the analysis) devoted more resources to personnel payments than other regimes, while providing fewer resources to material military endowments. These results are fairly consistent with a Restoration army with relatively low equipment endowments, mainly focused on domestic threats and public order tasks (even though the modernization plans were initiated in the late-1900s). In contrast to the conclusions found by previous literature on restricted democracies, the Spanish Restoration did not follow more aggressive international policies than the following dictatorial and democratic regimes and did not sustained higher military expenditure than dictatorships.

⁴⁹ Model 5 shows a negative correlation between dictatorship and military pensions. This result agrees with other studies on social spending which argue that dictatorships have a negative impact on public social provision (Espuelas, 2012). The military nature of the pensions does not seem to modify this negative linkage.

In the case of the control variables, as could be expected from the results of the structural break analysis, wars (which mainly capture the military contingencies in Morocco from 1909 to 1927, the Second World War and the Ifni war in 1957) exerted a significant and positive effect on both the military burden and its components. Its effects are higher on operational expenditures than on personnel and equipment, as the former account for most wartime costs (military pensions are not affected indeed). In line with these results, the war variable had a negative impact on the share of personnel costs within total spending, and a positive one on the share of investment and operational expenditures. The European military expenditures also had a positive and significant incidence on total military burden, although no clear effects are found in the economic composition of expenditure. This probably captures the relatively high military burden levels achieved from the mid-1910s to the 1960s, more than half a century with high military tension in Europe.

The alliance with the US government since 1953 had a significant negative effect on the Spanish military burden. This is consistent with the idea that the US military agreement was used by Franco's dictatorship to grant national security while reducing the resources invested in the military. Its negative impact on the investment share and its positive effects on the share of personnel costs (both in terms of total military spending) also reflect the army's withdrawal from the international arena and its concentration on domestic threats (where investment needs might be less relevant).⁵⁰ By contrast, the alliance with NATO had a positive impact on total military burden, probably due to the modernization efforts required by the alliance. The negative impact on the share of personnel expenditures within total military spending and the positive one on investment and operational costs suggest that the international military orientation of Spanish democratic governments favoured capital over labour endowments, as capital intensity might have been more appropriate to deal with international military threats and missions.

The professionalization of the army shows a positive effect on total military burden, mainly led by investment and operational expenditures, which also reflects the aforementioned modernization efforts of recent democratic governments. On the other hand, repression had also a significant and positive effect on the total military burden and

⁵⁰ Additionally, the US military aid provided the Spanish army with modern military equipment (although it came from second-hand models), reducing the need of the Spanish government to invest in its own military equipment.

the personnel and operational burden (while a negative one on the investment expenditures as a share of total military spending). This reflects the domestic-repression orientation of the Spanish army, particularly in the conflictive final decades of the Restoration regime and during the 1940s, after the civil war, when the regime confronted substantial internal turmoil. Finally, the economic variables have in general a negligible effect on the military spending variables.

In summary, political variables seem to have had a significant impact on both the level and the composition of Spanish military expenditure, although some results differ from the ones expected by the international quantitative literature. Additionally, other strategic variables such as wars, international alliances, international military tension and domestic turmoil also appear to be very relevant to explain the military burden evolution. These results differ from those reported in Gadea and Montañés (2001), according to whom only GDP and the outburst of wars determined the Spanish military spending evolution.

5. CONCLUSIONS

The defence economics literature has analysed in depth the political determinants of military spending on the basis of several international panel datasets. According to most studies, democracies exert a negative influence on military burdens due to the social preferences for other public expenditures. This paper aims to contribute to this literature by analysing a new Spanish military expenditure series from 1876 to 2009. The database provides figures on total military spending as well as disaggregated figures on personnel expenditures (divided in turn between payments to active personnel and pensions), military investment (accounting for major equipment and infrastructure) and operational costs (which include other goods and services).

The results partially challenge the conclusions drawn by the defence economics literature on the effect of democracy on military spending. Both the structural breaks test and the OLS analysis allow concluding that the democratic push to reduce military financial burden may have been partially compensated by the restructuration and modernization of the Spanish army carried on by transitional governments during the late 1970s and the early 1980s and by the modernization policies prevailing during interwar period. Concerning the present democracy, and in line with Acemoglu, Ticchi and Vindigni (2010), the transitional period seems to have been characterised by increasing financial efforts to reorient the army towards international threats and to involve the armed forces with the newly democratic institutions. Further analyses on transitional periods and modernization patterns in international panel datasets could address to what extent this conclusion can be generalized.

