



Antonio Fonfría
Universidad Complutense de Madrid

- Submitted: April 2013

- Accepted: May 2013

DEFENCE SPENDING IN SPAIN. A METHODOLOGICAL NOTE

This paper analyzes the definition of defence expenditure that is used by various international institutions. The aim is twofold. First to compare these definitions underlining the main differences between them and, secondly, to conduct a comparative study based on their estimates of Spanish defence spending. Finally an analysis of the existing divergences between budgetary data and actual expenditure is performed.

Defence expenditure, Spain, international estimates, comparisons.

JEL CLASSIFICATION: H41, H56.

DEFENCE SPENDING IN SPAIN. A METHODOLOGICAL NOTE.

1.- Introduction

The set of expenses and income which is set out in the State Budget sets the priorities of the political economy of governments and is, in turn, the reflection of the general policy followed by the management of public funds. The relative volume of certain costs vis-à-vis others, and the greater or lesser growth of different budgetary headings, express the orientation that is given to certain economic activities which are going to be undertaken during the year by the public sector, which will also have an influence on the private sector of the economy.

Among these costs is defence. It is considered to be a public good, as it fulfils the general characteristics of this kind of goods: to its non-exclusion in consumption it is necessary to add non-rivalry, the existence of market faults and of positive and negative externalities¹. There is likewise an opportunity cost of the resources devoted to defence as opposed to other lines of expenditure, just as occurs in the opposite direction. Generally, defence expenditure is compared with education or health, in order to evaluate that opportunity cost; although it seems more appropriate to try to analyse what the return generated is for each euro spent in those areas so as to have an objective criterion about the real opportunity cost.

The cost in defence can be defined as the cost of maintaining the staff, equipment and facilities both in times of peace and in conflict with the objective of guaranteeing a proper level of deterrence and security. As Adam Smith expressed it in 1776, “defence is more important than opulence” as in order to obtain greater profits from free trade, in the view of this author, it is necessary for a situation of peace to exist, which is guaranteed by economic deterrence, deriving from the possession of strategic goods and the military².

Defence expenditure is considered to be one of the most appropriate ways of

¹ See CORNES, R.C. y STANDLER, T. *The Theory of Externalities, Public Goods and Club Goods*. Cambridge University Press. Londres. 1999.

² Chapter I, Part I of Book V, with the title “Del gasto en defensa”.

measuring deterrence³, together with the order of priority that is given to the defence policy in the entire set of policies of a country. It is an input measurement which gathers up an extremely diverse set of costs and investments which, in this last case, have very long lifetimes, which may exceed thirty years in the case of naval, air force or land systems and platforms. On occasion, it is also a matter of using it as an output indicator but it causes some problems relative to what exactly is being measured as the output is joined to the results obtained deriving from defence, an aspect which is extremely complex to quantify. In that case, it would be necessary to compute, for example, productivity or effects caused by particular cases of deterrence which are not easy to quantify.

The need to make correct measurements of defence expenditure goes beyond budgetary matters or accountability. In the case of a significant number of countries, it has to do with collective security and shared defence, that is to say, with the participation in generally military alliances, especially NATO, in which economic contributions mark the weight of each country in decision making. Therefore, to internal budgetary matters it is necessary to add those which refer to the capacity for international influence in certain economic, industrial and military spheres.

This situation requires the existence of internationally comparable data, which is not simple due to the fact that countries compute the different headings of their defence budgets in different ways. Additionally, there is a significant lack of transparency in all matters to do with information on defence expenditure. This is due not so much to the fact that it is a strategic variable for countries, in general terms, which would require certain opacity regarding information but rather to the social perception, which is not very much in favour of this kind of expenditure, particularly in Europe.

The aim of this piece of work is to analyse the different ways of measuring defence expenditure that are carried out by the most important international sources and to compare their results with those from Spanish defence expenditure analysed through national budgets. This analysis is intended to contribute to the debate about which the criteria are that must be included in a definition of defence expenditure that includes the aspects that are really linked to defence, without entering into overlaps deriving from the consideration of other similar costs such as those of internal security, basically police or homeland security. Although it is true that these last contribute globally to security, they cannot be considered to be strictly a defence cost. From this point of view, costs linked strictly to the interior will not be considered as defence expenditure as both their nature and their orientation answer to different needs⁴.

3 Logically, this is not the only one as it is possible to look at indicators relating to material and human resources available in a country. But from the economic point of view it is a key indicator which is often made relative to the size of the economy of the country, the population, area, etc.

4 It is true that in some cases both fields tend to overlap and even to become confused due to the fact that under certain circumstances the armed forces of countries carry out security or policing duties, and even those of civil protection. Contributing to this lack of definition is the identification which is currently made of security and defence, which, although they are deeply related aspects, are

In the next section, we shall deal with the different definitions of defence expenditure and continue in the third part with the quantification that the different institutions carry out for the Spanish case. The article ends with the main conclusions that we have arrived at in this piece of research.

2.- Definitions and concepts

International comparisons of defence costs are difficult due mainly to a wide range of factors which combine the aspects linked with the definition itself of defence expenditure with more technical ideas relating to prices, exchange rates, etc. In the 1980s, Ball (1984) carried out an in-depth study of the defence budgets of a set of developing countries with the objective of making comparisons between them. He observed the added difficulties that continuous changes of definition of the factors that are included and excluded involve. Subsequently, Brzoska (1995), made a compilation of the factors which affect the definition of defence expenditure using the main international statistics, particularly those relating to NATO, the United Nations and the International Monetary Fund. He devoted much effort to the aspects relative to homogenisation of national statistics on the part of the above-mentioned organisations, particularly the consistency through time of the data together with the different deflators used and international comparisons, setting out the modifications that are observed according to the rate of exchange used.

