Does the European defence burden-sharing matter?

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Introduction

Since December 1998, the European Union has institutionalized its defence policy by implementing the European Security and Defence Policy (ESDP) and realized major improvements by way of a bigger investment of EU members. Nevertheless, since national capabilities are different and the incentives to contribute voluntarily are still weak, not all countries have followed the same pattern in financing the ESDP. Thus, what are the budgetary stakes for an effective and efficient ESDP? Before responding to this question, it seems important to provide an accurate definition of ESDP by putting forward the expected goals and the institutional design to achieve them. As Howorth (2007) notes, a flow of misleading allegations surrounds the ESDP. Among them is the idea that the ESDP corresponds to a European Army is very frequent in the press, when in fact, "each military or civilian mission mounted by ESDP has had its own terms of reference, its own volunteers from a range of EU members States (and

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indeed from a range of non-EU members states as well), its own logistics and command arrangements and its own lifetime. When the mission is terminated, the resources, both human and material, initially assigned to it, revert to their national owners" (Howorth, 2007: 40).

Such a separation of EU-members' roles summarizes quite well the dilemma which the European Union has to face. Between complementarity (as currently practiced) and subsidiarity (in the case of a fully integrated policy), expenditures for operations with military or defence implications mainly remain pooled in the budget of the Common Foreign Security Policy (CFSP) and sometimes overflow to another heading of the EU budget (Missiroli 2003: 6-9). As a consequence, the budgetary process for financing the ESDP remains unclear and mainly subject to the gross national income (GNI) rule leaving it to EU officials and to a lesser degree EU PMs to define the size of the cake , but not necessarily the size of the cake's parts. As for EU claims about abeing a global and military actor (Larsen 2002), it implies that each EU member is a partial global and military actor according to their piece of the famous cake.

Since the emergence of an abundant literature on the theory of alliances in both political science and economics, focusing on the ESDP with such theoretical tools could improve our understanding of the logic of individual contributions in providing an international public good, i.e. the security of Europe. As the seminal work of Olson and Zeckhauser (1966) on burden-sharing has been applied to NATO alliance, it remains a relevant indicator for any common institutional structure or organization where heterogeneous actors have to deal with common decisions based on individual contributions. To a certain extent, we aim at demonstrating that such an approach brings a better understanding of the basic differences between fiscal mutualization and solidarity in defense issues within an intergovernmental framework.

The ESDP follows one military objective: to enable the EU to have at its disposal real (credible) operational capabilities to lead international operations of peacekeeping and crisis management. In the same perspective, military expenditures must both finance an autonomous capacity of action and share some costs linked to military force deployment decided by the EU.

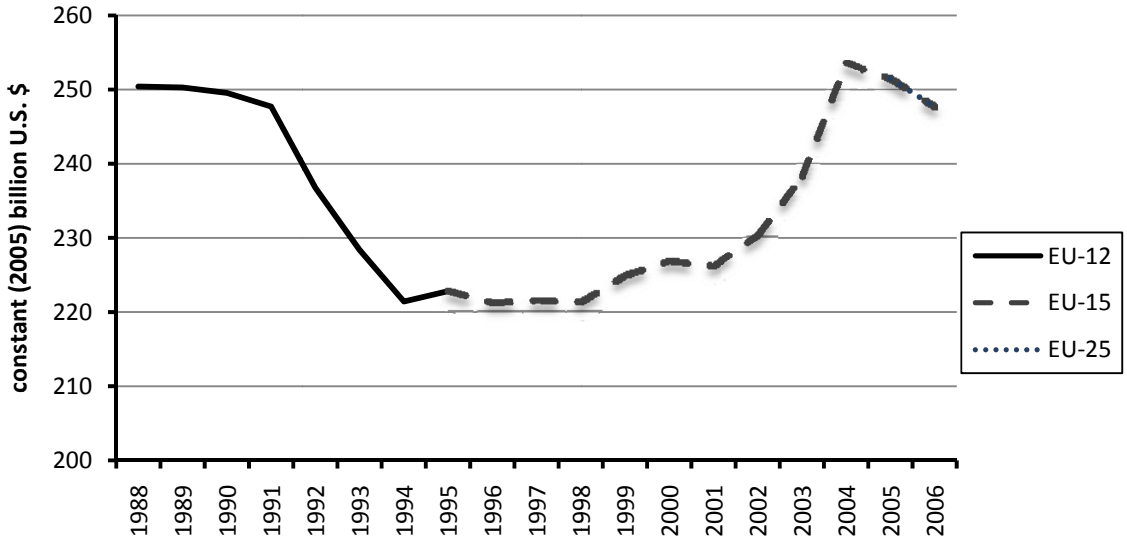
Military expenditures within the European Union are bigger than national military expenditures available for the European Security and Defence Policy. In a sense, this situation is not surprising since ESDP is crafted under the principle of intergovernmentalism either in public-decision making or in financing missions. Indeed, national governments are the only important actors to decide, to finance and to bargain within or outside the European Union. Existing tensions on the ground of fiscal contribution for the ESDP functioning have not been focused on by scholars. This chapter tackles this issue by demonstrating that different military burden-sharing criteria, especially “fair” burden-sharing, are useful to explain both the friction for financing and incentives for an expected free-riding. However, after performing a statistical analysis, the famous exploitation thesis (richer countries provide a disproportionate share of common security compared than other countries) is not valid, suggesting that rational strategies of each EU country do not matter in the context of the defense of Europe.