The analysis of military expenditure composition additionally shows that the aforementioned international orientation of democratic military policies went along with financial efforts to get a smaller and better equipped army (ending up with the professionalization of the army), by reducing personnel costs and increasing the weight of military investments and operational expenditures within total military spending. These results suggest that democratic governments favoured capital over labour endowments, as it might be more appropriated to confront international military threats. Further research on disaggregated military spending data in other countries in the long run would also

allow reaching more general conclusions on the international orientation of democratic military policies and its effects on the capital to labour priorities.

On the other hand, and in accordance with the defence economics literature, Spanish dictatorships had a positive effect on military spending. However, the relatively small coefficient might be the result of the Franco's military priority given to domestic threats, particularly since the military pacts with the United States passed in 1953 and the subsequent entrance into multilateral international organizations. Similarly, the analysis on military expenditure composition seems to reflect the domestic orientation of the Restoration's army (1874-1923), mainly focused on increasing personnel costs rather than investment and operational expenditures. As has been suggested by the military historian Puell de la Villa (2001), it was not until the present democratic period when newly military policies focused on the international scenario were actually established.

Finally, my results differ from the ones found by Gadea and Montañés (2001), according to whom the Spanish military burden was almost entirely driven by the GDP evolution (once wartimes and other outliers were excluded). As has been said, both the political and the international military factors seem to have had significant effects on the Spanish military burden evolution.

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ANNEX 1. List of wars in Spain, 1834-2009

Table 5. List of wars in Spain, 1834-2009

Year	War	War type	Political regime	Electors/adult population (%) ^a
1834-1840	First Carlist War	Intra-State		
1847	Military intervention in Portugal	Inter-State		
1847-1849	Second Carlist War	Intra-State		
1857-1862	Military expedition to Cochinchina	Inter-State	Monarchy Isabel II (1833-1868)	Autocracy (4.35%) ^b
1859-1860	Spanish-Moroccan War	Inter-State		
1861-1862	Military expedition to Mexico	Inter-State		
1863-1865	Dominican insurgency	Extra-State		
1865-1866	Spanish-Chilean War	Inter-State		
1868-1878	Ten Years War in Cuba	Extra-State	Revolutionary Period (1868-1874)	Male universal suffrage (55.2%)
1872-1876	Third Carlist War	Intra-State		
1873-1874	Cantonalist Uprising	Intra-State		
1879-1880	Little War in Cuba	Extra-State	Restoration (1874-1889)	Restricted democracy (19.6%)
1885	Caroline Island crises with Germany	Intra-State		
1893-1894	Melilla insurrection	Extra-State		
1895-1898	Cuban insurrection	Extra-State	Restoration (1890-1923)	Male universal suffrage (44.1%)
1896-1898	Philippine insurrection	Extra-State		
1898	Spanish-American War	Inter-State		
1909-1927	Spanish-Moroccan War	Extra-State	Primo de Rivera (1923-1930)	Dictatorship
1936-1939	Spanish Civil War	Intra-State	Second Republic (1931-1939)	Democracy (88.3%) ^d
1939-1945	Second World War ^c	Inter-State	Francisco Franco (1939-1975)	Dictatorship
1957-1958	Ifni War	Extra-State		
1989-2012	67 multilateral interventions		Monarchy Juan Carlos I (1975-)	Democracy (100%)

Notes: a) percentage of electors over the total adult population (from 1850 to 1932, population over 25 years old; from 1933 to 2012, population with right to vote); percentages are averages of each period, b) percentage of electors from 1850 to 1868, c) although Spain did not participate with a large contingent in the war, Franco's dictatorship established close links with the Axis and sent a military unit to fight with Germany from 1941 to 1943, d) the 1931 elections were still based on men suffrage, although the universal suffrage was established in the new republican Constitution passed in December 1931 (and applicable to 1933 and 1936 elections).

Sources: my own compilation; the percentage of electors comes from Linz, Montero and Ruiz (2005).

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