Burden Sharing Aspects of a European Union Common Defence Policy

Christos Kollias

Department Economics, University of Thessaly, Greece

Abstract
The move towards a common European defence policy raises a multitude of multidimensional and complex issues. As pointed out in a recent paper (Hartley, 2003), among then is that of its economics aspects ranging from the role of the European defence industrial base to the costs of a common defence policy and therefore the issue of burden sharing. This paper, assuming that the provision of common European defence to the participating members has the characteristics of a pure public good approaches the burden sharing issue raised by Hartley (2003) by calculating a simple benefit share index which then is compared to the contribution made by each country to the costs of the common defence. Assuming the existence of a *European Defence Union*, the results indicate that some members are under-contributing while others are over-contributing in relation to the benefits derived.

Key words: European defence, burden sharing, CESDP, CFSP

1. Introduction

In the Thessaloniki 2003 summit, a document by the EU High Representative for the Common Foreign and Security Policy (*CFSP*) outlining the EU security principles and policy was adopted by the fifteen members of the Union. In it, it is stated that a more active, coherent and capable EU is needed in order to pursue its strategic objectives, play its role as a global actor and meet old and new threats and challenges (Solana, 2003).

The quest for a common European foreign policy and indeed a security and defence identity dates back to the 1950's with the aborted attempt to establish a European Defence Community that eventually led to the further strengthening of

NATO as the main vehicle and institution in the foreign and security policies of all EEC members (Smith, 2003; Hoffman, 2000; Cameron, 1999; Bretherton and Vogler, 1999; Nuttall, 2000). The Maastricht Treaty marks a significant step towards the establishment of a CFSP between the EU member states. The 1997 Amsterdam Treaty with the adoption of a High Representative for the CFSP was a further step in the direction of common European foreign policy and a Common European Security and Defence Policy (*CESDP*). Again, in 1998, in Saint Malo, new proposals by Britain and France based on the Amsterdam Treaty provisions were put forward towards the building of a European Security and Defence Identity (*ESDI*). In Helsinki in December 1999 it was agreed that an EU rapid reaction force of 50-60,000 troops should be created by 2003, designed to meet the Petersberg tasks of conflict prevention, crisis management, peace-making and peace-keeping (Hoffmann, 2000; Smith, 2003). In the Thessaloniki 2003 document it is stated that as the joint military capabilities of the EU increase a wider spectrum of missions may be taken on board such as disarmament operations and the provision of support to third countries in combating terrorism (Solana, 2003).

The move towards a common European defence policy raises a plethora of multidimensional and complex issues. Thus far, the discussion on CFSP and CESDP has been and is predominantly dominated by issues of international politics and international security, by issues concerning the strategic interaction with the US and by intra-EU political issues covering a wide spectrum of themes (see *inter allia* Bergsten, 1999; Smith, 2001; 2003; Kupchan, 2000; Cameron, 1999; Bretherton and Vogler, 1999; Nuttall, 2000; Cornish and Edwards, 2001; Deighton, 2002; Howorth, 2000; 2001; Hoffman, 2000; Schake *et al*. 1999). However, as Hartley (2003) points out in a recent paper, the development of a common European defence policy and perhaps eventually the possible creation of a European Defence Union (*EDU*) raises a number of issues from an economics perspective. Such economic aspects of European defence integration have also been examined by Fontanel and Smith (1991), Guyot and Vranceanu (2001) and Wolf and Zycher (2001). In his paper, Hartley (2003), in the context of the creation of an EU rapid reaction force identifies the burden sharing and free-riding issue as one of the problems that might arise in the future an taken up by this paper.

As Hartley (2003) notes, the demand to procure new military hardware in order to fill existing gaps in its collective military ability in areas such as strategic airlift, smart weapons, C4I and satellite surveillance needed to meet the needs of Petersberg type missions will raise the issue of financing a common EU defence policy. In fact, as it is stated in the document "*A Secure Europe in a Better World*" adopted at the Thessaloniki 2003 summit, the further development of CFSP and CESDP requires the EU members to channel more resources to defence in order to build the necessary military and security capabilities. Fontanel and Smith (1991) point out that the creation of an EDU, despite possible short term increases in the costs of producing military power, will eventually result in substantial economies through more efficient production of military strength from

the existence of joint European armed forces rather than from than that resulting from the sum of the forces of the individual EU members.