1. ESDP: the fiscal drip?

In 2006, with an amount of 332 billion Euros, the European Union has filled the fiscal gap that was initiated at the beginning of nineties (figure 1) when all the defense budgets of EU countries were decreasing, as justified by a new period of world stability. From 2001 to now, the rise of transnational terrorism in developed countries is likely to reverse the cutbacks in defense. How

can we explain such a European trend during fifteen years? There are two driving forces. First, in 1991, the EU was composed of only 12 countries and the then average contribution by each country was higher than that in 2006. This means that the enlargement of EU has not offset the decreasing trend of defense spending. Second, the inflexion point starting in 2002 reveals the change of defense and foreign strategy of leading EU countries in facing new international threats (terrorism, DWA, biological threats, etc.) As a consequence, the re-armament policy replaced the short period of peace dividends, regardless of the partisan government in office. Between 2002 and 2006, the average EU defense budget increased by three per cent each year. But in 2006, a downturn is observed and confirmed in 2007 as European countries had to face fiscal constraints set by the EU convergence criteria and decided to limit their intervention (whatever the public policy) in the economy and preferred to invest relatively more in domestic security than in external security[2].

Figure 1: European military expenditures (1988-2006)



Source: SIPRI and author's calculations

[2] Moreover, the participation of the UK in the Iraq conflict substantially reduced its defense capabilities.

The European pattern does not necessarily reflect the behavior of all EU countries, especially for non-leading countries in defense matters. A basic premise of our analysis is that (national) defence budget allocations provide a reasonable snapshot of the distribution of military power among EU members. Ttable 1 confirms the emergence of three countries as main defence producers (in real terms). Indeed, UK, France and Germany combined devote about 66 per cent of the overall budgetary capacity for defence issues in Europe. Despite the collapse of the Berlin Wall and the end of the bipolar world, the UK, France and Germany maintained a huge share of the defense budget . They have also promoted the development of their defense industries by accompanying their consolidation and pursuing a leading role in export markets, especially in France and UK.

Table 1: Share of Military spending in overall EU

	1995	2000	2006		1995	2000	2006
Austria	1.15%	1.25%	1.14%	***Latvia***	0.04%	0.05%	0.13%
Belgium	2.03%	2.07%	1.80%	***Lithuania***	0.02%	0.10%	0.13%
Cyprus	0.11%	0.12%	0.10%	***Luxembourg***	0.07%	0.08%	0.13%
Czec Republic	0.60%	0.63%	0.59%	***Malta***	n.a.	n.a.	n.a.
Denmark	1.59%	1.55%	1.69%	***Netherlands***	3.84%	3.87%	3.90%
Estonia	0.03%	0.05%	0.08%	***Poland***	1.79%	2.05%	2.58%
Finland	0.90%	1.01%	1.23%	***Portugal***	1.42%	1.43%	1.57%
France	23.36%	21.89%	22.12%	***Slovakia***	0.37%	0.22%	0.30%
Germany	17.95%	18.22%	16.35%	***Slovenia***	n.a.	n.a.	n.a.
Greece	2.23%	3.22%	3.49%	***Spain***	4.50%	4.53%	4.62%
Hungary	0.42%	0.52%	0.45%	***Sweden***	3.14%	3.15%	2.49%
Ireland	0.43%	0.44%	0.44%	***UK***	24.78%	22.80%	27.01%
Italy	12.62%	14.51%	12.01%				

Source : SIPRI + Eurostat

Nevertheless this first view is not the only and not the most appropriate interpretation of the EU defence budget allocation.

