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A long-term comparative analysis of Spanish military expenditure (1850-2009)

Alfonso Herranz Loncán
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Institut Català Internacional per la Pau
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ABSTRACT

Military spending has been one of the main budgetary priorities in Spain throughout most of the contemporary period. In this article, the authors present, firstly, a series of Spanish military spending from 1850 to the present day as the basis for a long-term comparative analysis of the military fiscal burden in Spain; this is followed by the application of an econometric model to provide an approximation of the factors that have affected military spending and their consequences in economic terms.

Keywords: Military spending, military expenditure, factors affecting, economic growth, social expenditure, international conflicts, repression

RESUM

El finançament de la institució militar ha estat una de les principals prioritats pressupostàries de l'Estat espanyol durant bona part de l'etapa contemporània. En aquest article es presenta una sèrie de despesa militar espanyola des de 1850 fins avui amb l'objectiu d'analitzar l'esforç fiscal de l'Estat espanyol en l'àmbit militar en el llarg termini des d'una perspectiva comparada. A continuació es realitza, mitjançant l'aplicació de la metodologia economètrica, una aproximació als condicionants d'aquesta despesa i a les seves conseqüències a nivell econòmic.

Paraules clau: Despesa militar, Despesa social, Estudis econòmics, PIB, Esforç fiscal, Espanya

RESUMEN

La financiación de la institución militar ha sido una de las principales prioridades presupuestarias del estado español durante buena parte de la etapa contemporánea. En este artículo se presenta una serie de gasto militar español desde 1850 hasta hoy con el objetivo de analizar el esfuerzo fiscal del estado español en el ámbito militar en el largo plazo desde una perspectiva comparada. A continuación se realiza, mediante la aplicación de la metodología econométrica, una aproximación a los condicionantes de este gasto y a sus consecuencias a nivel económico.

Palabras clave: Gasto militar, Gasto social, Estudios económicos, PIB, Esfuerzo fiscal, España

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1. INTRODUCTION¹

The overall objective of this paper is to study the trend of military public expenditure in Spain in the very long term (from the middle of the 19th century, when systematic sources of information began to be used, to the present day). This is the first time that an in-depth analysis of the subject of Spanish public expenditure and the military forces has been made, in addition to the fact that it also covers such a long period of time. Within the context of Spain, with the exception of the groundwork by Gadea and Montañés (2001), previous studies on this subject have been limited either to shorter periods and partial aspects of military spending, or short references to the subject within the context of global studies on political history and/or military history (cf. for example, Alpert, 2008; Cachinero, 1988; Cardona, 1983 and 2008; Christiansen, 1974, Cubel, 1994; Cosidó, 1994, and, for periods prior to the one analysed here, Cuenca, 2009, and González Enciso, 2009). In the international context, the case of Spain has been analysed very generally within the context of cross-sectional studies on the period between 1870-1913 (Eloranta, 2007) and more recent times (using data published in the SIPRI yearbooks). Using for the first time a comparative and very long-term approach, we have reconstructed the data on military spending since 1850 using the primary sources of information, made comparisons with those of other countries and analysed the relationships with Spanish economic development over the last one hundred and fifty years. More specifically, the objectives of this research were as follows:

- 1) To statistically process and analyse a time series of Spanish public military expenditure between 1850 and 2009. We have attempted

1. We are very grateful to Sergio Espuelas, José Alejandro Peres Cajías and Enric Tello for their help and suggestions in the drafting of this working paper, together with the support and help we received from the staff at the Spanish Ministry of Economic Affairs and Finance's Central Library and the staff at the General Inspectorate for Economic Affairs (*Intervención General de la Administración del Estado*, IGAE). Any errors or omissions are not their responsibility.

to answer questions such as: What has been the long-term rate of growth in Spanish military spending? What were the more intense periods of growth in military spending? How has the composition of military spending changed over time?

- 2) To make an approximation of the long-term tax effort with military implications (in terms of national income and overall public spending) by Spain, and a comparison of this with the information available for other countries. We have attempted to establish the priority given by governments to military spending in each period and to compare the degree of this priority with that of other developed countries during the different periods.
- 3) To give an overview of the causal relationships between, on the one hand, military spending and, on the other, social and education spending and long-term growth in the Spanish economy through the use of econometric techniques. We have attempted to analyse, on the one hand, if the trend in military spending had any influence (positive or negative) on the growth of the Spanish economy and, on the other, whether there was a trade-off throughout the period between military spending and social and education spending, in other words, if the growth in military expenditure was an obstacle for the development of the Welfare State.
- 4) To make an initial quantitative estimate of the factors determining changes in the military burden, or the economic burden of military effort (ratio between military expenditure and GNP), in Spain. We have attempted to make a preliminary identification of the economic, political and military factors that may help to explain the priority given by governments to military spending throughout the period that is analysed.

2. METHODOLOGY

2.1. DEFINITION OF MILITARY SPENDING

The starting point for the research was the definition used for the concept of military spending (or military expenditure)². In this respect, given that the prime objective of the research was to compare the levels of military spending in Spain with those of other countries, we chose as far as possible to use the definitions and criteria most frequently used at the international level for producing statistics on military spending, meaning those used by NATO and SIPRI. In terms of the structure of military spending, both of these criteria in fact coincide to a great degree³. Table 1 gives a broad outline of the fundamental aspects of the definition of military spending according to the NATO criterion, which was used as the basis for this study:

Table 1. The NATO definition of military expenditure

A) <i>General aspects</i>
<ol style="list-style-type: none">1) Only final expenditure is taken into consideration, not budgeted expenditure.2) Spending is attributed to the year in which it was recognised, not the year in which it was incurred.3) It includes military spending by military (armed forces) ministries.4) It includes civil expenditure by military ministries where the purpose of this is support for military activity.

-
2. (Translator's note) For the purposes of this paper, the terms "military spending" and "military expenditure" mean the same thing and are used interchangeably.
 3. The main apparent difference that we can detect between the two criteria is that SIPRI excludes expenditure on military demobilisation, the conversion of weapons production facilities and the destruction of weapons from military spending, whereas the NATO criterion (as far as we can see) does not appear to take account of this exclusion. Nevertheless, this difference is barely relevant for this case study, and as such we regard both criteria to be practically equivalent.

- 5) It includes military spending by civil ministries.
- 6) Expenditure of a civilian nature by military ministries, the purpose of which is not support for military activity, is excluded.
- 7) Military aid is accounted for as military spending by the donor country.

B) *Expenditure included in the definition of military expenditure*

B.1. Spending by the armed forces and their support

- 1) Salaries of soldiers and officers.
- 2) Salaries of technical staff, bureaucrats, etc. who work in the armed forces or are connected with the military organisation.
- 3) Medical services, fiscal and social benefits of those referred to in (1) and (2) (including their family members).
- 4) Pensions of those referred to in (1) and (2).
- 5) Military schools, military hospitals, etc.
- 6) Current expenditure on weapons procurement.
- 7) Building and construction of infrastructure, housing, etc.
- 8) Operations and maintenance.
- 9) Procurement of other goods.
- 10) Military research and development.

B.2. Other military/defence/strategic-related expenditure

- 1) Stockpiling of strategic goods (when managed and funded by military organisations).
- 2) Weapons storage, production lines, etc. (when managed and funded by military organisations).
- 3) Weapons production subsidies/Weapons conversion subsidies.
- 4) Military aid to other countries.
- 5) Contributions to international organisations.

B.3. Expenditure on other forces

- 1) Paramilitary forces (if judged to be trained, equipped and available for military operations).

2) Border security (if judged to be trained, equipped and available for military operations).
3) Police (if judged to be trained, equipped and available for military operations).
<i>B.4. Other expenditure</i>
1) Humanitarian aid and disaster relief.
2) UN peacekeeping forces.
<i>B.5. Outstanding liabilities (expenditure obtained on credit)</i>
C) Expenditure excluded from the definition of military spending
<i>C.1. Expenditure for past military activities</i>
1) Veteran benefits
2) War debt service
<i>C.2. Other expenditure</i>
1) Civil defence

Sources: the authors, based on Brzoska (1995), Cosidó (1994), Pérez Munielo (2009) and Sköns (2002).

2.2. SOURCES OF INFORMATION ON SPANISH MILITARY SPENDING

The main source of data used to estimate long-term Spanish public military spending was the *Cuentas Generales del Estado* (the final accounts documents of the national budget execution), which since 1850 have registered the three fundamental tiers of all government revenue and expenditure flows: 1) budgeted revenue and expenditure, 2) recognised and settled amounts, and 3) actual payments and receipts. The differences between these three tiers of expenditure, which are usually of little importance, are in certain cases quite significant. On the basis of the NATO criterion described above and as is customary in research on public expenditure (IMF, 2001), as well as in other historical analyses on the subject (*Instituto de Estudios Fiscales/IEF*,

1976; Comín and Díaz, 2005), for our research we used the figures corresponding to the second stage, i.e. recognised and settled expenditure. The fundamental reason underlying our preference for the second tier is that budgeted appropriations are sometimes not applied and they are therefore not an accurate reflection of real activity by the State. The third tier (actual payments and receipts) is useful for understanding cash flow although it provides no information concerning the time when liabilities (*obligaciones*) were incurred.

An annual record of the *Cuentas Generales del Estado* is available almost without interruption since 1850, except for the periods from fiscal year 1873-74 to that of 1878-79 and from 1882-83 to 1892-93. To fill the gaps in the information corresponding to these years, use was made of the IEF's estimated figures for public expenditure (1976) based on the national budgets and available statistical abstracts of the *Cuentas Generales* for the period between 1850-1890. Given that the data published by the IEF for these years, more commonly referred to as "late accounting", is of a lower disaggregation level (i.e. there are not so many sub-groups) than the information in the *Cuentas Generales del Estado*, we assumed that, when necessary, the composition of spending was similar to that of the immediately preceding years.

As with Cosidó (1994) and Pérez Munielo (2009), in order to construct a series of military spending adapted to the NATO criterion and according to the items given in the *Cuentas Generales del Estado*, we took into account, wherever possible, the recognised liabilities under the expenditure items given in table 2.

Table 2. Budget items included in the series on military spending

A) <i>CATEGORIES OF EXPENDITURE INCLUDED IN MILITARY SPENDING ACCORDING TO THE NATO CRITERION</i>
1) Military and civil expenditure of the Ministry of War, the Spanish Admiralty ⁴ and the Spanish Air Ministry (which were all merged into the Ministry of Defence in 1978).

