



SPECIAL TREATMENT

UK GOVERNMENT SUPPORT FOR
THE ARMS INDUSTRY AND TRADE

The **Stockholm International Peace Research Institute** (SIPRI) is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources.

Sam Perlo-Freeman is a Senior researcher and Head of the SIPRI Project on Military Expenditure in the Arms and Military Expenditure Programme. He is responsible for monitoring data on military expenditure worldwide.

Campaign Against Arms Trade (CAAT) is a UK-based organisation working to end the international arms trade.

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1 BACKGROUND

A PROTECTED INDUSTRY

¹ See e.g. Jackson, Susan T. 2008. 'Military Spending and the Washington Consensus: The Unrecognized Link Between Militarization and the Global Political Economy'. PhD dissertation submitted to the Faculty of the Department of Political Science, Graduate College, University of Arizona, Tucson, Arizona.

² UK Defence Statistics, MOD Trade, industry and Contracts: 2015, 27 Aug. 2015, bit.ly/2bQrOkM

³ See e.g. Campaign Against Arms Trade, 'Who calls the shots? How government-corporate collusion drives arms exports', February 2005, bit.ly/2ffoftg

⁴ Such government-to-government deals are likely to increase, as they are specifically encouraged in the 2015 Strategic Defence and Security Review.

⁵ Adams, C. and Boxwell, J. 'UK drops BAE-Saudi bribery probe', *Financial Times*, 15 Dec. 2006, on.ft.com/2dRBjkP

The arms industry and market, in the UK as in most other significant western arms-producing countries, has a unique status. Although its production capabilities are privately owned, it has the national government as its primary customer. Unlike other industries, especially in the 'Anglo-Saxon' economies, it is the subject of active government industrial policy. It is also exempted from almost all international trade treaties, such as the World Trade Organization agreement on government procurement.¹ Within the EU, a partial exemption to EU trade and procurement rules allows governments to give preference to national suppliers, although in theory this should only be when a clear national security justification is present. However, in practice, such justifications are rarely questioned. In many cases, UK government arms procurement is single-sourced, that is, a contract is awarded to a supplier without competition. Between 2010/11 and 2014/15, an average of 48% of the total value of UK Ministry of Defence (MOD) contracts was non-competitive. For BAE Systems, the MOD's top supplier, this figure rises to 89%.² Unlike other industries, where companies invest in research and development in the expectation of receiving a return when new products are brought to market (see section 5), in the arms market, governments pay research and development costs as part of the process of developing new weapon systems.

Beyond these favourable economic conditions, governments provide a great deal of political support for the arms industry. As has been extensively documented by the Campaign Against the Arms Trade (CAAT), the 'revolving door' between the MOD and the arms industry in the UK, as well as the role of high-level advisory bodies such as the Defence Suppliers' Forum and the Defence Growth Partnership, give the industry considerable influence in forming policy in areas that concern it, such as arms procurement, defence industrial policy and export control policy.³ UK government ministers, including heads of government and state, frequently promote arms sales overseas, and indeed in some cases negotiate direct government-to-government agreements on behalf of private corporations.⁴ Perhaps the most egregious recent example of UK government political support for the arms industry was the 2006 decision to force the Serious Fraud Office to abandon its investigation into corruption in the massive Al Yamamah arms deals between BAE and Saudi Arabia.⁵

⁶ e.g. 'Overcapacity stifling Europe's defence industry', *Reuters*, 22 June 2015, [reut.rs/2caQeb1](https://www.reuters.com/article/2caQeb1)

The determination shown by so many countries to maintain national arms industries creates a hugely inefficient market, with considerable duplication even among allied countries. For example, while there are only two manufacturers of large civil passenger jet aircraft in the world—Boeing and Airbus—there are at least 9 manufacturers of major combat aircraft, a considerably more complex undertaking: Lockheed Martin, Boeing and Northrop Grumman in the USA; the Eurofighter consortium, Rafale (France) and Saab (Sweden) in Europe; MiG and Sukhoi in Russia (which operate independently, although they are under one corporate umbrella, United Aircraft Corporation); and AVIC of China. European defence analysts repeatedly bemoan the degree of duplication in the European arms industry, but no country is willing to allow parts of its own industry to fall by the wayside in the name of European consolidation and efficiency.⁶

The motivation for this economic and political support for the arms industry is the belief that possessing domestic military industrial capabilities is necessary for national security, by allowing greater autonomy in arms acquisition, and freedom of action in the military sphere. This belief in turn reflects the view that military power is a crucial factor in a country's place in the world and a long-term 'public good'.