2. Financing ESDP missions : solidarity vs. cost-sharing

Up to now, European military expenditures have mainly been envisaged from a minimalist perspective. The first initiatives for building a European Defense were undertaken outside the strict political framework of European Union under the form of cooperation between member-States (e.g. Eurocorps ; *gendarmerie européenne*…). A few years after the signature of the Treaty of Amsterdam, a first but limited effort to finance the implementation and the functioning of the ESDP was realized (35 millions of Euros in 2006). Still, the share of ESDP budget in the overall CFSP budget is relatively weak despite an increasing CFSP budget (from 43 million Euros in 2003 to 102.6 million Euros in 2006)[3]. Among regular expenditures, the ESDP finances administrative costs dedicated to the organization of military command structures (EU military Staff and EU military committee) and the evaluation of defense equipment devoted to the European Defense Agency (with an annual budget of 32 million Euros in 2006).

Another source of spending concerns civilian, police and military operations. Since the EU countries have set the Helsinki Headline Goal, they are supposed to be able to deploy a 60,000-strong military force in one year. Article 28 of the Treaty on European Union (TEU) sets the principles for the financing of civilian and military crisis management operations. Under that provision, the expenditure related to the Common Foreign and Security Policy (CFSP) shall be charged to the budget of the European Community, except for such expenditure arising from operations having military or defence implications and cases where the Council unanimously decides otherwise. The rise of financial investment in external operations was not necessarily distributed equally between member States. For instance, the overall cost for completed

[3] Among the EU budget of External Relations (3,45 billion Euros), only 75 million Euros are devoted to conflict resolution, verification, support for the peace process and stabilization, 13 million Euros to Non-proliferation and disarmament and 3.5 million Euros to conflict prevention and crisis management.

operations as Concordia (in former Yugoslav Republic of Macedonia), Artémis (in Democratic Republic of Congo) were financed according to the principle where *"costs lie where they fall"*. This principle does not come into force for civilian crisis-management operations since they are funded from the CFSP budget which is established following the budgetary procedure laid down for the EU budget.

At the opposite end, operations with military implications or defence operations could not be financed from Community funds until 2004. Since this date, a special mechanism called ATHENA has been established by the Council of the EU to cover the common incremental costs of such operations[4]. Even if the needed period to find an agreement on what will be included into such a mechanism (storage, exercises, forces wages, lodging, transport…) takes a long time, the ratio of costs financed in common to total incremental costs for an operation remains small (less than 10%). The remainder of the expenditure is financed directly by Member States on the basis of the "costs lie where they fall" principle[5]. For instance, the military operation EUFOR-Althea in Bosnia and Herzegovina is currently covered up to 33 million Euros (2007) by Athena.

Table 2: GNI scale (in %) used for contributions to ATHENA

Member State	2005	2006	2007		2005	2006	2007
Belgium	2.83	2.88	2.83	Luxemburg	0.23	0.24	0.23
Bulgaria			0.22	Hungary	0.80	0.83	0.77
Czech Republic	0.80	0.91	0.96	Malta	0.04	0.04	0.04
Germany	21.46	20.97	20.18	Netherlands	4.53	4.47	4.66
Estonia	0.08	0.09	0.11	Austria	2.29	2.28	2.29

[4] Annexes I, II, III and IV of Council Decision 2007/384/ CFSP.

[5] 18 Member States have participated in the provisional financing scheme and ATHENA is endowed with provisional appropriations exceeding 10 million Euros. In addition, each of the 18 Member States may decide individually that its contribution to the provisional appropriations (up to 50%) can be used for an operation other than Rapid Response (EU Council, 2007).

Greece	1.69	1.74	1.77	Poland	1.86	2.21	2.30
Spain	8.05	8.28	8.78	Portugal	1.33	1.31	1.35
France	16.13	16.19	16.08	Romania	---	---	0.90
Ireland	1.21	1.30	1.36	Slovenia	0.26	0.27	0.27
Italy	13.36	13.29	12.80	Slovakia	0.33	0.36	0.39
Cyprus	0.12	0.12	0.13	Finland	1.48	1.48	1.47
Latvia	0.10	0.12	0.14	Sweden	2.76	2.83	2.72
Lithuania	0.18	0.19	0.21	UK	18.07	17.57	17.01

Source : EU Council Secretariat, June 2007, Financing of ESDP operations

Table 2 presents the calculus of GNI criteria to each country's Athena contribution. We have only 26 countries as Denmark has opted out from actions with defence implications under the EU Treaty. As demonstrated by scholars (Le Cacheux, 2004), Germany remains the first European net contributor for the Athena mechanism even though Germany was not a leader in ESDP implementation. In a sense, such a solidarity system conceals the real preferences of EU countries and shapes a biased collective preference on defense issues because such a system does not express the real value on which an efficient mechanism of financing could be designed.