4. *Ministerio de la Marina.*

2) Military expenditure budgeted in other sections. More specifically, the following sections and items were considered as military spending:	
BUDGET SECTION	ITEMS INCLUDED IN THE SERIES OF MILITARY SPENDING
<i>Pension benefits</i>	<i>Retirement pensions and benefits of military personnel</i>
<i>Just charges of the Spanish Admiralty</i>	<i>Material expenditure of the Spanish Admiralty</i>
<i>Reproductive expenditure</i>	<i>Material expenditure of the Ministry of War and the Spanish Admiralty</i>
<i>Administration and customs expenditure</i>	<i>Material expenditure of the Spanish Admiralty</i>
<i>Expenditure on public contributions and revenue</i>	<i>Non-identified expenditure of the Spanish Admiralty</i>
<i>Non-recurring expenditure</i>	<i>Material expenditure of the Ministry of War, and personnel and material expenditure of the Spanish Admiralty</i>
<i>Action by Spain in Morocco</i>	<i>Personnel and material expenditure of the Ministry of War, the Spanish Admiralty and the Spanish Air Ministry</i>
<i>Pending liabilities</i>	<i>Personnel and material expenditure of the Ministry of War, the Spanish Admiralty and the Spanish Air Ministry</i>
B) CATEGORIES OF EXPENDITURE NOT INCLUDED IN MILITARY SPENDING ACCORDING TO THE NATO CRITERION	
1) Non-military civil expenditure, such as colonial administration, the merchant navy, marine scientific institutions, military museums and the transportation of civil personnel.	

2) Expenditure in the form of veterans benefits

3) Expenditure of the *Guardia Civil*⁵ and the *Carabineros*^{6,a}

Sources and notes: the authors, based on Cosidó (1994) and Pérez Munielo (2009).

(a) According to the authors cited, the *Guardia Civil* does not fulfil the requirements to qualify as military spending; for the same reasons, both the *Carabineros* and the *Milicia Nacional*, a citizen-organized quasi-military force comparable to the National Guard that was temporarily re-established during the *Bienio Progresista*⁷ (1854-1856), are excluded in the final series of expenditure. Nevertheless, complete information has been gathered on government spending on these three bodies and a detailed analysis will be made in the future.

The level of disaggregation of the data was conditioned by the limited degree of disaggregation of the *Cuentas Generales del Estado*.⁸ In this respect, at times it was necessary to make certain assumptions, always with regard to minor points, in order to give a homogeneous disaggregation for the entire series. These assumptions were as follows:

a) From 1851 until 1935, expenditure by the various ministerial sections includes certain aggregate amounts under the heading of “Liabilities under redeemable debt not budgeted for”⁹ (with small name modifications throughout the period). According to the IEF criterion (1976), and despite the lack of a heading, all of this ex-

5. Civil Guard.

6. Armed border and coastal control body set up in 1829 and merged with the *Guardia Civil* in 1940.

7. The Progressivist Biennium, a two-year period when the advocates of radical liberalism attempted to reform the political system.

8. In relation to this issue, the volumes on the National Budget (*Presupuestos Generales del Estado*), the figures for which correspond to budget expenditure as to actual expenditure, are much more detailed in terms of the disaggregation of expenditure. Our research agenda for the future includes an examination of these data so that we can make a more detailed analysis of the composition of military spending, albeit on the basis of budgetary information. The information presented here is therefore a first approximation, and we intend to improve this in the near future.

9. “*Obligaciones que carecen de crédito legislativo*”.

penditure was considered to be payroll expenses. The detailed analysis of several of the volumes on the National Budget (*Presupuestos Generales del Estado*), in which there is a disaggregation of budgeted expenditure under this heading, would appear to confirm that most of this expenditure was payroll expenses. As a result of this decision, however, payroll expenses may be slightly over-estimated in the last series. In any case, it is unlikely that this overestimation is very significant, given that this heading only accounted for more than 5 per cent of all ministerial spending on very few occasions.

- b) The lack of disaggregation entre payroll expenses and material expenditure also affects other sub-headings, which had to be taken into account, either as payroll expenses or the procurement of goods, services and others. Examples are the items of “Expenses for a recruitment call-up”¹⁰ in 1867, “Expenditure for the Catalan volunteer battalion”¹¹ in 1870, “Expenditure for the events in Melilla”¹² de 1893, etc. Spending has been classified as either payroll expenses or material expenditure according to its apparent nature, on the basis of the criteria established by the IEF (1976).
- c) Between 1860-1864, expenditure by the Ministry of War included a heading entitled “Expenditure on the War in Africa”¹³ (Hispano-Moroccan War, 1859–1860), which is only classified among payroll expenses and material expenditure in 1860. For the other years (1861-1864), the heading is disaggregated according to its composition in 1860.

Lastly, it should be noted that we were unable to consult several of the *Cuentas Generales del Estado* (the final accounts documents of the national budget execution) for the period after 1983. It is for this reason that, from 1983 onwards, our series uses the aggregate figures on military spending available from the SIPRI database¹⁴.

10. “Gastos de una quinta”.

11. “Gastos del batallón de voluntarios de Cataluña”.

12. “Gastos por los sucesos de Melilla”.

13. “Gastos de la Guerra de África”.

14. In the near future, we will be producing disaggregated figures on military spending from 1983 onwards, based on information available at the General Inspectorate for Economic Affairs’ library (IGAE, *Intervención General de la Administración del Estado*).

3. RESULTS

3.1. THE LONG-TERM TREND IN SPANISH MILITARY SPENDING

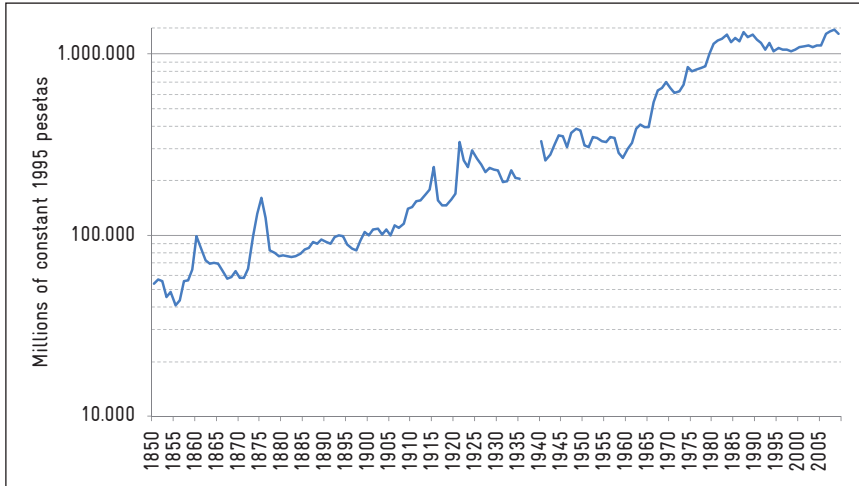
Graph 1 shows the trend in Spanish military expenditure from 1850 to the present day in millions of constant 1995 pesetas, and graph 2 shows the trend in per capita military spending in millions of constant 1995 pesetas.¹⁵ The series are represented on a logarithmic scale to make the comparison in the rates of growth in spending during the different periods clearer.

As the two graphs above show, military spending in Spain followed an overall increasing trend throughout the last one hundred and fifty years, with an average rate of growth of 2.2% in aggregate terms and 1.5% in per capita terms. As a consequence, the amount of public resources set aside for this increased twenty-fourfold in aggregate terms and eight-fold in per capita terms. This overall growth however occurred through the alternation of periods of stability and times of recession with others of rapid expansion. Graph 3 shows the annual rate of growth of actual military spending, in which a moving average of 5 years was used to smooth out the data series to show more clearly the differences between periods of growth and decline and the fluctuations in the series.

The fluctuations in military spending that appear in graph 3 largely reflect the events in Spanish military and fiscal history over the last one hundred and fifty years. Some of the peaks in the series correspond to times of particular intensity of hostilities by Spain, such as the end of the 1850s and the early 1860s (with various interventions by Spain abroad), the conflictive years of the First Republic and the beginning of the Restoration (with the coincidence of two civil wars

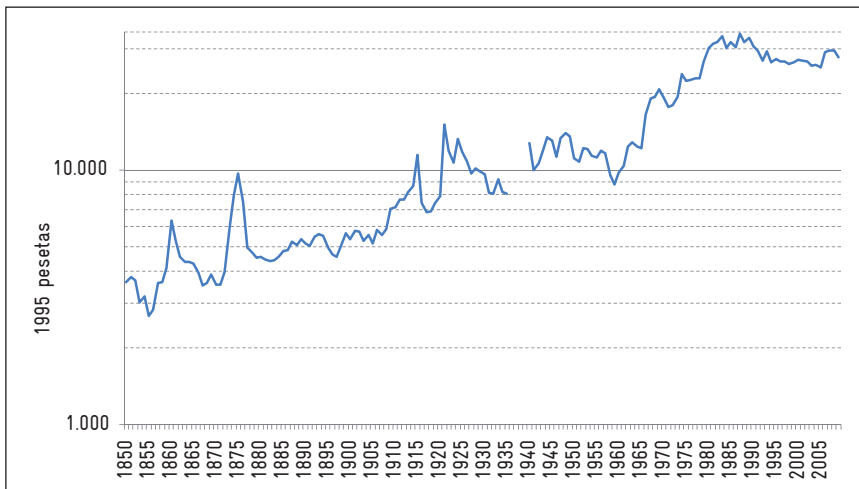
15. The figures refer to calendar years. When the *Cuentas Generales del Estado* cover the period from 1 July-30 June the following year (as is the case between 1862-1899 and 1918-1926) instead of calendar years, the necessary adaptations were made on the basis of the assumption that the distribution of expenditure was equally divided between the two six-month periods in the year.

Graph 1. Spanish military spending (1850-2009)



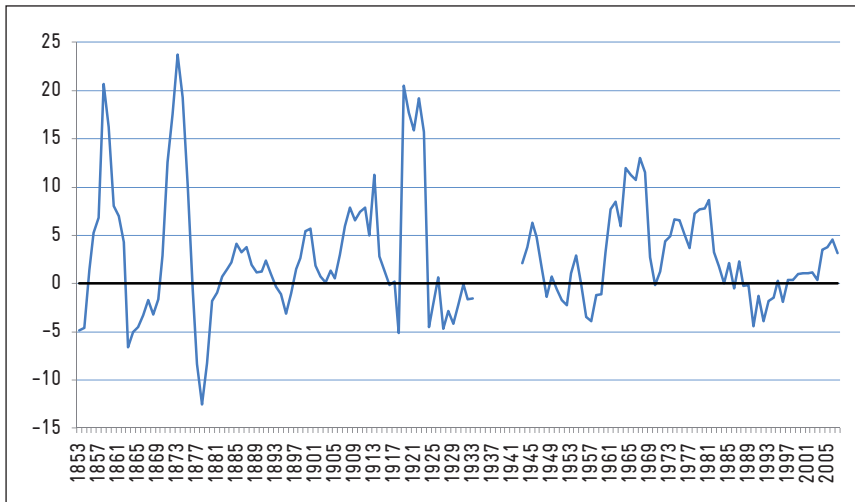
Sources: the authors, based on the *Cuentas Generales del Estado*, SIPRI data, the Prados de la Escosura GDP deflator (2003) up until 2000, and the Spanish Institute of Statistics (INE) from 2001 onwards.