Given the fact that major differences exist among the EU members when it comes issues of security and defence policy, as it clearly emerged in the case of the war on Iraq, it is not surprising to observe that the concomitant commitment of resources to defence varies widely across the EU members. If eventually an EDU is indeed created in the form of a military alliance providing a public good to its members, this could possibly in the future raise issues of burden sharing as in the case of NATO (Sandler and Hartley, 2001; Hartley and Sandler, 1999; Sandler and Murdoch, 2000; Murdoch and Sandler, 1984). In this context, drawing on the economic theory of alliances and assuming that the provision of common European defence to the participating members has the characteristics of a pure public good (i.e. non-excludability and non-rivalry), this paper calculates a simple benefit share index which then is compared to the contribution made by each member to the costs of the common European defence (Sandler, 1993; Sandler and Hartley, 2001). Assuming the existence of an EDU as a formal EU military alliance offering an umbrella of collective defence and security to its members, the results indicate that some members are under-contributing while others are over-contributing in relation to the benefits derived.

2. The Stylised Facts

Whatever index is used, the EU15 members present a very diverse picture both in terms of development measured in GDP per capita terms, absolute economic power measured in national GDP terms, area and population. For example, as it can be seen from Table 1, in 2001 per capita GDP ranged from $50,000 in the case of Luxembourg to $16,300 in the case of Greece with the EU15 average at $25,600. But also in terms of absolute economic weight and power the diversity is quite significant. With a GDP of $2703,2 billion, Germany is by far the largest economy in the Union and also the largest country in terms of population size. On the other hand, albeit by far the richest country in terms of per capita GDP, Luxembourg, with $25,9 billion GDP and 443 thousand inhabitants is, on both accounts, the smaller country of the Union (Table 1).

Table 1: The EU15 in figures – 2001

	Area* (in 000s km^2)	**Population*** (in 000s)	**GDP*** (in bil. US $)	**GDP per capita*** (US $ in PPPs)	**Defence Spending as % of GDP****	**Defence Spending **** (in mil US $)
Austria	84	8132	271,2	28200	0.8	1759
Belgium	31	10263	319,1	27700	1.3	3592
Denmark	43	5359	208,8	29200	1.6	2826
Finland	338	5188	165,2	26500	1.2	1631
France	549	59188	1809,7	26400	2.5	40013
Germany	357	81351	2703,2	26300	1.5	32371
Greece	132	10623	144,8	16300	4.6	6577
Ireland	70	3839	112	30000	0.7	913
Italy	301	57348	1229,7	26200	2.0	24731
Luxembourg	3	443	25,9	50000	0.8	171
Netherlands	41	15987	503,9	29200	1.6	7172
Portugal	92	10305	132,1	17600	2.1	2553
Spain	505	40266	724	21400	1.2	7954
Sweden	450	8896	294,8	26000	2.0	5358
U.K.	245	58789	1336,7	26400	2.5	36975
EU15	*3241*	*375977*	*9981,1*	*25600*	*1.8*	*174596*
*Sources : *OECD, **SIPRI*						

The same diversity in size and commitment of resources emerges if one looks at military spending and the defence burden (i.e. military expenditure as a share of GDP) of each member state (Table 1). For example, in 2001, the French defence budget of $40,013 mil. was the largest in the EU followed by the British defence budget of $36,975 mil. Both, accounted in 2001 for about 44% of total EU military spending. For the same year, the defence expenditure by the largest economy in the Union, i.e. Germany, stood at $32,371 mil. while that of Luxembourg with a mere $171 mil. was the smallest budget with the Irish defence spending of $913 mil. being the next lowest.