Along similar lines, but also dealing with the Colombian national budget, the Ministry of Defence of the country undertook a wide-ranging piece of work which reflected the definitions of a range of international sources. Likewise, it contributed its own definition in order to work out the Colombian defence and security expenditure -MDN (2009)-. In the work, there is a distinction made between two kinds of sources “which each have their own independent methodology and which additionally are responsible for collecting information through consultations made to primary sources; they each have a definition of the concept of expense and publish historical series for several countries” –pp. 15-. The following are included among this group: NATO, IMF, UN and CEPAL (Economic Commission for Latin America). And, those that he calls collecting bodies, “(SIPRI, IISS – The Military Balance, VCI-DoS-ACDA, the World Bank and the CIA - The World Factbook) which adopt a conceptual definition

not interchangeable nor do they respond to the same reality. For this reason, the necessary materials, training, infrastructure, etc. and the general activity of defence and security have a differentiated treatment, just like what is related to the economic and budgetary definition. See BRZOSKA, M. “World military expenditures”, in Hartley, K. and Sandler, T. *Handbook of Defense Economics*, vol. 1. Elsevier, 1995, pp.45-67 and BALDWIN, A. “The concept of security”, *Review of International Studies*, vol. 23, nº 1, 1997, pp. 5-26.

or structure, working from the methodologies indicated in the previous group⁵ –pp. 18-.

For his part, Scheetz (2002) carries out a critical analysis of the definition used by CEPAL, through its application to Chile and Argentina, concluding that there are important conceptual and accounting problems as well as those related with access to information. CEPAL's definition (2001) makes a distinction between three groups of important aspects in the definition of defence expenditure, designed initially for Chile and Argentina, in such a manner as to be a route for the homogenisation of information.

As can be observed, there are different international sources which have definitions of defence expenditure and which compile the international information, so as to homogenise it for a certain group of countries. A detailed analysis of the definitions of defence expenditure made by the four main international sources - or sources with their own definition - is given in Appendix 1.

2.1. Sources with their own definition

The definition proposed by NATO is, possibly, the most widely used to make international comparisons⁶, either through publications of NATO itself or other sources, such as SIPRI or the World Bank: even those from the remainder of the sources mentioned, of which some use its definition. That prepared by NATO includes⁷ the costs of national - not regional - Governments, both internally, specifically oriented towards satisfying the needs of the armed forces, and for the defence of allies - DoD (2004) - and puts them into four groups of expenses: those relating to operating costs, acquisition and construction, research and development and other costs.

For its part, the IMF, unlike the Alliance, collects the costs made by what it denominates the “general government sector”, which includes both the central government, the state and the local government. This includes military and civil defence, external military aid and research and development costs related with defence, as well as a heading which contains other more unusual aspects, not contemplated in the above. In short, it presents a wider definition than that of NATO, fundamentally in everything concerning the civil aspects of defence.

In this regard, the definition used by the UN is based on a wide-ranging question-

5 This distinction will be maintained in this piece of work. Likewise, the above-mentioned organisations will be included, to which the EDA (European Defence Agency) will be added.

6 See the recent work of PEREZ-FORNIÉS, C., PARDOS, E. and GADEA, M.M. “NATO defence expenditure: A statistical compendium”, Cuadernos Aragoneses de Economía, 2ª época, vol. 22, nº 1-2, 2012, pp. 65-83.

7 The NATO statistics include all the member countries at any particular time.

naire, by means of which an attempt is made to standardise the presentation of the information. In this way, it is intended to increase its transparency and homogenise it for a large number of countries, generating a growing geographical cover over time. In its definition, the general operating costs are included: those for staff, operations and conservation, costs deriving from acquisitions and construction, and those relating to research and development. In the same way as in the IMF definition, that of the UN gives great importance to the costs deriving from foreign military aid and, logically, those relating to UN peacekeeping operations.

The last of the international sources with a definition of its own is CEPAL. Although this institution is a regional commission of the United Nations, it has its own definition of defence expenditure, making it different in this regard from the official UN definition. The main aim of CEPAL when putting forward this definition is improving the relationships of trust between the states of the region and again homogenising the measurement of costs. The point of view used includes three groups of costs—G1, G2 and G3-, each one of which extends the previous one. Thus, in the first of them, the bulk of the defence costs are included, that is to say: it corresponds with the governmental costs in the whole of the administration, and also the management of military defence. Group G2, apart from the costs of G1, includes staff costs, military retirement pensions or social welfare. Finally, G3 adds to the foregoing the defence industry costs and research and development: other productive activities; defence activities of other public organisations and military aid. It explicitly excludes costs related with internal security, just like those of the IMF, concentrating on those concerning the “armed forces”, as a form of discrimination with regard to internal security—CEPAL (2001), pag. 60-.

For its part, the EDA includes staff costs of military security provided that they are funded by the Ministry of Defence (MoD). Generally, this source has not been considered to be primary in other studies so as to include it together with those mentioned above. However, it is possible to observe a definition of defence expenditure which does not refer to any of those set out and which includes, uniquely, certain aspects which differentiate it from other definitions. Nevertheless, it would be desirable to have greater precision and detail on the headings which are considered. In its definition of defence expenditure, the total costs borne by the Ministries of Defence of the EU - except Denmark - are included as well as those other defence costs coming from other sources such as the special budget lines of other ministries—EDA (2011)-. It considers the following set of categories: staff; investment, research and technology; operations and maintenance of other costs. As regards the cost of operations - deployments - it only takes into account the cost of those that are carried out outside the territory of EU member states.

2.2 Other Sources

As has been mentioned already, those international sources of information which are based on the definitions made by any of the four previous institutions are included here. In general, the most frequently used is that prepared by SIPRI, due to ease of

access, to the fact that it has a long history (since 1950) and is geographically extensive (160 countries) and the fact that it shows a high degree of homogeneity. Nevertheless, the comparison of the information has been achieved in a more complete manner since 1988, due to the process of ongoing improvement which is used. It is based on the NATO definition and uses the same concepts although with a much smaller differentiation. As a new element in comparison with other definitions, it supplies the consideration of the military forces for special operations—SIPRI (2007 y 2011).

For its part, the IISS (International Institute for Strategic Studies) likewise adopts the NATO methodology, although it also uses figures from the defence budget or the defence expenditure⁸ of each country, which causes problems of comparison. For example, NATO member countries are asked for information, just like this institution, while for other countries the information is gained from different organisations. Furthermore, there are some differences of definition with regard to numerous countries which generally make the IISS figures higher in comparison with those offered by the UN.