Does ESDP suffer from a lack of cost sharing for enhanced intervention? The inception of the Athena mechanism is expected to reduce the costs of some countries and incite other to contribute more generously. By summing ESDP and CFSP finances (102,6 million Euros), EDA budget (32 million Euros) and civilo-military operations (68 million Euros), the overall budget for defense and security actions account for about 200 million Euros, which corresponds to modestly about 0,06 per cent of the sum of military spending of the 25 (15) EU members. Between solidarity characterized by the Athena mechanism and alliance defined by the current intergovernmental financing system, the European Union has now finally built a mixed system by distinguishing both civil and military missions. But such a design does not respond directly to the

nature of military burden-sharing. The measure of burden-sharing can not only rest on the budgetary contribution of each country because it provides no information on the real capacities to contribute or the level of individual preferences for security and defense issues.

3. Alternative measures of military burden sharing

The main literature on burden sharing for military and defence issues is derived from the focus on NATO. The political implications were to define as accurately as possible who was bearing the "unfairly" high burden in collective security. In this perspective, the United States needed to know how to calculate the fair contribution of each country and then convince, especially in enlargement waves, weaker contributors to increase their investment for collective security.
The conventional wisdom for measuring military burden sharing consists in dividing the level of defence expenditures by the level of the gross domestic product. A series of empirical studies (Olson and Zeckhauser 1966, Sandler and Hartley 1999, Oneal 1990a, Oneal 1990b, Hartley and Sander 1999, Hirofumi and Sandler 2002) have demonstrated that some countries can decide to underprovide the supply of a public good as other countries are certain to provide it. Consequently, the burden for the provision of public goods is disproportionate and favors the strategy of free-riders whose the logic is not to not contribute but rather to contribute at a level proportionnaly weaker to what is needed to satisfy a Pareto optimality. This result is common in the public goods literature and rests on a basic calculus of an uneven burden. Among limitations that suggests such an indicator, Hartley and Sandler (1999: 169) advocate that "nations can differ in their definitions of defence spending (e.g. pensions, defence R&D) and some countries rely on conscript forces so that their defence budgets underestimate their defence burdens (as reflected in opportunity costs)". Indeed, the data we used for describing the share of military spending in the

country's GDP contains some differences in what is called "defence expenditures" (table 3). For instance, France includes in its defence budget both the operating and capital costs of a homeland security force, called *Gendarmerie Nationale*, while other EU countries include such forces into the budget of the Ministry of (civil) security or Ministry of Interior. Another difference in definitional issues concerns the labor force. Between professional armies and conscription forces, the fiscal value of each labor unit is not necessarily reflected in a defence budget.

Table 3: Share of Military spending in terms of GDP

	1995	2000	2006		1995	2000	2006
Austria	1,02%	0,99%	0,85%	***Latvia***	0,88%	0,89%	1,63%
Belgium	1,50%	1,38%	1,12%	***Lithuania***	0,36%	1,41%	1,17%
Cyprus	2,17%	2,04%	1,35%	***Luxembourg***	0,66%	0,63%	0,78%
Czec Republic	1,72%	1,71%	1,31%	***Malta***	n.a.	n.a.	n.a.
Denmark	1,71%	1,49%	1,53%	***Netherlands***	1,82%	1,55%	1,48%
Estonia	0,97%	1,39%	1,42%	***Poland***	2,04%	1,85%	1,96%
Finland	1,40%	1,28%	1,36%	***Portugal***	2,31%	1,96%	2,11%
France	3,03%	2,55%	2,41%	***Slovakia***	3,22%	1,68%	1,70%
Germany	1,56%	1,48%	1,30%	***Slovenia***	n.a.	n.a.	n.a.
Greece	3,41%	4,29%	3,73%	***Spain***	1,42%	1,21%	1,04%
Hungary	1,59%	1,67%	1,17%	***Sweden***	2,26%	1,98%	1,37%
Ireland	1,05%	0,70%	0,53%	***UK***	3,00%	2,43%	2,57%
Italy	1,89%	2,04%	1,66%	EU	2,15%	1,92%	2,17%

Source : SIPRI (Military spending) and Eurostat (GDP and Implicit Price Deflator)

Further burden-sharing measures are available for equipment, defence R&D, the arms trade, and external missions. Equipment measure (Hartley and Sandler, 1999) is another way for measuring burden sharing in Europe once the European Defence Agency will be able to launch common armament programs. To date, only countries belonging to the OCCAR (Organisation Conjointe de Coopération en matière d'ARmement), such as the UK, France, Italy, Spain, Belgium and Germany, could be assessed in terms of burden sharing for some existing and future collaborative armament programs.