Graph 2. Spanish military spending per capita (1850-2009)



Sources: for military spending, see graph 1; for the population, Maluquer de Motes (2008) and, for the more recent years, the Spanish Institute of Statistics' (INE) database.

Graph 3. Annual rate of growth of Spanish military spending (5-year moving average) (%)



Source: the authors (see graph 1).

and a colonial conflict) and the height of the Rif, or Second Moroccan, War¹⁶. There were also however episodes of accelerated growth in times of peace, such as during the years of *desarrollismo* (a policy of economic development) under the autarky of the Franco regime and the beginnings of democracy. In this period, the growth in expenditure was not linked to wartime needs, but to the rapid development that took place in the public sector from the 1960s onwards, which laid the initial foundations of the welfare state in Spain.

With regard to the downturns that appear in graph 3, in the majority of cases this was associated with a return to normality after the abovementioned times of expansion in military spending. This was the case in the years with negative rates of growth in the second half of the 19th century, the end of the Primo de Rivera dictatorship and the Second Republic and most of the 1950s and 1980s.

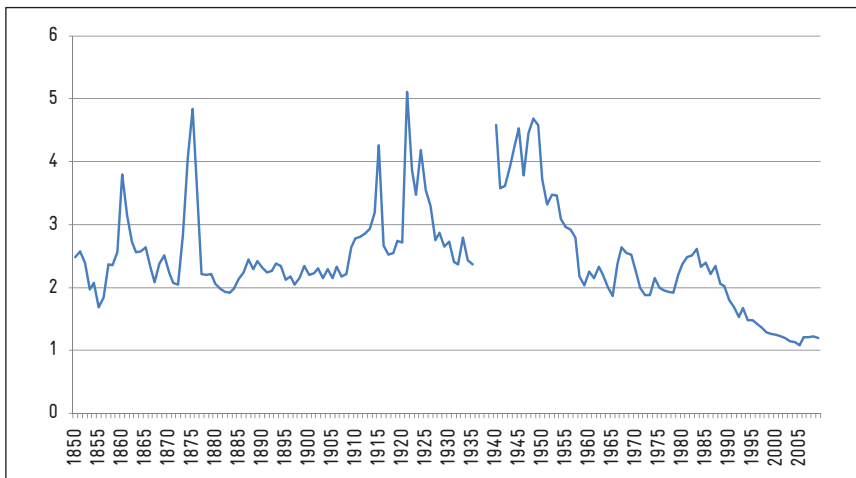
16. Although data on public expenditure are not available for the years of the Spanish Civil War, the sharp rise in the series between 1935 and 1940 is a clear indicator of the intense growth in military spending during these years as well.

3.2. THE PRIORITY OF MILITARY SPENDING IN SPAIN OVER THE LAST ONE HUNDRED AND FIFTY YEARS: SEVERAL INDICATORS

Graphs 4 and 5 show the figures for military spending as a percentage of GDP (a ratio usually referred to as the “military burden”) and as a percentage of total government expenditure, and they reflect the intensity of military effort by the public sector in Spain. In the case of graph 5, the ratio between military spending and gross spending by government authorities (*administraciones públicas*) is also given for the years in the more recent period, due to the fact that fiscal decentralisation during this period rapidly led to the series on state expenditure becoming meaningless in terms of its representativeness of the total volume of public spending in Spain.

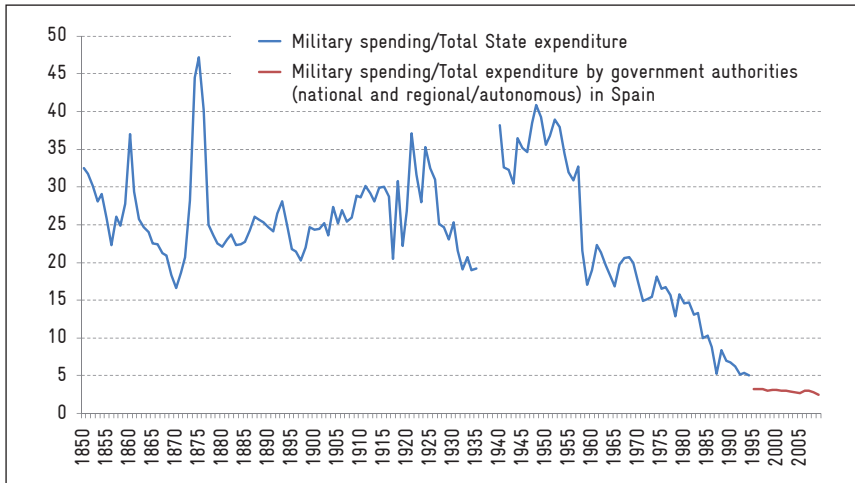
The two graphs show that Spanish military expenditure stayed at around 2.5% of GNP and between 25-30% of total public expenditure for over one hundred years from 1850 onwards. In other words, within

Graph 4. Spanish military spending / GNP (%)



Sources: a) Military spending, the authors, based on the Cuentas Generales del Estado and the SIPRI database; b) GNP from Prados de la Escosura (2003) and, from 2000 onwards, the Spanish Institute of Statistics (INE).

Graph 5. Military spending / total public spending (%)

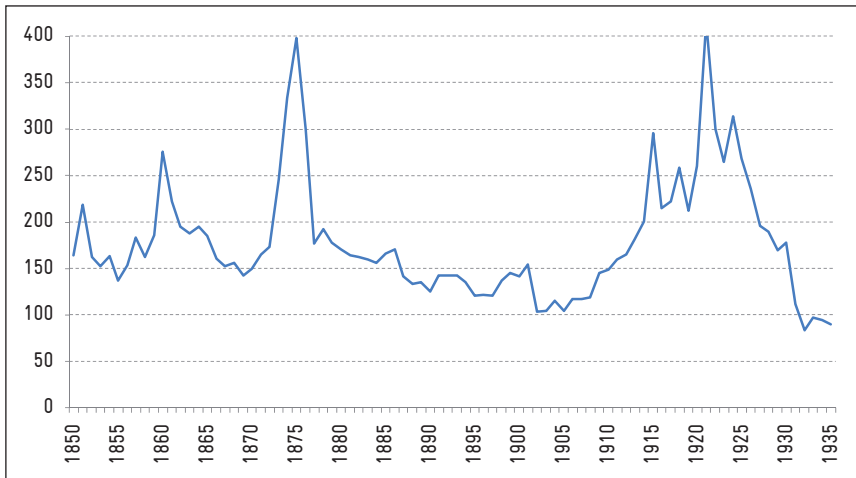


Sources: for military spending, see graph 1; for total national government expenditure, Comín and Díaz (2005), and for expenditure by government authorities (national and regional), the databases of the Spanish Institute of Statistics (INE) and the Genera.

the context of an underdeveloped public sector that marked the Spanish economy up until the second half of the 20th century, the State allocated between one quarter to one third of its resources to military ends, depending on the period. In addition to the times of particular hostilities during the 1860s and 1870s, the highest levels for these percentages were at the end of the Restoration and the start of the Primo de Rivera dictatorship and especially during the first part of the Franco dictatorship, clearly showing the importance of the military apparatus in these regimes and the priority given to its use for internal repression. Spanish military expenditure was only significantly reduced below these percentages from the end of the 1960s onwards, in the case of the ratio between military spending and total expenditure, and from the beginning of the 1980s onwards, as seen from the ratio between military spending and GDP.

The priority placed by the Spanish State on military spending is confirmed by graphs 6 and 7, which compare military spending with

Graph 6. Military spending / Social and education spending in Spain (1850-1935) (%)



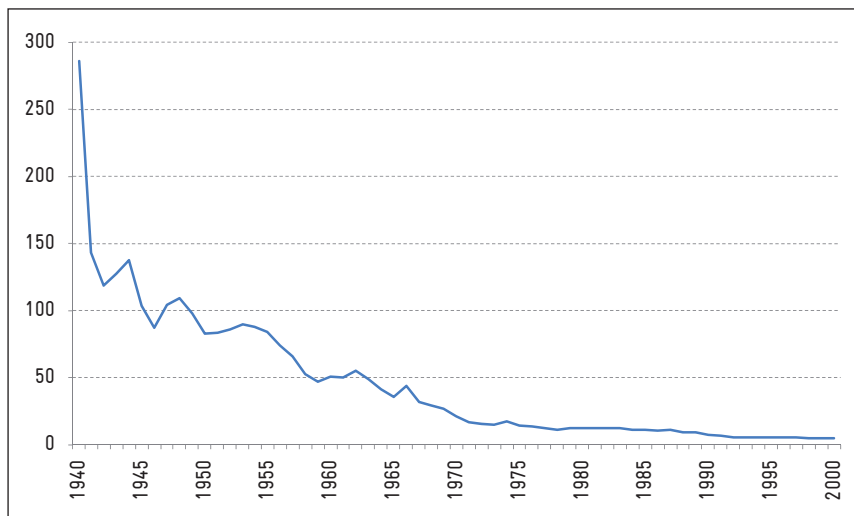
Source: for military spending, see graph 1; data on social and education spending provided by Sergio Espuelas (for the years when no data are available for expenditure by sub-central (i.e. regional and local) government authorities we assumed that the tr

the sum of social and education spending during the period under analysis¹⁷.

According to the data represented in graph 6, military spending during the entire period prior to the Spanish Civil War was around 1.5 times the total for social and education spending. Within this context, it is striking that, during the 1920s, the importance of military spending increased to such a degree that it was four times that of social and education spending. As can be seen from graph 7, it was only from the 1940s onwards that the level of priority placed on social and education spending began to approach that of military spending. Nevertheless, military spending remained higher than the sum of social and educa-

17. The social expenditure series includes public expenditure in the following areas (in the form of social services and benefits and public services): old age, surviving dependents, disability, health care, family, active employment policies, unemployment, housing and others (this latter category basically includes welfare and social exclusion).