A third source is ACDA⁹ –the Arms Control and Defence Agency-. With a number of blank years regarding publication of information, it nevertheless maintains the NATO definition for the countries of the Alliance. Additionally, it uses sources for other countries, some of which have been mentioned here (IMF, SIPRI, CIA, IISS) and regional groupings¹⁰. Due to the fact that information from some countries is clearly incomplete and generally refers exclusively to operational costs, an estimate of the total cost is made by adding in arms imports. Something similar occurs when countries inform of their defence expenditure together with security costs as in this case they subtract the latter from the former to obtain a figure which is solely for defence. However, the information which it offers is added with the result that it is not possible to extract greater information from the different concepts.

Something similar occurs with the information supplied in The World Factbook from the CIA, which also does not give the information in a breakdown¹¹. This organisation is supplied from different sources, many of which belong to the US Department of Defence, although there are also open sources. Additionally, one of the problems of the figures offered by the CIA is that for some countries they may include the costs of public security and police, which makes them less comparable with other

8 There may be significant differences between the countries' budget and defence expenditure as is shown by CEPAL: Methodology for the comparison of military costs. Santiago de Chile, 2005, October.

9 This Agency was created in the early 1960s; in the late 1990s, it became part of the structure of the US State Department, where it remains.

10 US STATE DEPARTMENT "World Military Expenditures and Arms Transfers 1995-2005". 2005, Washington, D.C.

11 Nevertheless, it includes information for a set of over 170 countries - in 2013 - although not all of it refers to the same year.

statistical sources.

Finally, the World Bank, through its publication, *The World Development Indicators*, provides information on defence expenditure, taken from the SIPRI, with the result that it does not give us a new definition.

2.3 The definition of defence expenditure in Spain

The State Budget should be simpler to read and interpret since, as the Constitutional Court emphasises, it is made up “of the determination of the forecast of the income and authorisation of expenditure that the State and the bodies attached to it or dependent on it can carry out in the financial year in question. Together with this necessary content, there is the possibility of adding a possible content, although it is strictly limited to the matters or questions which have a direct relation with the forecast of income, financing of costs or the criteria of general economic policy, which are a necessary complement for the easiest interpretation and most effective execution of the Budget and the economic policy of the Government.” - Preamble to the Budget Act, several years.

However, in matters concerning the defence budget, neither interpretative simplicity nor effectiveness in execution are the most widespread rules. The reasons for this statement are based on two arguments. The first has to do with the non-inclusion within the budget of the Ministry of Defence of a range of headings which should be considered from the start in the initial budget. The second reason refers to the lack of fulfilment of the regulatory forecasts and to the procedures for making public expenses in relation to some of the elements which make up the budget¹².

Both aspects are derived from the existence of more than one definition of defence expenditure. In such a manner that, if the initial defence budget is considered, a different definition, of less breadth, is obtained than when considering the final effective cost. The cause lies in the fact that in the first case, the consolidated budget is not included, that is to say, the budget which is obtained by adding to the Ministry of Defence budget that of those autonomous organisations that are attached to it. To this must be added the budgetary heading 464B, in the Ministry of Industry budget, which is devoted to supporting the participation of Spanish companies in the development of technological or industrial projects related with defence and which have a strategic or international character. But the costs of Research and Development spent by the Ministry of Defence are included on the other hand.

In the second place, there are the budget modifications, which have three origins:

1. Reductions due to unavailability of the budget.
2. Increases in credit that are the result of the need to make extraordinary expenses

¹² COURT OF ACCOUNTS (2012) “Oversight report on the participation of the Spanish Armed Forces in international missions, financial years 2009 and 2010”, 2012, nº 943.

or payments.

3. Credits generated by income from sales of property, which are obtained through the Institute of Defence Housing, Infrastructure and Equipment (INVIED).

Finally, the expense connected with foreign missions by the Armed Forces are included in the definition of defence expenditure contained in the initial budgets. However, it is necessary to emphasise that the amount involved in the three headings of which it is made up (128, 228 and 668) is extremely limited as over the last few years it has been about €14,000,000. Obviously this figure does not correspond to the final effective cost, which has in previous financial years exceeded €700,000,000. For this reason, the Accounts Court (2012) emphasises in its conclusions to the analysis of the funding of Spanish international missions that this situation “reveals a lack of rigour and realism which has been set out by the Court for over two decades” -pp. 70- and judges that it is “indispensable to modify the current procedure of budgeting the costs necessary to finance peacekeeping operations¹³” -pp. 73-.

In terms of comparison with the definitions from the international institutions analysed, the Spanish case, over and above the aspects already mentioned, additionally does not include the retirement pensions - but does include those of the first reserve force - which are paid by the Social Security. Nor does it include other bodies or forces which, although they follow a military regime - the Civil Guard - as regards activity, differ substantially from the Armed Forces. In general terms, and similarly to the case for the majority of the definitions analysed, internal security is not included in the definition of Spanish defence expenditure. The structure and the policies of expenditure of the Ministry of Defence and the programmes on which it is spent, can be summarised as is shown in Figure 1.

3.- Evolution of defence expenditure in Spain according to a range of sources

The diversity of definitions of expenditure reviewed makes clear the complexity of the analysis involved in the comparison. Defenders and detractors of the defence expenditure, different political aspects and analyses which start from a priori conceptions cling to this “polyhedral reality”. One way of avoiding this situation is to make a comparative study of Spanish defence expenditure using the main sources of estimates. As has been stated, each institution builds or uses a definition which does not necessarily coincide with the rest. Larger or smaller estimates of the spending arise from this.