Defence spending relative to GDP combines an interesting indicator of defence effort with an accurate indicator of ability to contribute. As a result, it is the most widely used indicator of burden-sharing efforts. However, this indicator should not be viewed in isolation from other national contributions to shared security objectives. Also, this measure does not take into account efforts that are not directly reflected in defence budgets, nor does it give credit to those countries that are able to make more effective use of their defence resources.

3.1. Fair military spending burden-sharing

The second step consists in identifying some alternative burden sharing measures as the previous (Defence Expenditures/GDP) ratio does not provide information on the size of the EU member's economy within the EU. That is why, accordingly to Linsdröm (2005), we use the concept of a "fair" burden-sharing criteria that focused on the fair share of defence contribution. Such a "fair" criteria integrates an EU country's ability to contribute or provide security. The fair burden sharing is built by dividing the country's contribution on the country's ability to contribute. At the numerator, the country's contribution means the share (in terms of defence spending) of total contributions of all EU countries. At the denominator, the country's ability to contribute (in terms of GDP) means the share of the total of all EU countries. Consequently, a fair share corresponds to the equality (or a ratio equal to 1) between the country's contribution and its ability to contribute. The more the ratio is under to 1, the lower a country's burden.

Fair burden-sharing for all EU countries between 1995 and 2006 is calculated and reproduced in Table 4. We maintain the score for countries that became members of the EU in 2005 in order to verify whether they changed their position since their membership. By comparison

with Table 3, the value of the fair military burden-sharing indicates that the main defence contributors in terms of GDP bear a huge defence burden. It means too that the economic conditions of countries are a good indicator of the ability to provide defence allocation.

Table 4: Fair burden-sharing in military spending

	1995	2000	2006		1995	2000	2006
Austria	0,48	0,52	0,47	***Latvia***	0,41	0,46	0,91
Belgium	0,70	0,72	0,63	***Lithuania***	0,17	0,73	0,66
Cyprus	1,02	1,06	0,76	***Luxembourg***	0,31	0,33	0,43
Czec Republic	0,80	0,89	0,73	***Malta***	-	-	-
Denmark	0,80	0,78	0,86	***Netherlands***	0,85	0,81	0,83
Estonia	0,45	0,72	0,80	***Poland***	0,95	0,96	1,09
Finland	0,66	0,66	0,76	***Portugal***	1,08	1,02	1,18
France	1,41	1,32	1,35	***Slovakia***	1,50	0,87	0,95
Germany	0,73	0,77	0,73	***Slovenia***	-	-	-
Greece	1,59	2,23	2,08	***Spain***	0,66	0,63	0,58
Hungary	0,74	0,87	0,65	***Sweden***	1,05	1,03	0,77
Ireland	0,49	0,36	0,30	***UK***	1,40	1,26	1,44
Italy	0,88	1,06	0,93				
				EU-25	0,83	0,87	0,87

Source : SIPRI + Eurostat

Results are quite different from the study of Lindstrom, as he found no countries with a “fair” burden-sharing superior to 1. The first reason is linked to the statistical data that we used, coming from SIPRI and not IISS. Only Greece, France, UK, Portugal and Poland record a fair burden-sharing’s score superior to 1. With regard to Greece, only its conflict relationship with Turkey explains such a level of military expenditures. France and UK confirm that they contribute not only more than the European mean but more than the unitary fairness threshold. According to the economic wealth of these countries, a score superior to 1 means that public spending of other countries are not oriented to defense concerns. Among them, 15 countries out of 23 do less than the European average and 18 out of 23 contributed unfairly in

2006 i.e. the latter are likely to adopt free-riding behavior. From a dynamic perspective, only Sweden, Slovakia and Cyprus have decreased their individual share since 1993 while Poland has followed an opposite pattern. The construction of fair military burden-sharing cannot be limited to a unique public finance dimension.

3.2. A fair military forces burden sharing

According to the Helsinki Headline Goal, the capacity to deploy military forces represents a major stake for the defense of Europe. The number of military forces has been halved between 1990 and 2006 (table 5) for the EU-15 and this has created a high pressure to reach the headline goal, even before considering equipment capabilities for deployment (transport…). Small countries have maintained their relative level of military forces only because they were not highly involved in the cold war.