Gràfic 7. Despesa militar /despesa social i educativa a Espanya (1940-2000) (%)

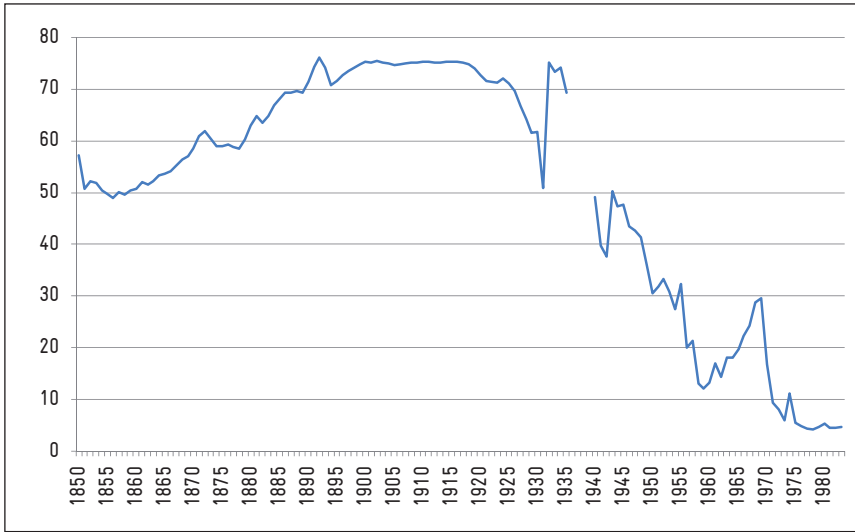


Font: per la despesa militar, veure gràfic 1; la sèrie de despesa social i educativa ha estat elaborada per Sergio Espuelas.

tion spending until 1945 and the ratio between the two only reached levels comparable to other developed countries in the 1970s, due above all to the introduction of the social security system. The priority of military spending during most of the period can also be seen in graph 8, which compares military retirement pensions with total public spending on pensions during the period under analysis. The graph shows that, prior to the Spanish Civil War, retirement pensions of the Spanish military forces accounted for around two thirds of public expenditure on pensions, and that this proportion only began to decline from the forties onwards.

To complete this descriptive analysis of the series of Spanish military expenditure, graph 9 shows its composition throughout the period, distinguishing between expenditure on military personnel, retirement pensions of military personnel, and the procurement of goods, services and other expenditure. As would be expected, the changes in the composition of military spending are directly associated with the

Graph 8. Military pensions / Total public expenditure on pensions (%)

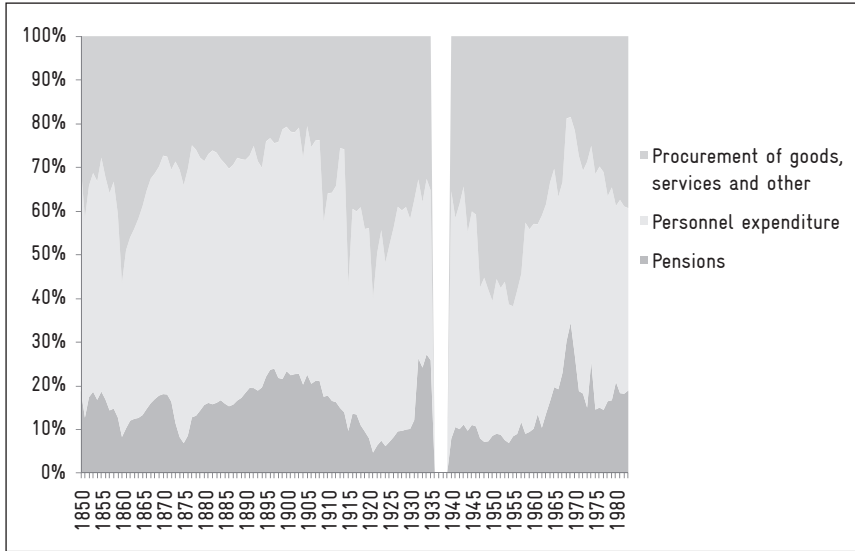


Source: for military pensions, see graph 1; the series on total public expenditure on pensions was produced by Sergio Espuelas.

changes in its importance in the GDP and total public expenditure. More specifically, in the periods in which military spending accounted for higher percentages of the GDP and total public expenditure, due to either wartime requirements or the intensity of repression, expenditure on military personnel and the retirement pensions of military personnel fell as a proportion of total expenditure, while there was an increase in the importance of spending on military equipment¹⁸. In the main, however, Spanish military spending appears to have been dominated in the long term by personnel expenditure. It was only at the end of the 1920s and in the years of the Second Republic, as well as during the democratic transition during the 1970s, that material expenditure exceeded 30% of the military budget without any apparent

18. The correlation coefficient between the ratio of military spending/GNP and the importance of expenditure on goods in total military spending between 1850 and 1983 was 67%.

Graph 9. Composition of Spanish military spending (%)



Sources: see text.

connection with increases in the break out or intensity of wartime hostilities. This may be linked to the efforts towards modernisation during the republican and democratic periods, as well as the increase in Spanish military activity abroad that began during the democratic period.

3.3. SPANISH MILITARY EXPENDITURE IN THE INTERNATIONAL CONTEXT

The previous section analyses the priority placed on military spending by successive Spanish governments. How does this compare with the priority in other countries throughout the period under analysis? This section presents an initial long-term comparison of the Spanish military burden with that of other countries for which similar information was found. Tables 3 and 4 show the ratios between military spending and GDP and between military spending and total state expenditure in a core sample of countries. Care should be taken when interpreting

Table 3. Military burden (military spending/GDP) in a core sample of countries (1860-2009) (percentages)

	1860-69	1870-79	1880-89	1890-99	1900-09	1910-13	1920-29	1930-39	1950-59	1960-69	1970-79	1980-89	1990-99	1999-2009
Germany			2.28 ^a	1.93	1.97	1.74			3.93 ^c	4.28	3.65	3.18	1.83	1.40
Belgium			0.92	1.06	1.13	1.03	3.85	1.73	3.82	3.06	3.17	3.11	1.74	1.20
Canada	0.29	0.37	0.23	0.23	0.31	0.38	0.28	0.47	5.69	3.25	1.94	2.02	1.60	1.20
Denmark			1.89	1.81	1.31	1.71	0.74 ^b	1.25	2.78	2.73	2.53	2.26	1.78	1.44
Spain	2.68	2.84	2.14	2.24	2.27	2.85	3.45	2.51	2.99	2.29	1.98	2.35	1.57	1.19
United States	3.35	0.75	0.42	0.65	0.72	0.62	0.73	1.02	9.97	8.40	6.39	6.11	4.01	3.85
France	3.46	3.03	3.08	3.08	3.07	3.03	5.82	4.19	7.25	5.47	4.06	3.94	3.09	2.47
Netherlands			2.87	3.01	2.58	2.30			4.96 ^d	4.07	3.55	3.07	2.06	1.51
Italy			3.26	3.52	3.08	3.69	4.06	3.99	3.77 ^e	3.04	2.79	2.34	1.95	1.90
Norway			1.21	1.56	1.74	1.40	1.35	0.96	3.76	3.35	3.53	3.01	2.50	1.70
Portugal			1.18	1.73	1.55	1.65			3.84 ^f	6.04	5.73	3.20	2.40	1.97
Great Britain ¹⁹	2.21	1.86	2.20	2.36	4.03	3.00	4.39	3.41	7.87	5.84	5.28	4.90	3.19	2.46

Sources: for Spain, the authors' series (see graph 5); for other countries, after 1950, the figures were calculated using the NATO and SIPRI databases and, where necessary, GDP data from the United Nations database. Prior to 1950, the figures on military spending are from Banks (1976); and the nominal GDP figures are from the databases of Global Finance (<http://eh.net/databases/Finance/>), Historical National Accounts (<http://www.ggdc.net/databases/hna.htm>), Measuring Worth (<http://www.measuringworth.com/>) and Jones-Obstfeld (<http://www.nber.org/databases/jones-obstfeld/>).

Notes: (a) 1876-79; (b) 1921-29; (c) 1953-59; (d) 1956-59; (e) 1951-59; (f) 1950 and 1953-59

19. Translator's note: given that this is a long-term comparative analysis, the term Great Britain in preference to United Kingdom, which is the term used since 2002 in official government yearbooks.

Table 4. Military spending / total public expenditure in a core sample of countries (1860-1973) (percentages).

	1860-69	1870-79	1880-89	1890-99	1900-09	1910-13	1920-29	1930-39	1946-49	1950-59	1960-69	1970-73
Germany		77. ^b	61.6	41.9	32.7	29.2				26.9	25.8	23.2
Belgium	22.3	18.6	14.4	13.3	11.2	9.5	11.9	10.1	39.3	17.2	12.5	9.1
Canada	4.1 ^a	4.3	4.7	4.0	5.2	6.3	3.6	4.4	19.4	35.2	19.4	10.7
Denmark	27.5	31.3	30.3	27.7	23.3	23.6	10.8	8.0	15.3	12.4	7.7 ^c	
Spain	24.6	28.7	23.8	23.8	25.7	29.0	29.5	20.8	38.0	31.8	19.8	15.7
United States	46.9	22.7	19.5	26.3	34.2	31.8	18.4	13.4	47.7	56.7	45.3	34.5
France	26.3	25.4	22.9	26.4	28.0	29.9	19.6	19.8	19.5	31.7	20.6	16.7
Netherlands	22.4	27.5	25.3	26.8	24.4	23.2	13.6	14.8		21.5	17.2	13.3
Italy	29.2	16.0	19.3	20.7	21.3	24.4	16.2	22.0	21.4	17.5	12.6	10.3
Norway	36.1	34.1	19.5	20.5	19.3	17.2	9.8	9.9	13.9	20.4	16.1	13.0
Portugal	22.0	19.7	17.6	18.4	17.4	17.9	24.4	21.5	24.4	24.8	36.5	37.4
Great Britain	38.1	33.0	32.4	35.7	47.4	40.1	18.0	18.6	45.0	24.9	18.7	13.9

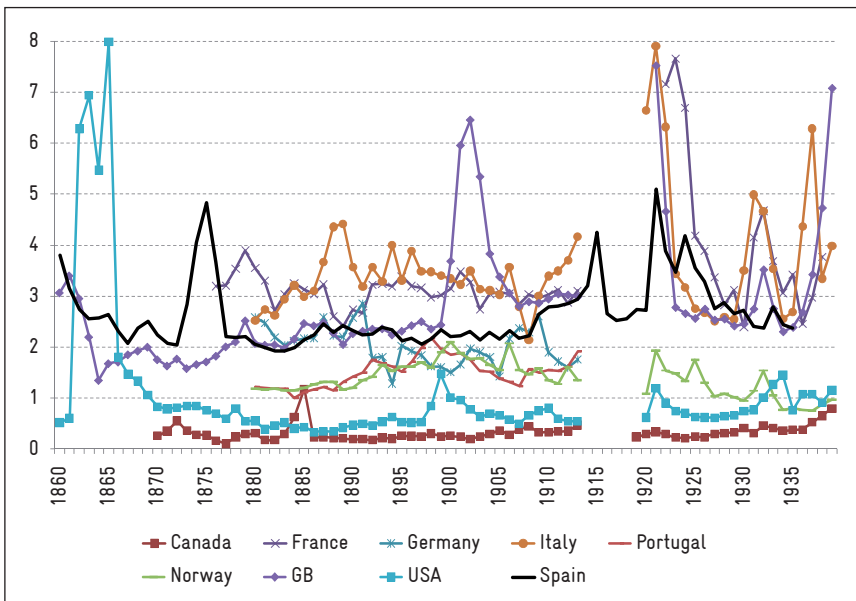
Source: the authors, based on Banks (1976) and, for Spain, the authors' series (see Graph 6).