International comparisons demand the homogenisation of information for correct

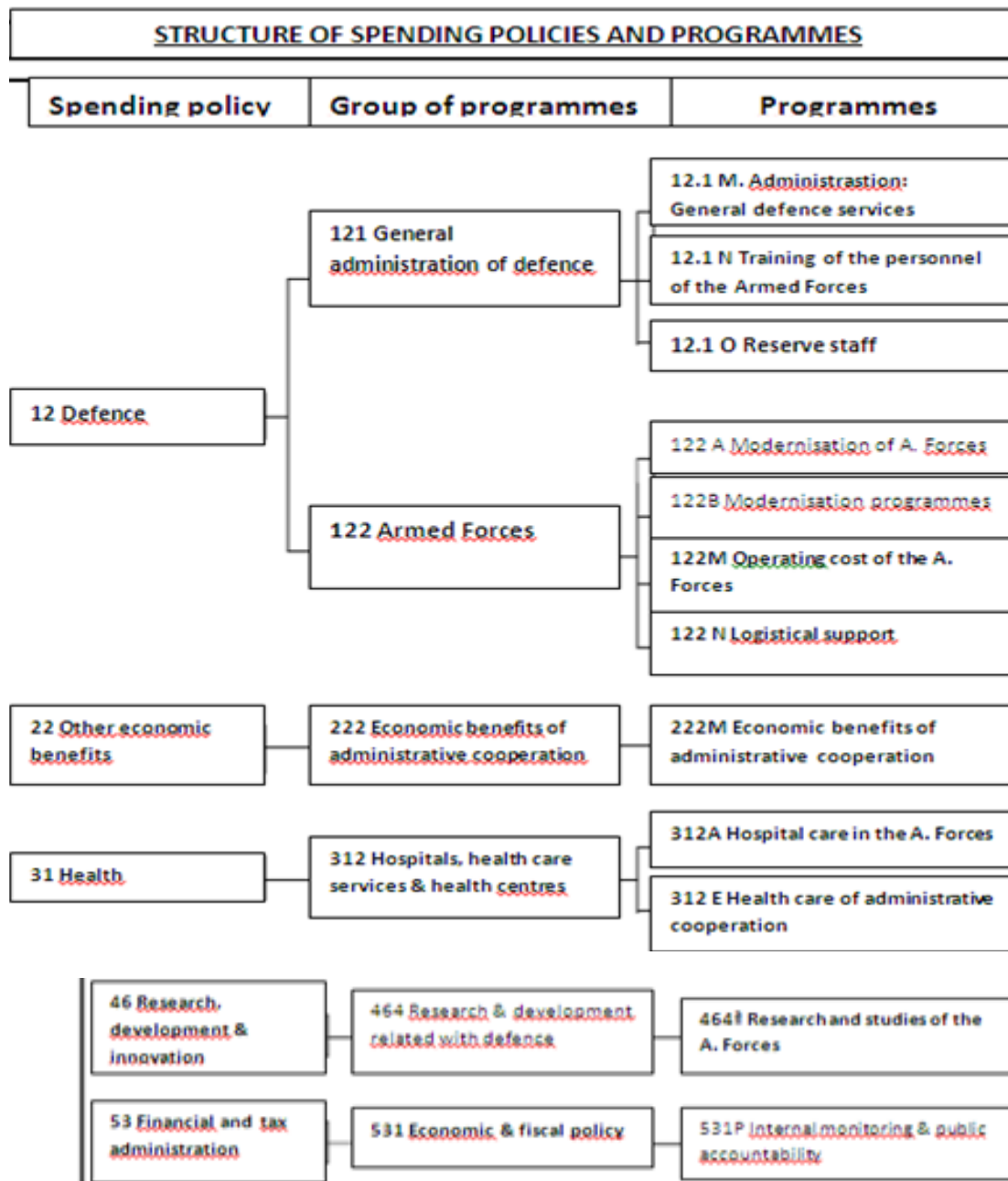
.....

13 In the same text, it is said that this practice involves “an extraordinary workload for the units responsible for handling it and gives rise to extremely laborious, confused and formally irregular management”, pp. 70.

use. For this purpose, the dollar in terms of Purchasing Power Parity¹⁴ (PPP) has been used as the most suitable rate of exchange. This approximation uses a common basket of goods and services for countries and values it in terms of each national currency. In this way, and comparing the cost in the currency of each country, the Purchasing Power Parity exchange rate is obtained. Furthermore, the use of different exchange rates substantially affects defence spending, as has been demonstrated by Brzoska (1995) and the conversion via PPP reflects the opportunity cost of defence expenditure, making it the most appropriate means. Nevertheless, the majority of series use other exchange rates, with the result that they have now been made compatible.

14 In English Purchasing Power Parity (PPP). See, KRUGMAN, P.R. and OBSTFIELD, M. "International Economics. Theory and policy". Pearson, Boston. Mass. 2010, for a full explanation.

FIGURE 1.-



Source: Spanish budget.

As far as the evolution of prices is concerned, we have chosen to use the GDP deflator as there is no ad hoc deflator for Spanish defence expenditure¹⁵. In general,

15 This aspect is extremely important due to the heterogeneity of goods and services related to defence. It would therefore be necessary to derive a deflator linked to them. Additionally, it would permit a more appropriate valuation of the resources devoted to defence. SOLOMON, B. "The demand for Canadian defence expenditures", *Defence and Peace Economics*, 16 (3), 2005, pp. 171-189, criticises the lack of this index and shows a high differential between the prices of civil and military goods in the case of Canada, which affects the total amount of defence expenditure.

there are very few countries that estimate price deflators for military goods, although NATO habitually calculates them and, in general, they are often larger than the deflators of comparable civilian products. Some of the causes of their increased size are the important oligopolistic nature of the defence market, which confers upon companies a certain market power which is often reflected in raised prices and extraordinary profits¹⁶, the great intensity in the use of technological and human capital as well as the low price elasticity of the products required by the defence ministries, compared with other kinds of goods¹⁷.

Additionally, measurements will be taken in relative terms with regard to GDP. This is intended to show the size of the sector with regard to the economy. This is generally more expressive than the total volume as it shows two aspects: a coefficient which is modified according to the numerator and the denominator, which can avoid some kinds of bias deriving from the use of exchange rates or prices.