It is not the place of this report to evaluate these assumptions, which are shared by political elites in most countries. Indeed, virtually all countries that have the ability to develop some sort of military industrial capabilities do so, to the degree allowed by their national industrial, technological and economic resources. Many of them invest substantial resources for this purpose.

The question of subsidies to arms exports must therefore be seen in the context of this huge overall level of government support, protection, and direct and indirect subsidy that the arms industry as a whole receives in the UK and elsewhere; support that is far out of proportion to its economic significance. While some specific subsidies that directly support arms exports can be identified, much of the broader support for the industry benefits companies both in their domestic business (sales to their national

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government) and in exports, and it is not possible to disentangle the two or to say how much of this support is specifically for exports. It is likewise extremely hard to say what net increase or decrease there might be in the cost to the government of this broader industry support in the absence of exports. (The ‘marginal cost’ of arms exports).

This study begins by providing an overall quantitative picture of the UK arms industry (section 2), followed by a brief overview of previous studies that have looked at subsidies to arms exports (section 3). Section 4 assesses and estimates the level of direct support to arms exports, that is, the identifiable subsidies that relate specifically to exports, while section 5 discusses the place of exports in the broader government support to the arms industry and, in particular, funding for military research and development (R&D), as well as the extent to which this can be considered to include a direct or indirect subsidy to arms exports. Conversely, this section also considers the question of whether arms exports may save the UK government money through lower unit costs for its own procurement. Section 6 draws some conclusions.

Appendix A provides an overview of UK military expenditure as a whole, the different ways in which it is reported and measured, and an explanation of some of the key terminology used in such reporting. Appendix B provides details of the calculation of the estimate provided in section 4.5 for subsidies to arms exports through Export Credit Guarantees.

2 THE UK ARMS INDUSTRY A BRIEF OVERVIEW

⁷ Fleurant, A., Perlo-Freeman, S., Wezeman, P. & Wezeman, S., 'The SIPRI Top 100 arms-producing and military services companies, 2014', *SIPRI Fact Sheet*, Dec. 2015, bit.ly/2bQJEG3

⁸ Recently renamed Leonardo.

The UK has one of the world's largest arms industries, and is home to several of the world's largest arms and military services companies. In the most recent (2014) SIPRI list of the top 100 arms and military services companies worldwide, excluding China, 8 of these companies were headquartered in the UK: BAE Systems (ranked 3rd), Rolls Royce (16th), Babcock International Group (25th), Serco (49th), Cobham (53rd), QinetiQ (72nd), GKN (79th) and Meggitt (87th). BAE is by far the largest, with an estimated £15.6 billion in revenue from arms sales, compared to Rolls Royce with £3.3 billion. The total arms sales revenue of these 8 companies in 2014 totalled £25.4 billion.⁷

However, these figures overstate the size of the UK arms industry, as almost all of the UK companies (except Babcock) derive a significant proportion of their turnover from their US subsidiaries (and some in other countries). In the case of BAE, the US military is their single largest customer, with almost all these sales coming from BAE's US operations, rather than exports from the UK. BAE also has production facilities in Sweden and Australia. Conversely, Thales of France and Finmeccanica⁸ of Italy both have large UK subsidiaries, with billions of dollars of arms revenues each, but this is considerably less than the foreign revenues of the UK-based companies.