Notes: (a) 1867-69; (b) 1876-79; (c) 1960-62.

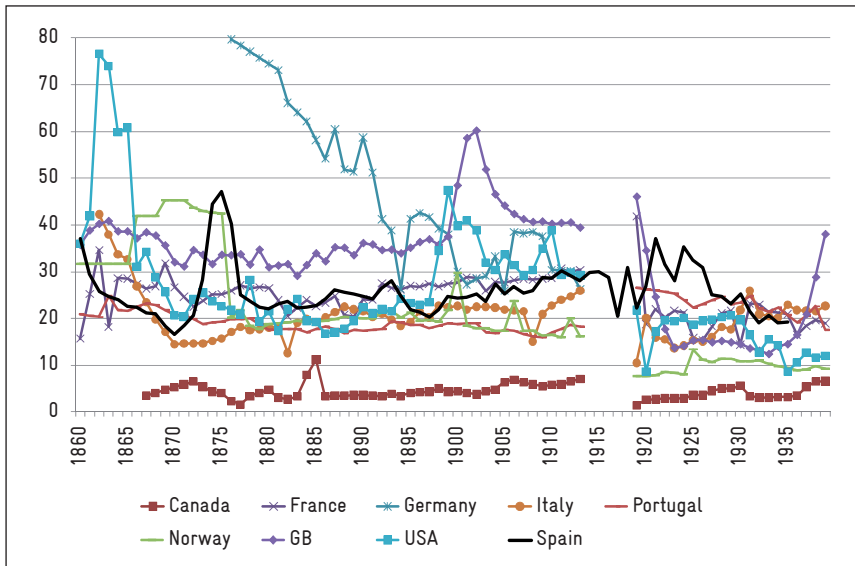
the figures in the tables, especially for the period prior to the Second World War, due to the inevitable margin of error in the historical estimates of GDP and the lack of homogeneity in the construction of data on military spending and total expenditure for this period.

Graphs 10 to 13 allow the comparison of the military fiscal burden in Spain with that of a selection (core sample) of countries included in the previous tables. The first two graphs compare the Spanish ratios with those of other developed economies during the period prior to the Second World War. Aside from the sharp fluctuations in the series represented in the graphs, which are associated with specific historical events, the relatively high level of Spanish military expenditure in comparative terms also stands out. During the entire period between 1860-1935, and despite the fact that it did not participate in the two World Wars, the percentage of GDP set aside by Spain for military spending was very similar to that of the Great Britain and Germany

Graph 10. Military spending / GDP in various countries (1860-1939) (%)



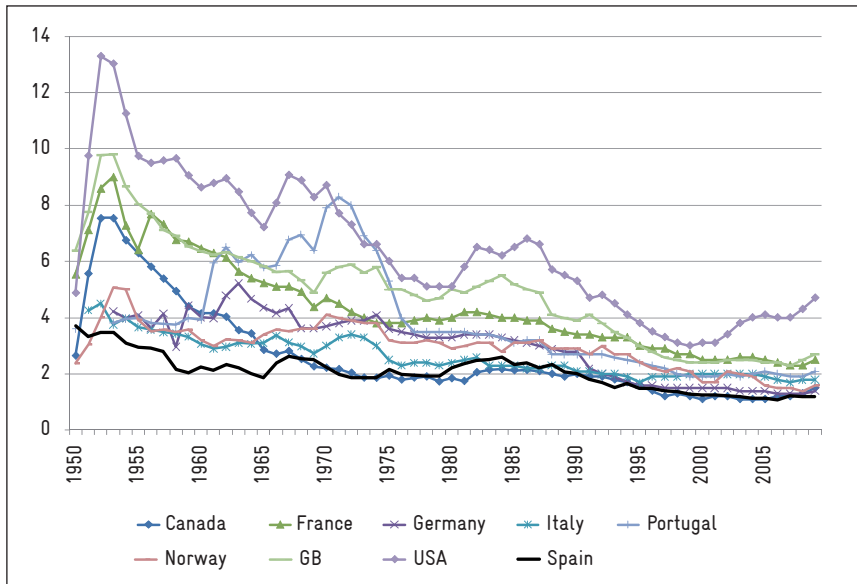
Graph 11. Military spending / Total state expenditure in various countries (1860-1939) (%)



and slightly less than that of France and Italy, all of which were heavily involved in processes of rearmament at the end of the 19th century and the early part of the 20th century. Spanish military expenditure was also much higher than that of the United States and Canada, as well as other countries in the periphery of Europe, which like Spain, had little bearing on the major conflicts of the period, like Portugal and Norway. In this context, the high level of Spanish military expenditure can only be explained by factors such as the extensive use of the military apparatus for internal repression, or the inflated number of senior officers in the military forces, something which has often been pointed out by historiographers and is partially confirmed by the composition of Spanish military spending given above in graph 9.

Unlike the previous period, from 1950 onwards the Spanish military burden appears to have been much lower in comparison with other countries (graph 12). This is particularly evident in the years of the Cold War, when military spending was much higher in the United States, Great Britain and France. On the other hand, from the 1980s

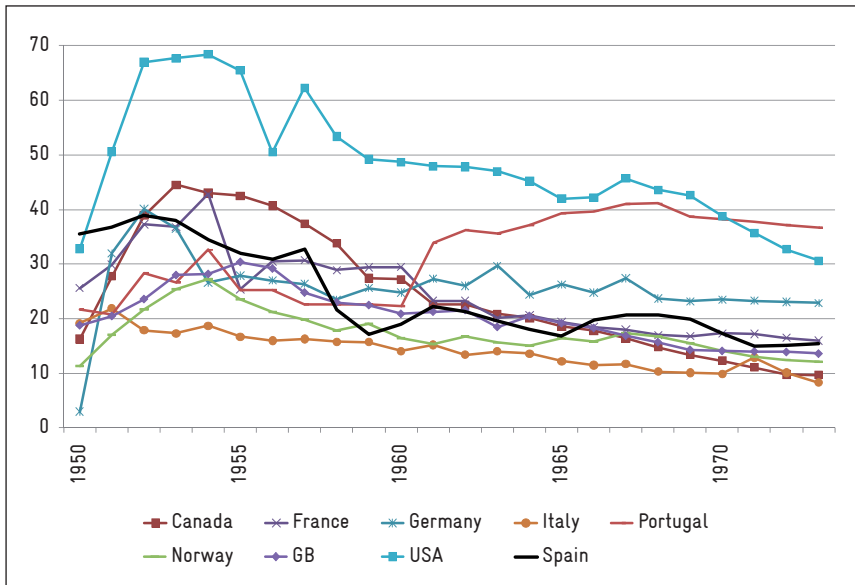
Graph 12. Military spending / GDP in various countries (1950-2009) (%)



and the crisis of the Eastern Bloc onwards, there was a considerable reduction in the military burdens of these countries and they consequently converged with the levels of military burden in Spain, which did not go down as much.

The lower level of Spanish military burden during the Franco dictatorship contrasts with the fact that military aims continued to absorb a very significant percentage of total state expenditure, as can be seen from graph 13. Taking into account that the ratios in the graph refer to spending by the central government, and that public expenditure in the United States and Germany was much more decentralised than in Spain under the Franco regime, Spain, together with Portugal, was possibly the country in the core sample group in which the public sector allocated the highest percentage of its resources to military spending. The contrast of this result with the lower ratio of military spending/GDP (graph 12) can be explained by the under-developed public sector in Spain (as well as in Portugal) during the dictatorship, when

Graph 13. Military spending / Total state expenditure in various countries (1950-1973) (%)



public expenditure in other countries was increasing at accelerated rates in the wake of the construction of the welfare state. In other words, Spain's limited military capability in the international context, as shown by graph 12, was compatible with a public budget aimed disproportionately at funding the military.

To sum up, the whole period prior to the Civil War was marked by a high military burden in Spain, in comparative terms, despite it being a relatively marginal country on the international scenario. In addition to the various conflicts (internal and colonial) that affected the country between the middle of the 19th century and the Primo de Rivera Dictatorship, this high military burden can probably be explained by the importance of the military's repressive function (without ruling out other possible explanations, such as the burden of expenditure on military personnel resulting from the inflated number of senior officers). During the period of the Franco regime, on the other hand, the spectacular increase in military spending in the major

Western powers due to the Cold War, combined with the under-developed public sector under the dictatorship, resulted in the Spanish military burden being below that of the advanced countries, even though it was at its highest levels in the period under analysis and absorbed a high percentage of public resources. This situation only changed at the end of the Cold War, when most of the Western countries reduced their military burden, which thereby converged with the levels in Spain.

Having established the considerable long-term importance of the military component of the Spanish economy from a comparative perspective, together with its variations over time, the following section analyses whether military spending was an obstacle to Spanish economic growth and social and education spending during the period.

3.4. SPANISH MILITARY SPENDING, SOCIAL SPENDING AND ECONOMIC GROWTH

According to much of the existing literature on the subject, there is a trade-off between military spending and social expenditure (along the lines of the traditional view in economics of the need to choose between either “guns or butter”). On this subject, see, for example, Lindert (2004) and the compilation of works on the subject by Yildirim and Sezgin (2002). Nevertheless, views on this issue differ in the literature. For example, Eloranta (2004) considers that military spending and civil expenditure are shaped by different influences and are therefore not necessarily mutually exclusive. From a long-term sample of developed countries, he observes a slight positive correlation, or influence, between the two categories of spending before the First World War, and a negative influence afterwards. In the case of the peripheral Mediterranean countries of Europe between 1960 and 2000, Dunne et al (2003) have observed different patterns. For example, in Greece and Portugal there is a negative relationship between non-military public expenditure and military spending, whereas in Spain there is no significant relationship between the two variables.