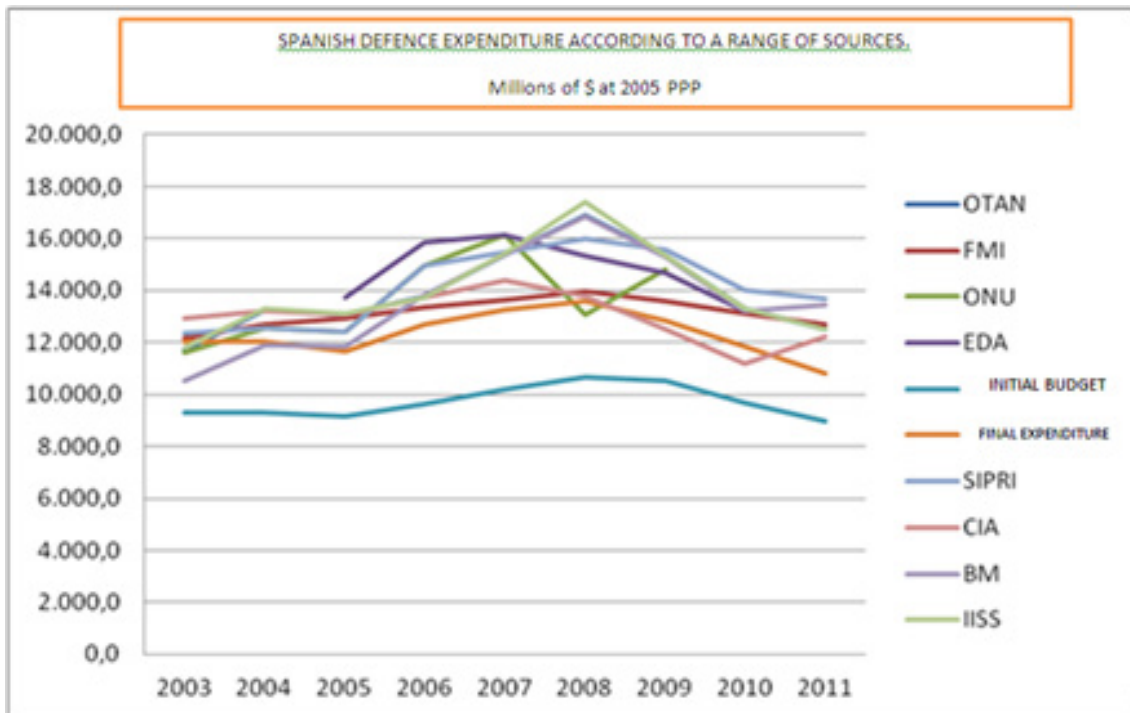
The study runs from 2003 to 2011. This period has been selected bearing a double criterion in mind: on the one hand, it shows the double tendency of growth and reduction of defence costs, which makes it possible to approximate the existence of significant changes according to which institution measures the expense. On the other, an attempt has been made to minimise the impact of the methodological changes in the series used, for which purpose a decision has been taken to use a shorter time period. Thus, figure 2 shows the tendency calculated by the included institutions¹⁸. The tendency which is observed is an inverted U, which underlines the increase and subsequent fall in

16 On this point, see the estimate by FONFRÍA, A. "Estructura, Conducta y Resultados de la industria española de defensa" Cuadernos Aragoneses de Economía, 2ª época, vol. 22, 1-2, 2012, pp. 11-3, for the Spanish defence industry.

17 See MARTÍ, C. "The European Security Industry. A research agenda", Defence and Peace Economics, vol. 22, nº 2, 2011, pp. 245-264.

18 This does not include CEPAL, due to the fact that it does not calculate Spanish defence expenditure. Likewise, the ACDA quantification is not included because of the intermittency with which it publishes its information.

GRAPH 2



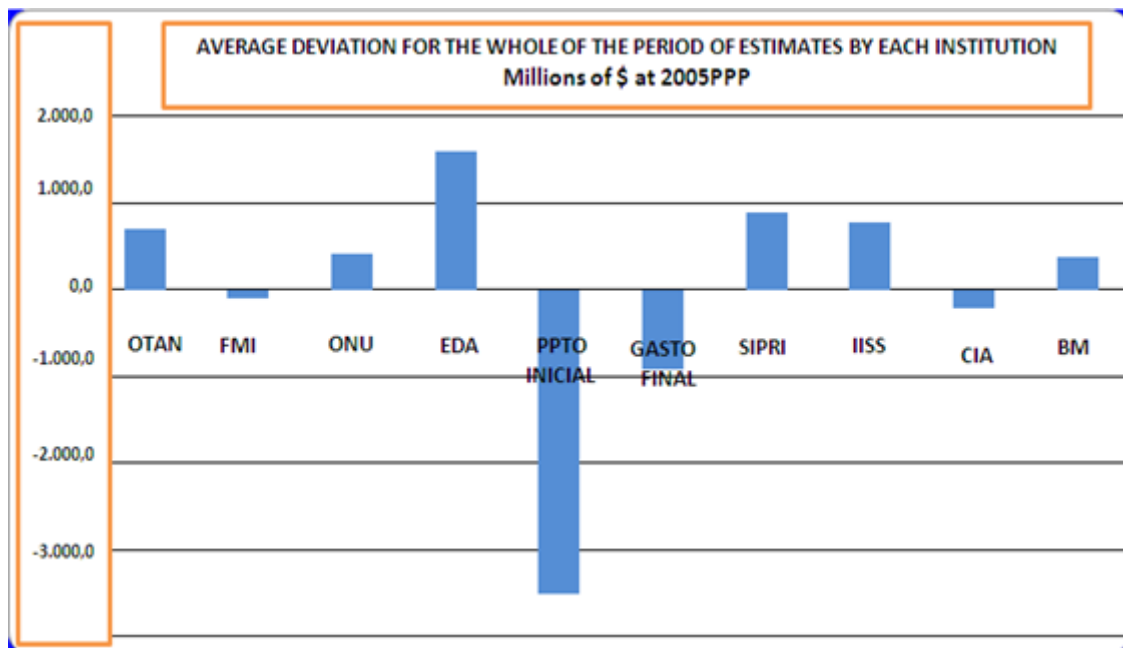
Source: Prepared by the author with data from the institutions

expenditure that is reflected in all the series with different routes. Nevertheless, it is worth pointing out that the UN information goes up to 2009¹⁹ while the EDA begins its series in 2005 and ends in 2010. In relation to the quantification of resources devoted to defence, carried out at the Ministry of Defence, as has been mentioned, the two possibilities that there are have been included, that is to say, the cost finally paid and the initial budget. In relation to the latter, as is observed in the graph, it continually underestimates the defence expenditure for the reasons given. This suggests the need for greater budgetary realism, in such a manner that the final cost and the initial budget show greater similarity. Additionally, the final cost is generally below the set of estimates made by most of the organisations due fundamentally to non-inclusion of pensions.