The picture significantly alters if one looks at the defence burden among the fifteen. Military expenditure as a percentage of GDP, an index capturing the commitment of resources to defence relative to the underlying economic power, ranged from 0.7% in the case of Ireland and 0.8% in Luxemburg to as high as 4.6% in the case of Greece with the EU average standing at 1.8%. In the case of the three leading countries in the EU – Germany, France and the UK – the defence burden for the same year was 1.5%, 2.5% and 2.5% of GDP respectively. Of course, this diversity in the commitment of resources to defence is by no means specific to 2001. If one looks back over the last forty or so years, a period covering both the Cold War as well as the post bipolar period, the same diversity

emerges in terms of the defence burden index (Table 2). In the case of countries such as Greece, France, the UK and Portugal their defence burden has consistently been higher than the EU average whereas in cases such as Luxemburg, Finland, Ireland and Austria their defence burden has consistently been lower than the EU average. For example, during 1961-2000 the average defence burdens of the former were 5.2%, 4%, 4.6% and 4.2% respectively while for the latter they were 1%, 1.7%, 1.3%, 1.1%, 2.2% respectively. For the same period the average for the whole EU was 2.8%. More or less, the same picture emerges if one looks at the different sub-periods in Table 2.

To a large extent, this diversity in the commitment of resources to defence, reflects different external security needs and significant differences in defence and security policy both during the bipolar as well post-bipolar eras as studies that have examined the demand for military expenditure for various countries indicate (see *inter allia* Hartley and Sandler, 1990; Sandler and Hartley, 1995; Murdoch and Sandler, 1984; 1990; Smith 1989; 1990; Kollias and Paleologou, 2003; Mollas-Gallart, 1997; Fritz-Aβmus and Zimmermann, 1990; Schmidt *et al*. 1999). For example, the UK and France maintain a nuclear component, Greece has long faced country specific defence priorities vis-à-vis Turkey, while countries such as Ireland, Sweden, Finland and Austria are not members of the NATO alliance and in principle were not directly influenced by the East-west arms race during the Cold War (Byers and Peel, 1989).

Table 2: Military expenditure as a share of GDP in the EU15

	1961-2000	**1961-69**	**1970-79**	**1980-89**	**1990-99**	**2000**
Austria	1,1	1,2	1,1	1,2	0,9	0,8
Belgium	2,7	3,2	3	3	1,7	1,4
Denmark	2,2	2,8	2,3	2,3	1,8	1,5
Finland	1,7	1,8	1,5	1,9	1,6	1,3
France	4	5,3	3,9	4	3,2	2,6
Germany	3,1	4,3	3,4	3,2	1,9	1,5
Greece	5,2	4,1	5,7	6,2	4,5	4,9
Ireland	1,3	1,3	1,5	1,5	1	0,7
Italy	2,5	3,2	2,6	2,3	2	2,1
Luxembourg	1	1,2	0,9	1,1	0,8	0,7
Netherlands	3,1	4,1	3,3	3,1	2,1	1,6
Portugal	4,2	6,7	5,4	3,2	2,5	2,1
Spain	2	2	1,9	2,8	1,5	1,3
Sweden	3	4	3,4	2,7	2,2	2,1
U.K.	4,6	5,8	4,8	4,9	3,2	2,5
EU15	*2,8*	*3,4*	*3,0*	*2,9*	*2,1*	*1,8*
Source: SIPRI Yearbooks, various issues						

Finally, since capital equipment inputs to a common European defence and the role of the European defence industry are important, it is worth noting that significant differences also emerge if one looks at the indigenous defence production capabilities (see *inter allia* Struys, 2002; Molas-Gallart, 1997; Hartley, 1998; Maneval, 1994; Barros, 2002; Kollias and Rafailidis, 2003). Countries such as France, Germany and the UK and perhaps to a lesser extent Sweden, Italy, Spain, Austria and the Netherlands have a developed domestic defence industry with a strong export orientation while other countries such as a Greece and Portugal have comparatively little indigenous defence production capabilities with very weak defence industrial sector and rely on imports for their military hardware.