The same level of complexity exists in the case of the study of the relationships between military spending and growth. On the basis of what is known as the “Benoit hypothesis”, which postulates a positive relationship between the two variables (Benoit, 1973), several authors have defended the idea that military spending can tend to stimulate growth. This is the case, for example, of Whitten and Williams (2011), who consider that military spending is often a complementary means that the government uses to accomplish its social welfare objectives. On the other hand, Mintz and Huang (1991) observed that, for the case of the United States during the 1970s and 1980s, military spending can have negative effects on investment, which indirectly affects economic growth. At all events, from recent studies it seems that the impact of military spending on economic growth can vary considerably depending on the case at hand (one recent example, which includes a review of the earlier literature, is that of Pieroni, 2009; see also the compilation of Dunne and Uye, 2009 and, for the case of Spain, the references of the *Ministerio de Defensa*, 1994 and 1995).

The results of our econometric analysis of the potential long-term causal relationships between military spending, economic growth and social and education spending in Spain are given below. For this analysis, use was made of the time series for military spending, GDP and social and education spending, expressed in real terms and as logarithms, between 1885 and 2000. The earlier years in the sample (1850-1884) were not included, due to the erratic behaviour and the presence of observations that are clearly atypical, which would have affected the results of the tests, which are set out below.

The characteristics of the three variables were analysed prior to the study of the causal relationships between them. As the series are long-term with a very clear temporal trend, the econometric relationships between the three series according to levels can only be interpreted as authentic structural relationships if the series are integrated in order 1 and co-integrated with each other. Table 5 shows the results of the unit root testing of the three series that, during the period studied (1885-2000), are seen to be first-order integrated.

Table 5. ADF unit root tests (1885-2000)

Variable	Test specification (constant and trend)	No. of lags	ADF test
GDP log	none	1	5.03
Military spending log	constant, trend	1	-3.04
Social and education spending log	none	0	4.57

H_0 : presence of a unit root.

Source: the authors, from their series for military spending, the Prados de la Escosura GDP series (2003) and the figures for social and education spending produced by Sergio Espuelas (see Espuelas Barroso, 2011).

In order to test whether there is a long-term structural relationship between the three variables, table 6 shows the results of the Engle-Granger test for co-integration. The results of the test show that the absence of a structural relationship between the variables should be rejected.

Table 6. Engle-Granger test for co-integration between GDP, military spending and social and education spending (1888-2000)

Test specification (constant and trend)	No. of lags	ADF test (OLS equation residuals)
Constant, trend	1	-3.60*

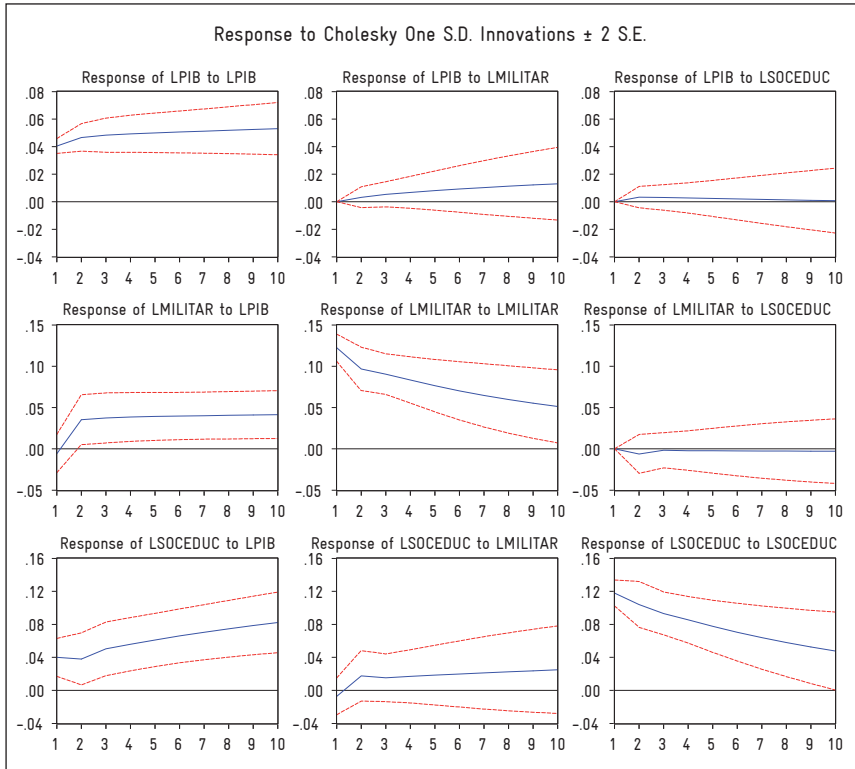
H_0 : no existence of co-integration (presence of a unit root in the series of OLS equation residuals).

* Rejection of the null hypothesis at the 5% (significance) level.

Source: the authors (see table 5).

The type of structural relationship existing between the three variables analysed in the period as a whole is given in graph 14, which shows

Graph 14. VAR impulse-response analysis between GDP, military spending and social and education spending (1888-2000)



Source: the authors (see text and table 5).

the results of an impulse-response analysis in a vector autoregression (VAR) that includes the three variables with two lags. This analysis shows the gradual reaction over ten years of each variable to shocks from the others, taking into account all of the relationships present in the system²⁰.

As would be expected, the graph shows that, throughout the period from 1885-2000, both military and civil spending respond positively

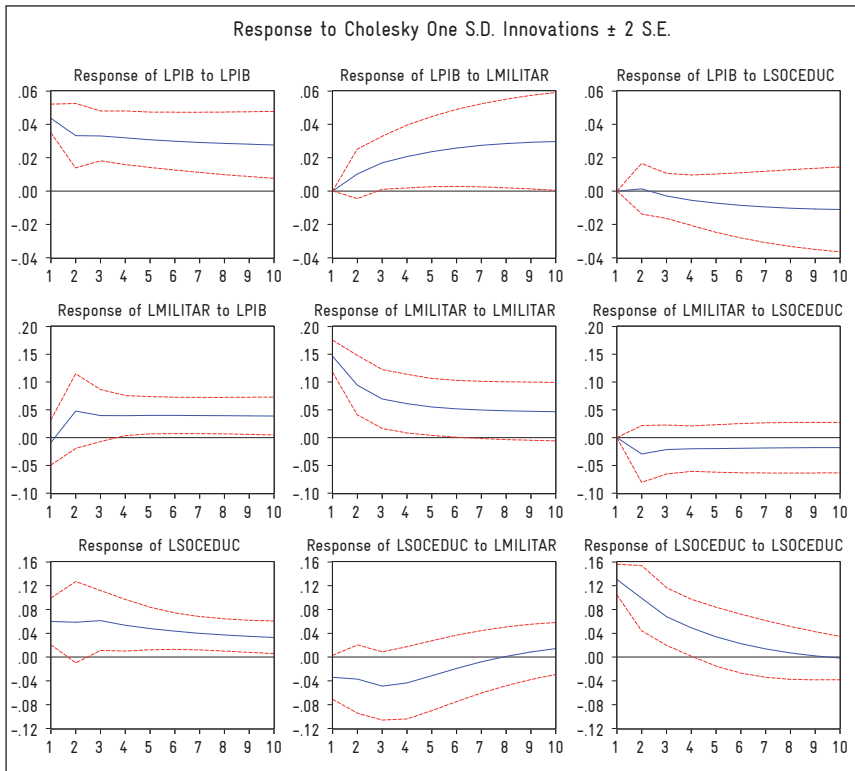
20. It should be pointed out that, in the case of the impact of military spending on trends in GNP, the analysis primarily sets out the possible Keynesian effects of spending.

to the fluctuations in GDP. In other words, during the periods of economic growth, both categories of spending were clearly stimulated. On the other hand, neither of the two had a clear influence on aggregate trends in the economy. This result can be explained by the fact that both (except for civil expenditure during the later decades in the period) represented a relatively small percentage of GDP. From graph 14, there is no apparent relationship, neither negative (in the sense of a trade-off) nor positive, between military spending and social and education spending; in fact, both variables appear to have acted completely independently of each other.

The results shown in graph 14 may be obscuring important changes in the long-term relationship between the three variables. In order to establish possible variations in the causal relationships being analysed, graphs 15 and 16 show the results of the impulse-response analysis when the period being studied is divided into two (i.e. before and after the Spanish Civil War).

The two graphs above show that some of the basic results of the analysis of the period as a whole remain the same when it is divided into two. Thus, for example, in the two graphs, the changes in GDP have a positive impact on both military spending and social and education spending, and there is no clear impact (neither positive nor negative) of social and education spending on GDP. Nonetheless, other relationships do vary over time. For example, military spending appears to have had a slightly positive impact on GDP before the Spanish Civil War (possibly through the stimulus to the industrial sector or due to the positive effects on business investment resulting from the repression of the workers movement) and, on the other hand, a slightly negative effect from 1940 onwards (which may be associated, especially during the Franco dictatorship, with the movement of resources to low-productivity military ends). On the other hand, from 1940 onwards, while military spending continued to have no long-term effect on civil expenditure (which would go against the hypothesis of the trade-off between these two types of spending), it can be seen that, in the short-term, there was a positive effect, albeit temporary. Instead of reflecting a real causal relationship, this statistical effect may be

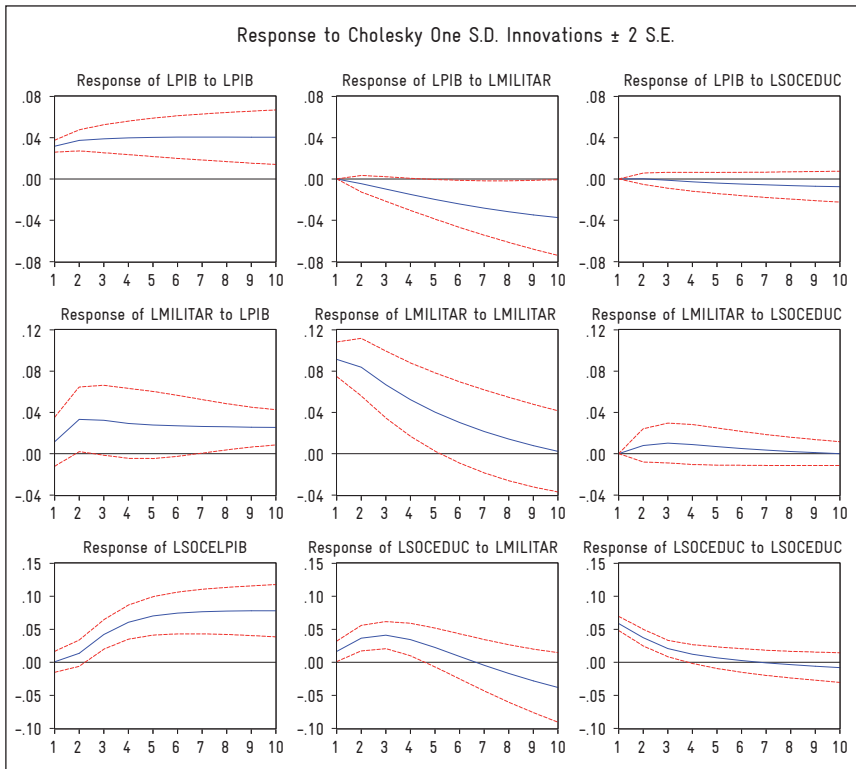
Graph 15. VAR impulse-response analysis between GDP, military spending and social and education spending (1888-1935)



Source: the authors (see text and table 5).

connected with the dynamics of the different categories of public expenditure during the period of the Franco regime. As pointed out above, from the fifties onwards the public sector in Spain underwent an expansive process that had an affect on military spending before it did on social spending. In other words, the positive relationship between the two variables shown in graph 16 may not actually be a causal relationship, but a reflection of the fact that the expansion in military spending preceded that of social and education spending for most of the period; as such, the model may be showing the precedence given to military spending, and not a causal link.