The average expenditure of the period is 13,220.7 million dollars. Only three institutions are lower than this value on average: the IMF, the CIA and obviously the budget and expenditure calculated for Spain –Figure 3-. However, the bias shown by the initial budget is extremely high - greater than three billion dollars -, with the result that it is not a good indicator of spending. Additionally, the EDA is the one which shows a greater upward bias but it is not possible to find out which headings this is due to as the information supplied by the institutions does not give such information separately. In short, the calculations made by the IMF and the CIA are those which have the least time bias with regard to the average value of the period (figure 3).

¹⁹ Spain has not sent information on defence expenditure to this institution since 2010.

GRAPH 3

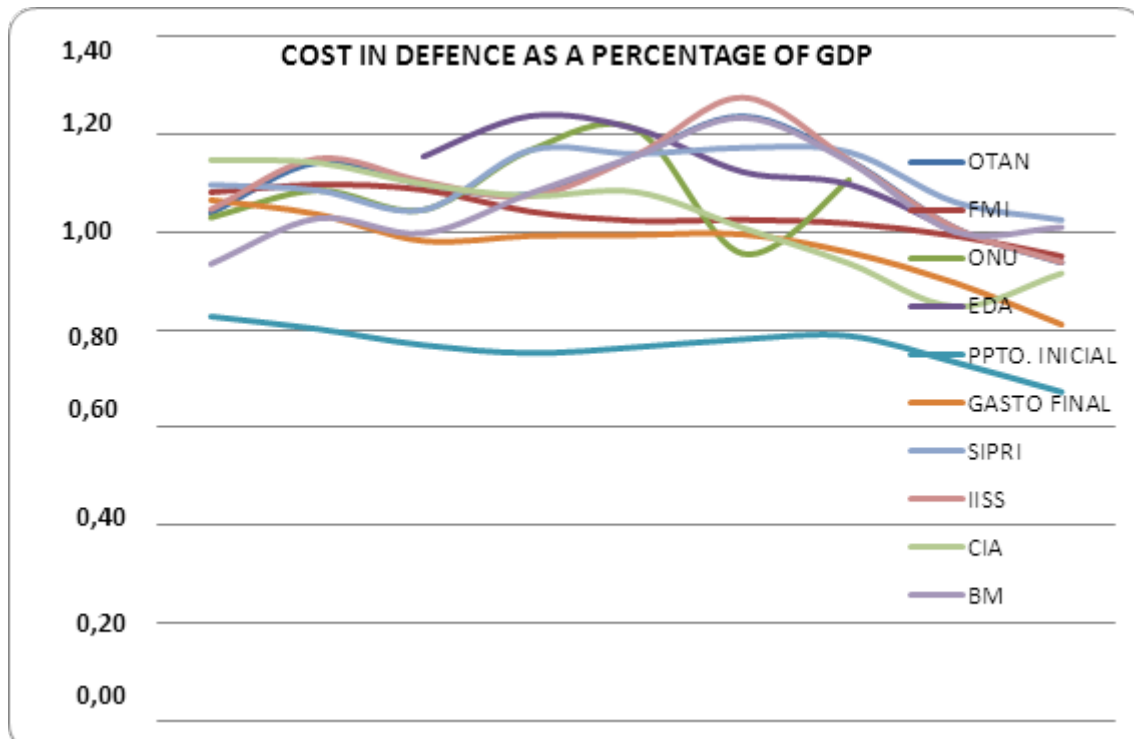


Source: Prepared by the author with data from the institutions.

Relating the expenditure to the size of the economy - figure 4 -, the situation is similar to that observed in terms of absolute volume. In such a manner that the underestimation of the initial budget with regard to the average value - 1.03% -, is of 0.27% for the whole of the period; meanwhile the average deviation of the rest of the estimates is at 0.03%²⁰. From this, it is possible to derive two observations: the first, that the initial budget undervalues the cost estimated by the different institutions by almost a third of the total. In the second place, and deriving from the foregoing, the margin of improvement for bringing the budgeted figures closer to the figures for the real costs is extremely wide. This would give greater transparency, a more appropriate approximation to reality and a significant improvement in the management of public resources, which would have as its effect that the value for money was greater, as a better forecast of the needs of spending is carried out.

²⁰ EDA, IISS and SIPRI are the institutions which tend towards a more biased estimation of the defence expenditure in relation to GDP, with their differences on average being from -9.5%, to 6.6% for the period as a whole.