Table 5: Active Military Forces

	1980	1990	2000	2006
Austria	44 000	42 500	35 500	39 900
Belgium	85 450	92 000	39 250	36 950
Denmark	29 400	31 700	21 810	21 180
Finland	31 800	31 000	31 700	28 300
France	453 100	461 250	294 430	254 895
Germany	476 300	469 000	321 000	284 500
Greece	158 500	162 500	159 170	163 850
Ireland	86 500	13 000	11 460	10 460
Italy	361 400	389 600	250 600	191 152
Luxembourg	800	800	899	900
Netherlands	101 400	102 600	51 940	53 130
Portugal	61 800	68 000	44 650	44 900
Spain	257 400	274 500	166 050	147 255
Sweden	63 000	64 500	52 700	27 600
United Kingdom	300 100	306 000	212 450	216 800

EU-15	2 512 930	2 510 940	1 695 609	1 523 778

Source: IISS (Military Balance) 1980 – 2006.

To measure military forces burden-sharing, we have taken into consideration the range of military forces according to the active population (Table 6). As a consequence, we observe two interesting results validating the lack of human capacity within the ESDP framework. First, most European countries were net contributors to a virtual European army in 1993. Thirteen years later, the fair burden-sharing ratio collapsed to 0.60 with some disparities between countries, especially for Belgium, Spain, Italy and France who more severely reduced their military labor forces.

Table 6: Fair burden-sharing in terms of military forces

	1993	2000	2006		1993	2000	2006
Austria	n.a.	0,60	0,63	***Italy***	1,13	0,70	0,51
Belgium	1,48	0,59	0,52	***Luxembourg***	0,31	0,32	0,29
Denmark	0,74	0,51	0,48	***Netherlands***	0,95	0,42	0,41
Finland	0,82	0,81	0,70	***Portugal***	0,92	0,56	0,53
France	1,23	0,75	0,61	***Spain***	1,19	0,62	0,45
Germany	0,79	0,54	0,46	***Sweden***	0,96	0,77	0,38
Greece	2,62	2,27	2,21	***UK***	0,71	0,49	0,48
Ireland	0,62	0,43	0,32				
				EU-15	1,03	0,69	0,60

Source: IISS (Military Balance) 1980 – 2006 + Eurostat (active population).

Second, Greece (for some exceptional geopolitical reasons) draws up the average ratio and leaves other countries under this ratio. It is interesting to observe that the military labor market suffers from a supply deficit while for the same period most European countries had faced unemployment. Such economic conditions combined with enlistment difficulties (ref. ??) make

the decision to send troops for military and civilian ESDP missions complex because countries above the average fair ratio (0.60) can be incited to support the individual operational costs to other countries as the latter (naturally) under provide military forces.

3.3. A fair public finance burden-sharing

The last measure of military burden-sharing consists of combining public finance and military spending. Rather than adopting a wealth approach in terms of GDP, public finances in Europe inform us of the budgetary capacity or constraint for allocating military resources. According to the Wagner Law, the richer a country is the more national social needs (education, transport, health, security) increase. On the other hand, no empirical studies (Gemmell 1990, Holsey and Borcherding 1997) confirm that public finance law for Europe in a recent period. That is why we construct another fair ratio by dividing the share of defence spending (on all EU countries) on a country's ability to contribute (in terms of government spending).

Table 7: Fair military burden-sharing in terms of public finance

	2000	2005		2000	2005
Austria	2.26	2.28	***Latvia***	1.36	0.84
Belgium	1.54	1.78	***Lithuania***		1.13
Cyprus	0.69	1.27	***Luxembourg***	1.98	2.13
Czec Republic	1.22	1.29	***Malta***	0.00	0.00
Denmark	1.43	1.60	***Netherlands***	1.20	1.20
Estonia	0.95	0.90	***Poland***		0.90
Finland	1.66	1.45	***Portugal***	0.91	0.84
France	0.85	0.87	***Slovakia***		0.86
Germany	1.35	1.38	***Slovenia***	0.06	0.05
Greece	0.46	0.46	***Spain***	1.35	1.47
Hungary	1.09	1.39	***Sweden***	1.25	1.47
Ireland	1.92	2.42	***UK***	0.69	0.67
Italy	1.00	1.02			
			EU-25	1.15	1.19

Source : SIPRI + Eurostat

Table 7 provides an interesting result that puts forward a counter-intuitive capacity of European Countries to finance public spending, especially military spending. In other words, countries such as France and UK display a weak fair public finance military burden-sharing, respectively 0.87 and 0.67, because they face a strong budget constraint that force them to make some fiscal choices among different policy options. Security and defense issues seem to led them to an overstretching problem while a majority of European countries (like Germany) are better able to find fiscal resources to finance the military burden.

Among all these measures of burden-sharing the existence of free-riding countries is not demonstrated but only assumed according to the difference between the individual contribution of each EU country and the fair burden-sharing ratio (at least superior to 1). To test this suspicious opportunist behavior, we propose in the next section a simple statistical method to evaluate the robustness of the free-rider hypothesis in the defense of Europe.