3. Burden Sharing: Individual Costs and Benefits

Assuming the existence of an EDU, i.e. a formal EU military alliance offering an umbrella of collective defence and security to its members, we proceed in this section to calculate a simple benefit share index which then is compared to the contribution made by each member to the costs of the common European defence. The latter are taken to be the sum of the defence expenditures by all fifteen countries. In other words, for our purposes here, total EU military spending is assumed to be the cost of maintaining the military forces of an EDU if it existed. Similarly, the EDU military strength and operational capabilities are assumed to be the sum of the military strength and operational capabilities of the fifteen different national armed forces. It should however be pointed out that if indeed an EDU is actually created it will probably result in significant economies and costs savings through the elimination of duplication, harmonisation and standardisation of equipment, the pooling of resources and specialisation among the allies etc. (Hartley, 2003; Guyot and Vranceanu, 2001; Wolf and Zycher, 2001) Thus, the total cost for the provision of collective defence may in fact be lower than the sum of the fifteen individual defence budgets. Of course, an important parameter that will determine the actual cost of a future common European defence is the operational missions that the "*European armed forces*" will be called upon to execute with the concomitant costs of the infrastructure, training and capital equipment that will be required in order to effectively carry out these missions. Furthermore, it should also be noted here that the approach that follows does not allow for the fact that differences may exist among the fifteen in the efficiency with which each country converts defence expenditures into combat-effective armed forces.

In the NATO alliance literature, a number of different burden sharing indices have been used in order to measure benefits and contribution to the collective military effort (see *inter allia* Hartley and Sandler, 1999; Sandler and Hartley, 2001). Methodologically, we base our approach on the Sandler and Forbes (1980) burden sharing measure. In this approach, the burden and contribution of each ally to the production of the collective defence is taken to be its share of the total alliance defence budget. In the case of an EDU this would be each country's defence

spending ($milex_i$) expressed as a share of the total EDU defence budget that is the sum of the fifteen individual defence budgets ($milex_{eu}$) which is assumed to be the total cost of the joint European defence capabilities. This burden sharing index ($milex_i/milex_{eu}$) is then compared to the benefits derived by each member of the alliance. For example, as it can be seen in Table 3, the highest burden sharing index (*BSI*) is that of France. French military spending accounts for around 22.9% of total EU defence expenditure while the next largest contribution to the assumed EDU is that of the UK with 21.2%. German defence spending contributes around 18.5% to the EDU's total defence budget while, expectedly, Luxembourg's contribution of 0.1% is the smallest. This contribution however towards the costs of the assumed common European military capabilities, needs to be compared to the benefits derived from belonging to it.

If an EDU existed then, each member, as in the case of any other formal military alliance, would enjoy specific benefits from the collective military strength and the protection it offered. Benefits from the cost of maintaining a military establishment, credible military deterrence and force projection arise from what is protected by the alliance's armed forces. The protection offered by the military strength produced by defence spending clearly includes such things as territorial protection, the protection of population and of course the common wealth produced by the economies of the allies. In order to calculate a proxy measure of benefits derived from belonging to the EDU we compute each member's share of the Union's total area (territorial protection), total population (protection of the alliance's citizens) and total GDP which is used to measure the value of the common wealth produced by the economies belonging to the alliance. These calculations are shown in Table 3 where we use 2001 as the year for which our analysis is carried out. For example, Spain's share in EU's total population is 10.5%, in total EU GDP is 7.27% and the share of the total area is 15.58%. Similarly, Finland's share in the above EU totals is 1.38%, 1.67% and 10.43% respectively and its share in the total EU defence budget is 0.93%.