So just how big is the UK arms industry? This is actually a surprisingly difficult question to answer, as indeed it is for most countries. It is not feasible to estimate its size by simply adding up the arms sales revenues of all the UK arms companies. First, as noted above, it is necessary to separate revenues generated in the UK from those generated by overseas subsidiaries, while including foreign-owned companies' UK-generated revenue. Second, it is necessary to identify all the relevant companies. Third, it is necessary to separate arms sales from civil sales in each case, which is frequently no easy task. Finally, and most problematic, care needs to be taken to avoid double (and triple, etc.) counting: simply adding up each company's revenue would mean including both the sales of a supplier to a main contractor, and the latter's sales to the final customer.

A more workable approach is to look at things from the demand, as opposed to the supply, side: how much is paid to the UK-based arms industry by final customers, that is, either the UK MOD or export customers?

⁹ UK Defence Statistics, MOD Trade, industry and Contracts 2015, note 2.

On the domestic side, fortunately the UK Defence Statistics provide figures for the MOD's annual spend with UK industry (thus avoiding the inclusion of imports), broken down by industry group. Not all of this spending is with the arms industry, of course, as it also includes, for example, electricity, fuel, telephone services, food, etc. However, if only spending with manufacturing industry is included, almost all of which is likely to consist of military equipment, the average for the five years from 2009/10 to 2013/14 was £9.4 billion. (Figures for 2014/15 are not yet available).⁹

In addition to this, there is spending on military services, including maintenance, repair and overhaul, IT services, and military base management services. This is harder to disentangle from the UK Defence Statistics. If it is assumed that half of spending with the industry groups 'Repair of motor vehicles'; 'Technical and financial services, business services, education, health & other'; and 'computer services' can be considered as spending with the military services industry (as opposed to general services that happen to be purchased by the MOD), then this would give an average of another £2.6 billion a year of turnover for the UK arms and military services industry.

On the export side, a problem is that the UK does not publish figures for arms export deliveries—only for export orders—and for the value of Single Individual Export Licences (SIELs) issued each year. The latter greatly understates the level of UK arms exports, as a large proportion of such exports take place under 'open' export licences which allow multiple deliveries over a longer period of time, and to which no financial value is assigned.

The value of export orders, if averaged over a period of time, probably gives a better picture of the value of UK arms exports. The average of UK export orders for the period 2009-13 was £7.4 billion.¹⁰ This is still not an ideal way of measuring actual exports, as it cannot be assumed that all orders eventually turn into revenue, and the time-lag between order and payment may be quite variable. Nonetheless, it is the best measure available.

One feature of the UK Defence Statistics export data that improves their usefulness is that, for large, multi-year government-to-government contracts with Saudi Arabia, the value of equipment and services provided in each year is counted, rather than the entire value of the deal in the year in which it is signed.

The UK used to provide figures also for the value of actual exports, but this was abandoned after 2004. The lack of such clear data—which is provided by all other EU member states except for Belgium, Germany, Greece and Ireland—represents a serious gap in transparency regarding UK arms exports.

Adding the figures for MOD spending and exports gives a reasonable estimate of the total turnover of the UK arms industry, at £16.8 billion, or around £19.2 billion if an estimate for military services is included. This would make the UK arms industry almost certainly the fourth largest in the world, after the USA, China and Russia.

Based on the output per employee of the major UK arms companies, which for 2011-14 was around £192,000 per head,¹¹ this would suggest that direct employment in the UK arms industry—that is, employment generated from the final demand for equipment from the MOD and export customers—is

¹⁰ Ibid.

¹¹ Data from SIPRI Arms Industry Database, based on information in company annual reports.



¹² Applying the same figure to the military services estimate would give another 17,700 jobs. However, the actual figure is probably larger because some services—such as logistics and base management—tend to employ a large number of lower-skilled workers, with lower output per employee.

around 87,500.¹² Estimating indirect employment—that is, employment generated through the supply chain, but not ‘induced employment’ generated by the private spending of arms company employees and shareholders—is much more uncertain, but when, in the past, the UK Defence Statistics did provide such estimates, the figures for indirect employment were generally fairly similar to those for direct employment. Thus, a very rough estimate suggests a total of 175,000 jobs provided by the UK arms industry and its supply chain, rising to a little over 200,000 if military services for the MOD are included.