Graph 16. VAR impulse-response analysis between GDP, military spending and social and education spending (1940-2000)



Source: the authors (see text and table 5).

3.5. THE LONG-TERM PRIORITY OF SPANISH MILITARY EXPENDITURE: AN INITIAL EXPLANATORY ANALYSIS

This section gives an initial overview of the forces that may explain the priority given to Spanish military expenditure (measured according to military burden, i.e. the ratio between military spending and GDP) over the very long-term. This analysis is based on the numerous sources of literature on the factors underlying military spending. According to the studies on the subject, the variables that are usually used to ex-

plain trends in the military burden can be classified as either economic, political and/or military variables.

With regard to the economic variables, most of the authors who have studied the factors determining military spending have attempted to measure the influence that changes in a country's level of income and economic growth have had on trends. In relation to the level of income, there is a wide diversity of results in the literature. On the one hand, authors such as Goldsmith (2003), based on an analysis of 130 countries between 1886 and 1989, see level of income as having a positive influence on the relative amount of resources allocated to military purposes in relation to the overall resources available in the country. Goldsmith suggests that this relationship may be due to a context of international insecurity, in which only those countries with a higher level of income can fully satisfy their demand for security. On the other hand, authors such as Smith (1977), from an analysis of 15 countries between 1954 and 1973, or Dunne et al. (2008), from an analysis of 98 developing countries between 1981 and 1997, see level of income as having a negative influence. Smith (1977), based on a Marxist approach to capitalist relationships, supports the view that advanced capitalist countries set aside less for military spending because they try to avoid the interferences that this implies for investment and growth. The author makes the case that the strategic benefits that military spending offers the capitalist system are basically provided by the country that is hegemonic, which enables other industrialised countries to have an free-riding attitude to spending.

An alternative hypothesis to these two conclusions is that of other authors like Batchelor et al. (2002), in a study of South Africa's military spending from 1963 until 1997, and Dunne and Perlo-Freeman (2003), in a study of over a hundred developing countries in the period from 1981 to 1997, according to which the military burden of the countries covered by the study was not significantly influenced by the level of income (with the observation, in both cases, that the proportional increase in military spending was more or less similar to that of aggregate output). Dunne and Perlo-Freeman (2003) argue that the observed relationship may be due to the balance between the defen-

sive role of military spending (according to which a higher level of income means that an attack from abroad can be prevented through the use of fewer national resources) and the role of national power projection (according to which a higher level of income means that a higher proportion of national resources can be allocated towards having a greater offensive capability). Gadea and Montañes (2001) obtained the same result for Spain from the mid-19th century to the end of the 20th century.

In relation to the influence of economic growth, there is again a great diversity of results. On the one hand, authors such as Rasler and Thompson (1992), on the basis of an analysis of the case of the Great Britain in the period from 1950 to 1975, or that already mentioned of Goldsmith (2003), observe that high levels of economic growth have a positive influence on the military burden of the countries studied. Rasler and Thompson (1992) adduce that this increase in the military burden in contexts of economic growth is due to the political ability to allocate resources to the military apparatus (at the expense of other welfare-related items), which minimises the electoral costs that this would otherwise imply. Goldsmith (2003) again suggests that the context of global insecurity forces states to set aside a large proportion of extra resources for the military apparatus. Contrary to the findings set out above, other authors see a negative relationship between economic growth and the proportion of resources allocated by the state to the military apparatus. Russett (1990, 23-24) makes the case that the compensatory effects of public expenditure within the framework of Keynesian policies lead countries to increase military spending in times of economic decline. This is confirmed by authors such as Mintz and Ward (1989) in the case of Israel, according to which military spending is used as a counter-cyclical economic instrument to combat poor economic conditions and the loss of earnings for arms-producing companies.

In contrast to these studies, Sprout and Sprout (1968), from an analysis of the case of Great Britain from the mid-19th century to the 1960s, hold that, in spite of the fact that periods of fast economic growth may be used by the government to increase the resources set

aside for military objectives, this is not really a relevant variable for analysing ongoing trends. The authors postulate that, in the case of Great Britain, the variables that really affect trends in military spending are economic structure (more specifically dependence on the import of raw materials and the consequent need to prioritise exports) and the existing social priorities.

Aside from the influence of economic growth and the level of per capita income, some authors have attempted to include other economic variables in the analysis. Dunne et al (2003), for example, analyse the role of trade openness in the peripheral Mediterranean countries of Europe, with results that are clearly divergent. While trade openness would appear to have had a positive effect on military spending in Greece, its impact in Spain was negative and not significant in the case of Portugal.

In terms of the political factors, one of the factors that has been analysed the most is the effect of democracy on the trend in military spending. The results of these studies in general show a negative relation between the two variables. For example, Sprout and Sprout (1968), from an analysis of the case of Great Britain from the mid-19th century to the 1960s, maintain that, in a democratic political system, the social demands for welfare spending reduce the proportion of resources available to meet military needs. Along the same lines, Garfinckel (1994), from an analysis of one hundred countries between 1967 and 1989, considers that this negative relationship is due to a higher rate of trade-off of the profits from military spending by democratic political leaders than authoritarian political leaders in order to rapidly internalise the benefits of current military spending (which would therefore mean that military spending has more long-term positive effects than other public expenditure). Goldsmith (2003), on the basis of similar observations, argues that this relationship may also be due, on the one hand, to the fact that the average voter in a democracy (which is who determines the actions of those in government) prefers other goods to defence, and on the other, that the leaders of democratic countries are less likely to use military force to repress political opposition or ensure people's loyalty. Other studies, for example, by

Lebovic (2001), Fordham (2005), Goldsmith (2007) and Dunne et al. (2008) corroborate this effect.

In addition to the degree of democracy, other authors have also analysed the impact of other political variables, such as the political orientation of the ruling parties (Palmer, 1990; Gadea and Montañes, 2001; Narizny, 2003; Kollias and Paleologou, 2003; Whitten and Williams, 2011), the electoral cycle (Mintz and Ward, 1994), the degree of influence of the military on governments (Hill, 1978; Looney and Frederiksen, 2000), the economic interests of the political class (Fordham, 2008), political instability in neighbouring countries (Ades and Chua, 1997; Mintz and Ward, 1998; Looney and Frederiksen, 2000), the international status of countries (measured by the number of foreign diplomatic missions; see Hill, 1978), and corruption (Agostino et al., 2011)

Particular consideration obviously needs to be given to the military factors to determine the trend in military spending. As would be expected, all of the authors find a positive relationship between interstate armed conflicts and increases in military spending (e.g. Cothren, 2002; Mintz and Ward, 1989; Goldsmith, 2003; Dunne et al., 2003; Kollias and Paleologou, 2003). Hill (1978), using a similar approach, finds that a past history of higher war involvement leads to higher military spending (“a greater defense burden”). Within the same sphere, one of the elements that has created the most academic controversy has been the possible impact on spending of the increase in rivalry between countries and the resulting arms race. The concept was developed during the nuclear escalation led by the United States and the Soviet Union during the Cold War and has been applied to different countries in confrontation, including India and Pakistan, Greece and Turkey, and Israel and the Arab states (see e.g. Richardson, 1960; and Dunne and Smith, 2007). Nevertheless, Dunne and Smith (2007) consider that the limited success of empirical research in this field has been due to the difficulties in modelling the complex phenomenon of arms races.

Along the same lines, Dunne et al (2008) propose a study of the influence of the aggregate military spending of countries that are potential enemies, together with the influence of possible changes in the perception of hostility between countries. The results show how coun-

tries react not only to a change in military spending by enemy countries, but also to the changes in hostility between them. Ades and Chua (1997) consider that military spending by countries is significantly correlated with the military spending of the region to which they belong, reinforcing the idea of a reaction to a potential increase of the threat of military aggression. Lastly, Eloranta (2007), in a study of the behaviour of the industrialised countries from 1870 to the First World War, notes how countries react to the increase in global military spending of the sixteen countries studied, with the phenomenon being seen as a reaction to an increase in a systemic threat.

Another aspect also extensively dealt with by the quantitative empirical literature has been the behaviour of countries in international military alliances and their influence on the level of military spending incurred by each member. The results of the empirical work on this issue are nevertheless unclear. In several of the more recent studies on the subject, such as Goldsmith (2003), no positive influence has been found for alliances regarding the variation in military spending of their members; in the case of Dunne et al (2003), a positive influence of NATO was found in the case of Portugal, whereas in the case of Spain it was not significant. With regard to Spain, González de la Fe and Montolio (2001) consider that Spain was actually a free-riding country in NATO until the end of the 1990s. Lastly, Eloranta (2007) confirms the absence of any effect of alliances on the patterns of spending in the countries prior to 1914, with various examples of free-riding also being apparent.

Concerning the case at hand, and bearing in mind it is a first approximation of the determinants of Spanish military spending, the variables used for the analysis were limited to several of the most important economic, political and military characteristics of Spain for which sufficient information is available and that show significant long-term variation in time. As pointed out above, the dependent variable of the analysis is the military burden (the ratio between military spending and GDP), and we analysed the effect on this of the logarithm for per capita income, openness to trade, military dictatorships, internal and external armed conflicts, and membership to NATO (the

last three measured using dummy variables for the corresponding years). In a second regression, the dictatorship variable was replaced by the autarky variable, which only takes into account the initial period of the Franco dictatorship. This change is justified, on the one hand, by the coincidence of most of the Primo de Rivera dictatorship with one of the periods of armed conflict covered by the analysis (the Rif, or Second Moroccan, War) and, on the other, by the difference in nature between the two stages of the Franco dictatorship and the fact that the military criteria for managing the economy were much more important in the first stage²¹. The results of the unit root analysis of the variables used and the Engle-Granger test for co-integration of the inter-relationship between them are given in tables 7 and 8, with the estimation outputs from the model being given in table 9²².