GRAPH 4



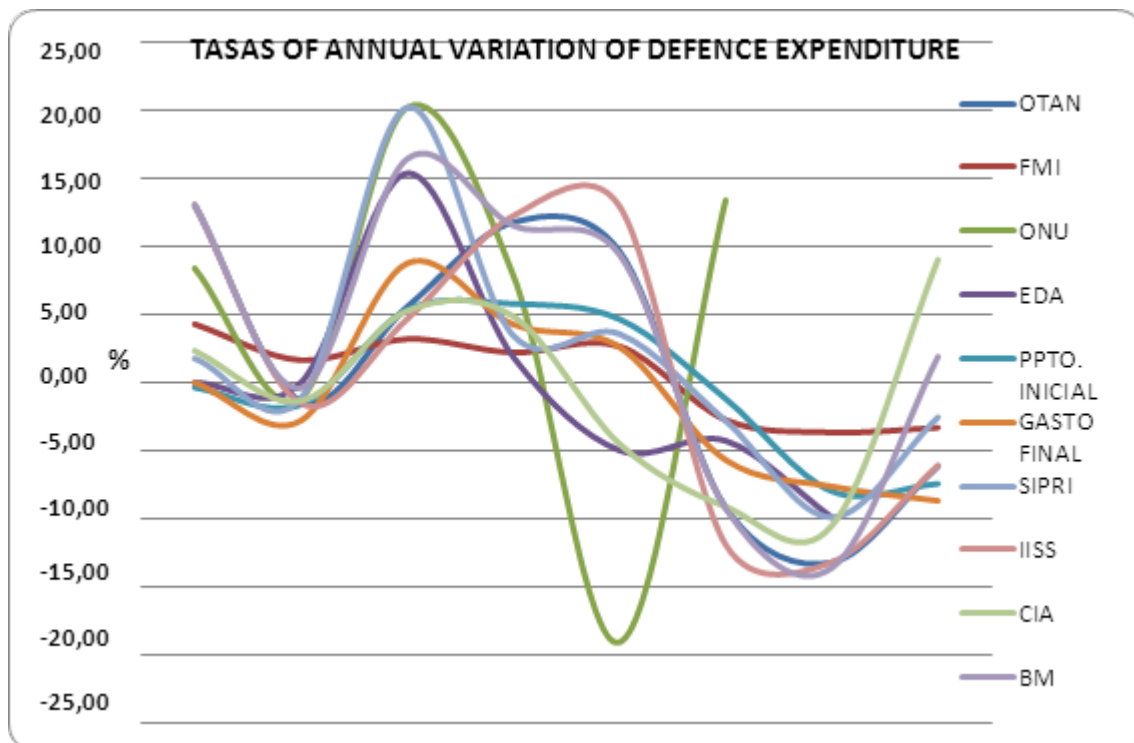
Source: Prepared by the author with data from the institutions.

Calculated with constant PPP dollars from 2005.

As regards the annual variation of the cost figures, the rates set out in figure 5 show two different trends in the data from the institutions: on the one hand, there are those that anticipate - with regard to the final cost calculated for Spain -, the reduction of the cost to 2006 –SIPRI, BM, EDA and the UN²¹-; on the other, there are those that show it from 2007 onwards. The first present, on the whole, a more abrupt fall and a more rapid recovery in 2011, which shows that they are more volatile in their response to the variations of expenditure. This fact may be due to the fact that the definition itself of the defence expenditure includes headings of which the composition varies annually in a more acute way, like international aid.

²¹ In the case of the UN series, the variation is greater due to the fact that it has not been possible to update the data prior to 2010.

GRAPH 5



Source: Prepared by the author with data from the institutions.

With the aim of going further into this aspect, it is necessary to make a deeper analysis of the national figures. As has been observed above, the differences between the initial budget and the final cost are very large. In fact, for the whole of the period under consideration the difference is greater than 20%, and is five points higher in the years 2006 and 2007. The information contained in table 1 sets out the origin of the budgetary modifications and the final result generated²². In global terms, over 11% of the final budget is due to the refundable credits that the Ministry of Industry gives to companies, 6.6% of the costs linked to the international operations and somewhat more than 3.5% to the property income generated by the Ministry of Defence itself. As far as the budgetary reductions are concerned, they are less than 1% and affect the final part of the period.

All of this makes it possible to increase costs in a way that is not foreseen in the budget, with the result that the final real cost tends to be at 1% of GDP, as has been stated. This situation causes problems from a budgetary point of view as it does not comply with the rule for transparency and simplicity from the point of view of an efficient management of resources; since a part of them is freed for payment at very late moments - in the fiscal year -, which imposes severe restrictions on the expenditure, with the result that it is not always carried out in the most appropriate way. From the perspective of the operations of the Armed Forces, it limits the cost to certain headings

²² The percentage differences that there may be with regard to the euro budget are due to the conversion to dollars.

and certain moments, when they are necessary, and unable to enjoy credit²³.

Table 1.- Modifications to credit on the initial budget. Constant in 2005 PPP Mill. dollars.

Years	Initial budget	Expenditure on international missions	Budgetary modifications for non-availability	Credits generated by INVIED	Credits from the Ministry of Industry	Total costs
2003	9322.8	683.4	0.0	528.0	1474.8	12009.0
2004	9289.7	605.8	0.0	692.6	1421.0	12009.1
2005	9139.4	551.7	0.0	690.3	1293.0	11674.3
2006	9626.6	732.1	0.0	585.4	1751.0	12695.0
2007	10181.7	811.7	0.0	677.7	1565.3	13236.4
2008	10655.2	838.0	0.0	411.4	1677.2	13581.7
2009	10529.5	910.6	-265.3	160.7	1476.9	12812.5
2010	9692.3	966.1	-177.7	160.0	1197.9	11838.5
2011	8974.3	1123.6	-426.5	175.6	966.9	10813.8

Source: Prepared by the author with data from the State Budgets and the Ministry of Defence

4.- Conclusions

The study of the definitions of defence expenditure and its quantitative expression is a matter pending in the area of the defence economy in Spain. This work attempts to supply one or two criteria for analysis. From this point of view, it is worth emphasising the diversity of content of the definitions, as well as the inclusion of common factors: particularly those referring to material aspects of defence. Nevertheless, the results of the study show how each institution orients the definition according to its own interests, which has an influence on the quantification of costs and on the existence of significant differences of analysis according to which definition is used. For this reason, it might be very useful to reach an international consensus on what is understood as defence expenditure, so that there is a trend towards homogenisation of definitions and therefore of the calculations made using them.

In the second place, a clear line has been set between the budget and the defence expenditure calculated within the Spanish system. The results, which are widely known, make clear the need for greater adaptation of the budgetary techniques to the reality of defence. Unfortunately, it appears that the conclusions of the Accounts Court are not considered by the Ministry of Defence. From this point of view, transparency would be one of the socially most valuable results.

23 This fact is generally habitual in the case of the payment of credit for international missions since, as they are not budgeted for except in very limited amounts, they require recourse to the contingency fund in over 95% of the amount, with the result that the credit is not available until the financial year is well advanced.