Table 3: Individual country's percentage share in EU's total for each variable

	Area	**Population**	**GDP**	**Imports**	**Exports**	**Defence Spending (*BSI*)**
Austria	2,59	2,16	2,71	2,6	3,1	1,01
Belgium	0,96	2,73	3,23	6,2*	5,5*	2,06
Denmark	1,33	1,42	2,08	1,6	2,0	1,62
Finland	10,43	1,38	1,67	1,3	2,3	0,93
France	16,94	15,74	18,13	12,4	14,4	22,92
Germany	11,02	21,87	27,14	23,6	29,1	18,54
Greece	4,07	2,81	1,45	1,4	0,7	3,77
Ireland	2,16	1,00	1,13	1,9	3,5	0,52
Italy	9,29	15,21	12,31	11,0	12,6	14,16
Luxembourg	0,09	0,12	0,26	*	*	0,10
Netherlands	1,27	4,21	5,05	11,0	5,6	4,11
Portugal	2,84	2,66	1,32	1,1	0,6	1,46
Spain	15,58	10,50	7,27	5,5	3,8	4,56
Sweden	13,88	2,36	2,83	2,4	3,9	3,07
U.K.	7,56	15,85	13,41	18,1	13,1	21,18
Figures may not add up due to rounding						

Since each ally's exact preferences are not known in the sense that different countries may place a different value on the protection of territory, population and wealth, the three percentage shares are added together and then are divided by three. This yields an arithmetic mean that represents the average benefit share (*ABS*) derived by each ally in the EDU. Then this can be compared to the contribution that each country makes towards the total cost of the collective military strength i.e. the BSI. If the ABS is greater than the BSI then one may conclude that in such a case this ally yields more benefits than its contribution to the joint defence effort. Therefore, it has a positive net benefit (*NB*) in which case it could be said that it is free-riding. The reverse is of course the case if the ABS is smaller than the BSI whereby this would yield a negative NB. Finally, before proceeding with the discussion of the results of the calculations, it should also be pointed out, that within an alliance it is possible for members to enjoy country specific not quantifiable private benefits. For example, in a future EDU, Greece would enjoy country specific benefits from its membership vis-à-vis Turkey that presents a country specific external security threat in the case of Greece. This of course is true to the extend that the collective defence produced by the alliance is a pure public good and no member is excluded from benefiting from it.

Table 4: Contribution to burden and benefits from an EDU

	Average Benefit Share (*ABS*)	**Burden Share Index** (*BSI*)	**Net Benefit** (*NB*)
Austria	2,49	1,01	1,48
Belgium	2,29	2,06	0,23
Denmark	1,61	1,62	-0,01
Finland	4,49	0,93	3,55
France	16,92	22,92	-6,00
Germany	19,89	18,54	1,35
Greece	2,78	3,77	-0,99
Ireland	1,43	0,52	0,91
Italy	12,26	14,16	-1,90
Luxembourg	0,16	0,10	0,06
Netherlands	3,52	4,11	-0,59
Portugal	2,30	1,46	0,83
Spain	11,16	4,56	6,61
Sweden	6,40	3,07	3,33
U.K.	12,17	21,18	-9,00

An interesting picture emerges from an inspection of the calculated burdens and benefits as these are presented in Table 4. Out of the fifteen potential members of a future EDU, six countries – Denmark, France, Greece, Italy, Netherlands and the UK - appear from the estimations to yield negative net benefits (NB = -0.01, -6.00, -0.99, -1,90, -0.59, -9.00 respectively) albeit one of them – Denmark (NB=-0.01) – only marginally. This suggests, that as the current situation stands in terms of the variables used in the analysis here, these countries, in the case of an EDU, would be contributing more to the costs of collective defence than the benefits they would be deriving. All the others, enter our calculations with a positive NB which may be interpreted as evidence of possible free riding on their behalf. Thus, Spain with NB= 6.61 is by far the largest under-contributor followed by Finland (NB=3.55) and Sweden (NB=3.33). It is interesting to note, that out of the four countries – Germany, France, Belgium and Luxemburg – that have spearheaded the cause of a common European defence after the transatlantic and inter EU rift over Iraq all, but France, would actually be under-contributing relative to their benefits in the case of an EDU. In fact, out of the four, Germany (NB=1.35) would have been the greatest under-contributor to the cost of the joint European military effort. The reason for this is of course the fact that the German defence burden – 1.5% of GDP – and the concomitant absolute size of the German defence budget - $32,371 mil. – is appreciably lower than that of France – 2.5% of GDP and $40,013 respectively – and that of the UK – 2.5% of GDP and $36,975 mil. respectively.