Table 7. ADF unit root tests (1885-2000)

Variable	Test specification (constant and trend)	No. of lags	ADF test
Military spending / GDP	constant	1	-2.15
Per capita income log	none	1	4.00
Openness coefficient	none	0	1.62

H_0 : presence of a unit root.

Source: the authors, from their series on military spending, the GDP and per capita income series from Prados de la Escosura (2003) and the coefficient series on the openness of the Spanish economy by Tena (2005).

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21. A more complete analysis that includes other variables that are potentially significant, such as social conflict, political instability, social polarisation and the degree of industrialisation, together with a more precise analysis of the degree of democratisation and the influence of the international setting is left for our forthcoming research agenda. We also intend to analyse other dependent variables aside from the military burden, such as the proportion of military spending in relation to total public spending and disaggregate spending (in both institutional and economic terms).
 22. As in the case of the previous section, the time series sample was limited to the 1885-2000 period, due to the convulsive behaviour of the dependent variable during the years prior to 1885.

Table 8. Engle-Granger test for co-integration between the variables included in the regressions (1885-2000)

Regression	Test specification (constant and trend)	No. of lags	ADF test (OLS equation residuals)
(1)	none	0	-4.22**
(2)	none	0	-4.86**

H_0 : no existence of co-integration (presence of a unit root in the series of OLS equation residuals).

** Rejection of the null hypothesis at the 5% significance level.

Source: the authors (see table 7).

Table 9. The factors underlying military spending in Spain (1885-2000)

Dependent variable: ratio between military spending and GDP (%)		
	(1)	(2)
Constant	3.98** (0.73)	3.28** (0.64)
Log per capita income	-0.03 (0.14)	0.03 (0.11)
Degree of openness	-0.07** (0.01)	-0.06** (0.01)
War dummy (1895-98; 1909-27)	0.63** (0.14)	0.72** (0.14)
Military dictatorship dummy	0.17 (0.15)	
Autarky dummy (1940-1959)		0.58** (0.17)
NATO dummy (1982-2000)	0.72** (0.24)	0.41 (0.23)
Adjusted R ²	0.58	0.62

Source: the authors (see table 7).

According to the results given in the table, the level of per capita income has had no significant effect on the Spanish military burden. On the other hand, the other economic variable analysed, i.e. the degree of openness of the world economy, appears to have had a clearly negative impact (even though it was relatively small) on military spending, along the same lines noted by Dunne et al. (2003). In other words, the Spanish military burden increased during the periods when the country was relatively closed off from the international economy. This result may be connected, on the one hand, with the link between being cut off from international economic activity and increased political nationalism and, on the other, with the possible association of protectionist policies, with their cost in terms of welfare, with a greater need for repression by the government. Nevertheless, the possible interference of variables that were omitted (such as, in this case, claims of nationalistic motivation and changes in the organisational capacity of the workers' movement in the early part of the 20th century) means that care should be taken when interpreting the results.

In relation to the political and military variables that were considered, as would be expected, military spending increased significantly during the years in which Spain was involved in armed conflicts, such as the colonial wars at the end of the 19th century and the various stages of the war in Morocco in the early years of the 20th century. On the other hand, the establishment of military dictatorships *per se* does not appear to have been associated with higher defence spending. It is possible, as mentioned above, that this absence of any effect is associated with the fact that most of the Primo de Rivera dictatorship coincided with the end stages of the war in Morocco. The lack of any clear effects of this variable could also however be the result of inadequate classification by the Spanish political regimes, in two different ways. Firstly, the constitutional monarchy in the period prior to the coup in 1923 was not really a democratic system, but a patronage-based regime of special interest groups with the trappings of some marginal aspects of democracy. The logic for determining military spending during the years prior to 1923 is therefore expected to be very different to that of the Second Republic or the present-day constitutional monarchy. Sec-

only, the phenomena grouped together as military dictatorships were in fact very different situations. In particular, it is worth distinguishing the period of autarky under the Franco regime (1939-1959), during which the entire economy and society in Spain were administered according to military criteria, from other periods of military dictatorship in which the influence of the military was significantly less. In order to take this distinction into account, in model (2) the dictatorship variable was replaced by a dummy variable with a value of 1 for just the period of autarky under the Franco regime. In contrast to the dictatorship variable, the coefficient for the autarky variable is positive and clearly significant, which shows the relative expansion of military spending that took place during the period.

In addition, a dummy variable that refers to the time that Spain has belonged to NATO was included in the regressions in order to encompass the possible effects of international military alliances. According to the coefficients for this variable, membership to NATO has led to an expansion in Spanish military spending (although this effect is no longer significant in the second model). In this respect, and on the basis of the results of the regressions, it would appear that it cannot be categorically asserted, as Dunne et al (2003) and González de la Fe and Montolio (2001) suggest, that Spain has been free-riding in NATO in terms of military spending²³.

4. CONCLUSIONS

The aim of this research project was to make a first approximation of the trends, determinants and effects of Spanish military expenditure between 1850 and the present day from a comparative perspective. In order to conduct the analysis, a new series of Spanish military spend-

23. We also attempted to include a dummy variable in the regression for the years in which there were democratic regimes in Spain (1931-35 and 1976-2000), together with a dummy variable to cover the period (from 1989 onwards) in which the Spanish armed forces participated in international missions. None of these variables were significant, however, and as a result they were excluded from the final regressions.

ing from 1850 to 1983 was estimated using primary sources, which was matched with the data available for later periods in the databases of NATO and SIPRI. The main findings from the study of the new data on military spending are summarised below.

Firstly, Spanish military expenditure has grown steadily and at significant rates (on average around 2.2% annually) since the mid-19th century up until the present day. This growth was especially intense in certain specific periods: on the one hand, the periods in which Spanish military forces were involved in intra-state and colonial wars (the interventions abroad during the 1860s, the civil and colonial war that broke out during the *Sexenio Democrático*²⁴ from 1868-74, the war in Cuba and the Philippines at the end of the 19th century, the war in Morocco (the Rif War, also called the Second Moroccan War) between 1909 and 1927 and, of course, the Spanish Civil War of 1936-39); on the other hand, there was an extraordinary increase in military spending in the peace-time period from the beginning of the 1960s to the beginning of the 1980s. This episode of growth coincided with the overall expansion of the public sector in Spain, when the foundations of the present-day Welfare State were also laid.

Secondly, in terms of composition, Spanish military expenditure has been dominated by personnel expenditure, which is indicative of the technological and institutional backwardness of the Spanish military apparatus in relation to that of advanced countries.

Thirdly, with regard to the priority given to military spending by governments in Spain (measured in terms of the ratios for military spending/GDP and military spending/total public expenditure), various different periods can be distinguished. On the one hand, up until 1936, the Spanish military burden was comparable to that of the major European powers. Despite being a totally marginal country in the international scenario and having a backward military apparatus, the proportions of GDP and total public expenditure allocated by Spain to military ends were comparable or only slightly lower than those of Great Brit-

24. The six-year revolutionary or “democratic” period between the Glorious Revolution of 1868 and the beginning of the Bourbon Restoration.

ain, Germany, France and Italy. The high priority given to military spending may be partly explained by the internal and colonial conflicts in which the country was involved, although these conflicts were only active at specific times. In order to understand the high priority given by governments in Spain to military spending throughout the entire period, other factors need to be referred to, such as the systematic use of the military apparatus for purposes of internal repression, military inefficiency and the burden of military personnel expenditure.

There was a partial change in the situation from 1940 onwards. During the second half of the 19th century, the Spanish military burden (the ratio between military spending and GDP) remained significantly below that of the major Western military powers. Nevertheless, Spain continued to allocate very high proportions of public expenditure to military ends. This situation was directly connected with the underdeveloped public sector in Spain during the period of the Franco regime. The very low level of Spanish public expenditure during the period prevented the resources allocated to the military apparatus from increasing at the same rate as in other countries, in spite of the fact that it absorbed a high proportion of public funds. Other categories of expenditure, such as social expenditure, clearly suffered much more intensely from this budgetary restraint than military spending in that they were categories of lower priority for the different governments, and the deficit accumulated by the generations that lived under the Franco dictatorship, in terms of social benefits and services, was much more serious than that of the military.

Fourthly, the trend in military spending was analysed to see if it had a long-term influence on economic growth and social and education spending in Spain. The statistical causal analysis that was applied would appear to indicate that military spending had no significant influence, neither positive nor negative, on economic growth or non-military public expenditure over the long term. In other words, our research would indicate that economic arguments (military spending as a stimulus for growth or as an obstacle to increasing social expenditure) are not relevant, at least in the case of Spain, as justification for increases or decreases, and that discussion on the level of expenditure

should be based on other considerations and arguments of either a political or social nature. The research findings also indicate however that this absence of a causal relationship may mask certain changes in the long-term mutual influence between the variables considered. For example, it appears that military spending was slightly positive for economic growth before the Spanish Civil War, and slightly negative afterwards. The detailed analysis of these relationships at specific times in history is left for future research.

Lastly, we sought to identify the factors that may help explain the long-term trend of priority in military spending in Spain. It is worth mentioning various findings from the analysis, which is still in a preliminary stage, that has so far been carried out. Firstly, Spanish military burden appears to have been completely independent of the level of per capita income. In other words, the process of long-term economic development in Spain does not seem to have affected the dynamics of military spending, which were instead fundamentally associated with political and military factors.

Among these factors, aside from the obvious influence of wars, stand out the effects on spending of the degree of openness of the economy, the autarky of the Franco period and membership to NATO (although the findings are less conclusive in the case of membership to NATO). In other words, the increase in the military burden in Spain was stimulated during the times of economic nationalism when the country was closed off from the international economy (which was usually accompanied by political nationalism) and during the initial stage of the Franco dictatorship, in which the military was the protagonist in the political system, and the economy and society as a whole were administered according to military criteria. All of this would seem to confirm the importance of internal political factors in the trend of Spanish military expenditure, unlike the situation in the major Western powers. It was only during the colonial wars and, at the end of the period, after NATO membership, that international factors seem to have played a certain role. This may be associated with the impression, mentioned above, that the main functions of the military forces were linked more closely to repression within Spain itself than to activities in the international sphere.

This research is the first stage in a comprehensive research programme on long-term Spanish military spending. On the basis of the overall findings presented in this paper, our objective is carry out an in-depth study of the composition of military spending in terms of budget items, and to continue with the analysis of the economic, political and social factors that determine changes in the trend of military spending. We also intend to expand and improve our international database in order to undertake a more rigorous study of the data for the different stages of the period under analysis.

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