BIBLIOGRAFÍA

- BALDWIN, D.A. (1997) "The concept of security", *Review of International Studies*, vol. 23, nº 1, pp. 5-26.
- BALL, N. (1984) "Measuring third world security expenditure: A research note", *World Development*, vol. 12, nº 2, pp. 157-164.
- BRZOSKA, M. (1995) "World military expenditures", in Hartley, K. and Sandler, T. *Handbook of Defense Economics*, vol. 1. Elsevier, pp.45-67
- CEPAL (2001) *Metodología estandarizada común para la medición de los Gastos de Defensa (Standardised common methodology for the measurement of Defence Expenditure)*, Santiago de Chile, November.
- CEPAL (2005) *Metodología para la comparación de los gastos militares (Methodology for comparison of military costs)*. Santiago de Chile, October.
- CORNES, R.C. y STANDLER, T. (1996): *The Theory of Externalities, Public Goods and Club Goods*. Cambridge University Press. London.
- US STATE DEPARTMENT (2012) "World Military Expenditures and Arms Transfers 1995-2005". Washington, D.C.
- DoD (2004) "2004 statistical compendium on allied contributions on the common defense". US Department of Defence. Washington.
- EUROPEAN DEFENCE AGENCY (EDA) (2011) "Additional defence data statistics-2010". Brussels.
- IMF (2001) *Manual of Public Finance Statistics*. Washington.
- FONFRÍA, A. (2012) "Estructura, Conducta y Resultados de la industria española de defensa" (Structure, Conduct and Results of the Spanish Defence Industry) *Cuadernos Aragoneses de Economía*, 2ª época, vol. 22, 1-2, pp. 11-30.
- KRUGMAN, P.R. y OBSTFIELD, M. (2010) "International Economics. Theory and policy". Pearson, Boston. Mass.
- MARTÍ, C. (2011) "The European Security Industry. A research agenda", *Defence and Peace Economics*, vol. 22, nº 2, pp. 245-264.
- Ministry of National Defence (2009) "Metodología para el cálculo del gasto en defensa y seguridad" (Methodology for the calculation of defence and security expenditure), Departamento Nacional de Planeación. Ministry of National Defence of the Republic of Colombia.
- NATO (2012) *Semestral Statistical Memorandum*.
- PEREZ-FORNIÉS, C., PARDOS, E. and GADEA, M.M. (2012) "NATO defence

expenditure: A statistical compendium”, Cuadernos Aragoneses de Economía, 2ª época, vol. 22, nº 1-2, pp. 65-83.

SCHEETZ, T. (2002) “Una evaluación del documento cepalino: Metodología estandarizada común para la medición de los gastos de defensa” (An evaluation of the CEPAL document: “Standardised common methodology for the measurement of defence expenditure”), Revista Fuerzas Armadas y Sociedad, vol. 18 nº 1-2, pp. 107-121.

SIPRI (2007) SIPRI Yearbook 2007, Oxford University Press.

SIPRI (2011) SIPRI Yearbook 2011, Oxford University Press.

SOLOMON, B. (2005) “The demand for Canadian defence expenditures”, Defence and Peace Economics, 16 (3), pp. 171-189.

TRIBUNAL DE CUENTAS (Accounting Court)(2012) “Informe de fiscalización de la participación de las Fuerzas Armadas Españolas en misiones internacionales, ejercicios 2009 y 2010” (Report on the oversight of the participation of the Spanish Armed Forces in international missions, financial years 2009 and 2010), no. 943.

UNODA (2003) “Instrumento de las Naciones Unidas para la presentación normalizada de informes sobre gastos militares. Directrices” (UN Instrument for the standardised presentation of reports on military costs. Directives.) UNODA, New York.

UNODA (2010) “Promoting further openness and transparency in military matters”. UNODA Occasional Papers, no. 20, November.

APPENDIX I: Definition of defence expenditure. Headings included.

	NATO	IMF	UN	CEPAL	EDA
1. Operating costs					
<i>Military personnel</i>	X	X	X	X	X
Pay and subsidies	X	X	X	X	X
Employer's contributions to pension funds	X	X			--a
Other	X				
<i>Civilian personnel</i>	X	X	X	X	X
Pay and subsidies	X	X	X	X	X
Employer's contributions to pension funds	X	X			--a
<i>Pensions</i>	X	X	--a	X	X
Pay to retired servicemen	X	X	--a	X	X
Pay to retired civilians	X	X	--a	X	X
<i>Operations and maintenance</i>	X	X	X		X
Munitions and explosives (excluding nuclear)	X	X		X	X
Oil-derived products	X				
Spare parts	X		X		X
Other equipment and supplies	X		X	X	X
Rents	X				
Other operations and maintenance	X	X	X		X
2. Acquisition and construction					
<i>Large equipment</i>	X	X	X	X	X
Missile systems	X	X	X	X	X
Missiles	X	X	X	X	X
Nuclear weapons	X		X		X
Aircraft	X	X	X	X	X
Artillery	X	X	X	X	X
Combat vehicles	X	X	X	X	X
Engineering equipment	X	X	X	X	X
Light armaments	X	X	X	X	X
Transport vehicles	X	X	X	X	X
Maritime units	X	X	X	X	X
Electronic and communications equipment	X	X	X	X	X
<i>National military construction</i>	X		X	X	X
<i>Infrastructure</i>	X		X	X	X
<i>Host country costs</i>	X				
Payments to other countries	X			X	X
Support for other countries	X			--a	
Land and public services	X				

3. Research and Development					
Devoted to large equipment	X	X	X	X	X
Other	X	X	X	X	X
Subsidies, loans		X			X
4. Other costs					
Storage cost for intermediate industrial goods and supplies			X		
Civil defence		X	X	X	X ^b
Costs financed by donations from other countries		X			
Field and base hospitals		X	X		X
Military aid missions		X	X		X
Military aid to other countries		X	X	X	X
5. Civil defence					
Adm. of matters and services of civil defence		X	X	X	--a
Formulation of plans for unforeseen events		X			
Organisation of manoeuvres involving civil institutions and population		X		X	X
Services of civil protection		X	--a	--a	--a
Acquisition and storage of equipment, food and supplies for emergency use		X			
6. Defence not included (*)		X	X	X	X

Sources: NATO (2012), IMF (2001), UNODA (2003) UNODA (2010), CEPAL (2001), CEPAL (2005), NATIONAL DEFENCE MINISTRY (2009), EDA (2011).

--: Inclusion is not clear from the definition given by the organisation. b): Only if financed by the MoD. (*): not included in previous sections due to the fact that it does not correspond exactly with any title.