Taking the analysis a step further, it was decided to include in the benefits derived by each member from the alliance's collective military strength an international economy dimension given the fact that globalisation has increased the interdependency between the economies and that the external sector plays an important part in national economic development. In this context, it could possibly be argued that the alliance's military capabilities not only offer an umbrella of protection of wealth produced within the national territory but protects through the projection of force and military missions abroad the flow of income and resources to and from the "*homeland*" in this case the EU. The protection of economic interests abroad is from such a perspective an important function of a military alliance. To allow for this, international trade – exports and imports – were included in the analysis. Again, to start with, the share of each potential member of a future EDU in total EU exports and imports was calculated with Germany, France and the UK accounting for 54.1% of total EU imports and 56.6% of total exports (Table 3). Then, using exactly the same procedure, the ABS (i.e. the arithmetic mean of the share in each variable used to estimate benefits divided this time by five) was re-computed for each country.

Table 5: Contribution to burden and benefits from an EDU with the inclusion of international trade benefits

	Average Benefit Share (*ABS*)	**Burden Share Index** (*BSI*)	**Net Benefit** (*NB*)
Austria	2,63	1,01	1,63
Belgium/Lux	3,81	2,16	1,65
Denmark	1,69	1,62	0,07
Finland	3,41	0,93	2,48
France	15,51	22,92	-7,41
Germany	22,47	18,54	3,93
Greece	2,09	3,77	-1,68
Ireland	1,94	0,52	1,42
Italy	12,08	14,16	-2,09
Netherlands	5,43	4,11	1,32
Portugal	1,72	1,46	0,26
Spain	8,56	4,56	4,00
Sweden	5,10	3,07	2,03
U.K.	13,54	21,18	-7,63

Again, on the basis of the calculations shown in Table 5, it appears that four countries – France, Greece, Italy and the UK – have a negative NB (-7.41, -1.68, -2.09, -7.63 respectively) suggesting that their contribution to a potential EDU would be higher than the benefits they would reap. This time the Netherlands and Denmark have a positive NB (1.32, 0.07) albeit only marginally in the case of the

latter. Yet again, with the exception of France, the countries currently more in favour of an independent EU military capability appear to be free-riding. In the case of an EDU the benefits they would harvest would be greater than their contribution to the costs of the joint defence. Again, Germany, the biggest economy in the EU, enters our calculations with a positive NB (3.93) lower only to that of Spain (4.00).

Extending the analysis further in order to further encapsulate the international economy dimension of national interests protected from a formal alliance it was decided to included FDI flows as another index aiming at approximating and quantifying the alliance's members international economy interests. Using UNCTAD data for 2001 on inward and outward FDI flows the ABS and following that the NB were recalculated for the EU member states and the results are shown in Table 6.

Table 6: Contribution to burden and benefits from an EDU with the inclusion of international trade and FDI flows

	Average Benefit Share (*ABS*)	**Burden Share Index** (*BSI*)	**Net Benefit** (*NB*)
Austria	2,20	1,01	1,19
Belgium/Lux	9,14	2,16	6,98
Denmark	2,04	1,62	0,42
Finland	1,84	0,93	1,90
France	16,04	22,92	-6,87
Germany	18,63	18,54	0,09
Greece	1,57	3,77	-2,20
Ireland	2,15	0,52	1,62
Italy	9,85	14,16	-4,31
Netherlands	7,29	4,11	3,18
Portugal	1,68	1,46	0,22
Spain	8,19	4,56	3,63
Sweden	4,28	3,07	1,21
U.K.	14,10	21,18	-7,08