4. The logic of defense collective action : A rationalist approach

Since the seminal paper of Oslon and Zeckhauser (1966), it is largely accepted that smaller countries involved in an international alliance are more likely to contribute less than larger countries for providing a public good. Branded as the exploitation hypothesis, it was empirically tested for different periods with the NATO alliance and even in the triple alliance and cordial Entente (Conybeare and Sandler 1990). To ascertain such a hypothesis, it must be assumed that larger countries of an alliance must devote larger percentages of their national income to defence than do smaller countries (hypothesis 1). The subsequent basic idea means that the benefits

received from a collective good (external security) are higher for countries that contribute less i.e. involving a no cost process. By analogy with NATO, we can assume that European security is theoretically provided by EU members through a summation process (Samuelson 1954) in such a way that the final security output is derived from the individual contributions of each EU member. Evidently, we then assume that each EU country has the same common preferences for this security good[6].

The exploitation hypothesis can be defined as followed: *In Europe, there will be a significant positive correlation between the size of an EU member's national income and the percentage of its national income spent on defence*. Following the same methodology recently developed by Sandler and Murdoch (2000) and adopted for European countries by Foucault (2008)[7] for a longer period (1981-2002), we test such a hypothesis with European data between 1995 and 2006. Based on a calculation of Spearman rank correlation coefficient (ρ), it testes non-parametrically[8] the rank correlation of two variables. A significant positive sign means that wealthier countries bear an uneven burden of defense spending. Specifically, "a partial coefficient measures the correlation of the residuals of two regressions: the first set comes from a regression of defence burden ranks on (say) exposed borders, while the second comes from a regression on GDP and exposed borders. With the partial correlation coefficient, we thus remove any explanatory power of the confounding variable before computing the statistic." (Murdoch and Sandler, p. 310).

[6] In the opposite case, some alternative provision technologies could be more appropriate. Hirschleifer (1983) argued that best-shot or weakest-link technologies enable us to take into consideration the quantity of public goods according to the valuation made by countries through voting mechanisms.
[7] Foucault (2008) concludes to the existence of a free-riding behavior among some European countries before the fall of the Berlin Wall and not after this date.
[8] The non-parametric properties are useful for our statistical analysis since the distribution of military burdens in Malta or Ireland are not identical to those of France or UK.

Table 8: Spearman Correlation (1995-2006)

Year	EU- 15 share, GDP	EU-25 share, GDP
1995	0,400	-
1996	0,417	-
1997	0,328	-
1998	0,385	-
1999	0,396	-
2000	0,439	-
2001	0,367	-
2002	0,367	-
2003	0,407	-
2004	0,328	-
2005	0,357	0,180
2006	0,307	0,181

Note: no coefficient is significantly different from zero.

Table 8 indicates that coefficients are positive but insignificant which means that there is not signification correlation between countries' GDP and their defense contribution. Consequently, the exploitation hypothesis is not verified even if a positive sign is observed. In other words, even if the rich EU countries seem to carry the defense burden of the (economically speaking) small EU partners for the past12 years, no free-riding attitude is revealed. European security as a public good is thus not necessarily confronted with under provision due to rationalist strategies but rather due to a non-suitable criteria of Pareto-optimality. Indeed, some countries will still keep a small contribution of defense spending according to their collective preferences. At the same time, the existing voluntary process to contribute enables EU countries to adopt a *status quo* strengthened by the principle of intergovernmentalism. This result confirms that the visible military burden-sharing is not sufficient to conclude that some EU countries defect from providing European security through the ESDP.

5. Conclusions and future research agenda

From a historical perspective, it is undeniable that the European security and defence policy makes some substantial progress, sometimes even in big steps, but the hesitations to involve more spending or fair contribution is revealing considerable fractures in this domain. The statistical analysis of the European military burden-sharing reveals that the fear of free-riding cannot be considered as a reliable threat as EU countries richer in terms of GDP (and public finance) do not bear an uneven defense burden. This result is important because it implies that European security is not a pure public good (Cornes and Sandler 1996) characterized by under-provision due to free-riding. As demonstrated by recent debates on the design of financial mechanisms for military operations outside the EU, the European security and defense policy presents some both collective and "private" components of a public good.

A future agenda research could be designed in two distinct ways. First, the European security provision process appeals to a functional distinction on what is defence spending. Operating and capital expenditures are no longer sufficient to capture some "strategic" or "complement" behaviors. A more significant distinction between research and development spending, military labor spending and internal vs. external security could lead to a better understanding of fiscal choices within the European Union. Second and narrowly linked to the preceding point, European security as a (impure) collective good raised some new theoretical perspectives on the ground of European integration and public-decision making. Indeed, fiscal federalism (Oates 1972) is a theory to determine which collective goods should be provided by which level of government. As European security affects all European citizens, the theory of fiscal federalism suggests delegating the provision of such a good at the supranational level to reduce the negative effects of spillovers. That is why a fruitful avenue of research should be dedicated to evaluating under

which conditions the delegation process, here a “supranationalization”, could ensure an optimal provision of security while respecting the collective preferences of 27 EU countries. The existence of a European security as an impure public good (since some defense components of the ESDP are not commonly shared) implies bypassing the myth of the free-rider in Europe and moving on determining the institutional design which can guarantee an optimal provision and a common financing system for ESDP missions.

References

Conybeare J. and T. Sandler (1990), “The Triple Entente and the Triple Alliance, 1880-1914: A collective goods approach.” *American Political Science Review* 84: 1197-1206.

Cornes R. and T. Sandler (1996), *The Theory of Externalities, Public Goods, and Club Goods.* 2nd ed. Cambridge: Cambridge University Press.

Deighton A. (2002), « The European Security and Defence Policy”, *Journal of Common Market Studies* 40(4): 719-741.

Dewan T. and E. Thielemann (2006), “The Myth of Free-Riding: Refugee Protection and Implicit Burden-Sharing.” *West European Politics* 29(2): 351-69.

Foucault M. (2006), “Europe de la défense : quel processus d’allocation?” *Revue Economique* 57(3): 108-117.

Foucault M. (2008), *Political Economy of European Defence Expenditures*, Amsterdam: Elsevier Publishing (forthcoming).

Fontanel J., Smith R. (1991), “ A European Defence Union? ” *Economic Policy* 13: 393-424.

Gemmell, N. (1990), “Wagner’s law, relative prices and the size of the public sector.” *Manchester School of Economic and Social Studies* 58:361-77.

Hartley K., and Sandler T. (1999), "NATO Burden-Sharing: Past and Future." *Journal of Peace Research* 36(6): 665–680.

Hirofumi S. and T. Sandler (2002), "Peacekeeping and Burden-sharing, 1994-2000." *Journal of Peace Research* 39(11): 651 - 668.

Hirschleifer J. (1983), "From Weakest-Link to Best Shot: The Voluntary Provision of Public Goods." *Public Choice* 41(3): 371–86.

Holsey C. M. and T.E. Borcherding (1997), "Why does government's share of national income grow? An assessment of the recent literature on the U.S. experience." In Dennis C. Mueller *(eds) Perspectives on public choice*, 562-89. New York: Cambridge University Press.

Howorth J. (2007), *Security and Defence Policy in the European Union*, London and New York: Palgrave Macmillan.

Larsen H. (2002), "The EU: A Global Military Actor?" *Cooperation and Conflict* 37(3): 283-302.

Le Cacheux J. (2004), "Negotiating the medium-term financial perspectives for the enlarged EU: The future of the European budget." *Revue de l'OFCE* 91 (April): 175-189.

Lindström G. (2005), "EU-US burdensharing: who does what?" *Chaillot Paper* 82, EU Institute for Security Studies, Paris.

Missiroli A. (2003), "Euros for ESDP: Financing EU operations." *Occasional Papers* 45, EU Institute for Security Studies, Paris.

Oates, W. E. (1972), *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

Oneal John R. (1990a), "Testing the theory of collective action." *Journal of Conflict Resolution* 34(3): 426-448.

Oneal John R. (1990b), "The theory of collective action and burden sharing in NATO." *International Organization* 44(3): 379-402.

Olson, M. (1965), *The Logic of Collective Action*, Cambridge, MA: Harvard University Press.

Olson M., Zeckhauser R. (1966), "An Economic Theory of Alliances." *Review of Economics and Statistics* 48: 266-279.

Samuelson Paul A. (1954), “The Pure Theory of Public Expenditure.” *The Review of Economics and Statistics* 36: 387-89.

Sandler T. (1993), “The economic theory of alliances: A survey.” *Journal of Conflict Resolution* 37: 446-83.

Sandler T., Culyer J. (1982), “ Joint products and multi-jurisdictional spillovers. ” *Quarterly Journal of Economics* 97 (4): 707-716.

Sandler T., Hartley K. (2001), “Economics of alliances: the lessons for collective action”, *Journal of Economic Literature* 39: 869-896.

Sandler T. and James C. Murdoch (2000), “On sharing NATO defence burdens in the 1990s and beyond.” *Fiscal Studies* 21(3): 297-327.

Thies, Wallace J. (1987), “Alliances and collective goods.” *Journal of Conflict Resolution* 31: 298-332.