A major difference that emerges when one compares the calculated NB concerns the case of Germany, Belgium and Luxemburg. In particular the German NB of 3,93 in Table 5 that suggests free riding is now only marginally positive standing at 0,09. The Belgium/Luxemburg NB increases from 1,65 in Table 5 to 6,98 in Table 6. This is so because the shares of the latter in total EU FDI inflows and out flows for 2001 ($389432 and $451912 millions respectively) are particularly high, 22.65% for inflows and 22.27% for outflows, when, for example, their GDP share is only 3.23%. Similarly Germany's share in total EU FDI inflows and

outflows are 8.71% and 9.31% respectively compared to a German GDP share in total EU GDP of 27.14%. As a result, Germany's NB is calculated to be only marginally positive signify almost total absence of free-riding. Other significant changes that can be observed involve Italy (NB from –2,09 to –4,31, Greece (NB from –1,68 to –2,20), the Netherlands (NB from 1,32 to 3,18), Finland (NB from 2,48 to 1,90). On the basis of these calculations, the over-contributors are France (NB=-6,87) and the UK (NB=-7,08) followed by Italy (NB=-4,31) and Greece (NB=-2,20). All others, such as for example Spain (NB=3,63), the Netherlands (NB=3,18), are apparently free riding and under-contributing to the production costs of the public good.

Given the volatility of FDI flows that can create a year specific bias in the calculations it was decided to re-calculate using instead of FDI inward and outward flows FDI inward and outward stock, a variable less prone to substantial yearly volatility. The recalculated ABS and NB are shown in Table 7. Germany's NB is now 2,45 pointing to substantial under-contribution just as in the case of the results presented in Table 5 and also Table 4. Similarly, the NB of the Belgium/Luxemburg dyad is 2,59 pointing once again to free riding. It is higher than the calculated NB in Table 5 (1,65) but lower than the previous one when FDI flows were used (6,98). Other major under-contributors are Spain (NB=3,38) and the Netherlands (NB=2,94). Once again, the over-contributors are France (NB=-7,93), the UK (NB=-4,16), Italy (NB=-4,08) and Greece (NB=-2,18). All others, on the basis of these calculations and the herein proposed indices of benefits and contribution towards costs, would be under-contributing if an EDU existed.

Table 7: Contribution to burden and benefits from an EDU with the inclusion of international trade and FDI stocks

	Average Benefit Share (*ABS*)	**Burden Share Index** (*BSI*)	**Net Benefit** (*NB*)
Austria	2,21	1,01	1,20
Belgium/Lux	4,74	2,16	2,59
Denmark	1,91	1,62	0,29
Finland	2,84	0,93	1,91
France	14,99	22,92	-7,93
Germany	20,99	18,54	2,45
Greece	1,59	3,77	-2,18
Ireland	2,35	0,52	1,83
Italy	10,09	14,16	-4,08
Netherlands	7,05	4,11	2,94
Portugal	1,53	1,46	0,07
Spain	7,94	4,56	3,38
Sweden	4,74	3,07	1,67
U.K.	17,02	21,18	-4,16

4. Concluding Remarks

The move towards a common European defence policy raises a multitude of multidimensional and complex issues among which is that of its economics aspects (Hartley, 2003; Fontanel and Smith, 1991; Guyot and Vranceanu, 2001). Assuming the existence of an EDU, this paper addressed the burden sharing issue that is likely to arise since with European joint forces (be it the rapid reaction force or eventually joint EU *alliance* forces) there will incentives and opportunities for free riding. On the basis of two indices that quantify on the one hand the burden shared by each country when it comes to the costs of the collective defence and on the other hand the benefits enjoyed by the provision of collective defence and security, the net alliance benefit for each country was calculated. Allowing for the weaknesses inherent in this approach, from the calculations it appeared that some countries, namely France, Greece, Italy and the UK would be overpaying towards the costs of producing the collective EDU military strength if a common European defence came into existence in the form of a formal military alliance producing a public good. All the other countries would be underpaying compared to the benefits they would enjoy. To the extend that the move towards an independent European defence capability continues, such an approach offers a policy framework when it comes to apportioning the costs among the states that decide to join a European defence mechanism. A perhaps interesting finding that emerged from the preceding analysis is that with the exception of France, countries that are on record to be more in favour of an independent European defence capability would probably need to increase their defence budgets in order to contribute to the effort by as much as their quantifiable benefits suggest. This appears to be particularly true for the biggest European economy, Germany.

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