The turnover estimates above (not including the estimate for services) represent around 1% of GDP, while the employment estimates represent about 0.6% of total UK employment. Of these figures, about 45% comes from arms exports, as opposed to production for the UK MOD. Thus, arms exports cannot be said to represent an important part of the UK economy, and even less so of the labour market, despite the prominence of the ‘jobs argument’ amongst politicians and industry figures seeking to promote and defend arms exports.

2.1 The arms industry’s biggest customer: the MOD and its equipment spending

As can be seen from the above figures, somewhat over half of demand in the UK arms industry comes from UK MOD spending with manufacturing industry (although some of this may not be military equipment).

The UK Defence Statistics present figures on MOD equipment spending in three categories:¹³

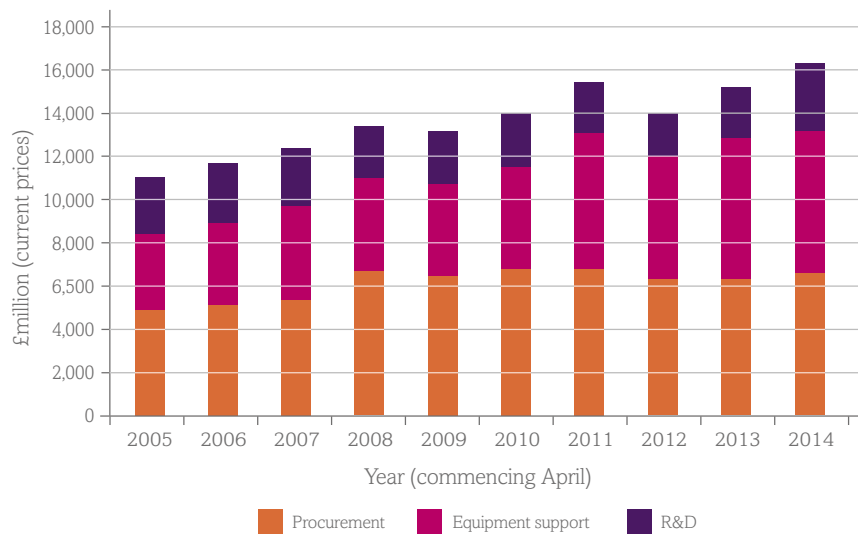
- 1 capital spending on equipment – most of this is on military equipment acquisition (including spending on ‘assets under construction’), but it also includes in-year spending on cars, computers, and other non-military-specific equipment;
- 2 equipment support – spending on maintenance and repair of equipment, much of which is contracted out to the private arms industry; and

¹³ UK Defence Statistics 2015, Departmental Resources, bit.ly/2bWaWcD

3 Research and Development – most of which is related to major equipment programmes. While some R&D takes place within the MOD, the great majority is spent with outside organizations, chiefly with arms companies as part of the development of new systems.

Figure 1 shows these three components of equipment spending from 2005/06 to 2014/15. Total equipment spending has increased from around 33-35% of total MOD spending over the period 2005/06 to 2010/11, to 47% in 2014/15. Of this, procurement spending (capital spending on equipment) accounted for 19.2% and R&D for 9.0% in 2014/15, while equipment support (which would usually be classified as operations and maintenance spending) accounted for 19.0%.

Figure 1: MOD equipment spending, 2005/06 to 2014/15



The UK government has pledged to increase equipment spending by 1% per year in real terms up to 2020/21.¹⁴

Until recently, remarkably, MOD procurement decisions were disconnected from government budgeting, as was revealed by the Bernard Gray report into military procurement in 2010.¹⁵ That is, decisions to procure major items of equipment were made without reference to their affordability over the medium to long term, given current expectations of the future size of the MOD budget. This was exacerbated by what Gray called a ‘conspiracy of optimism’ between the MOD and industry, persistently underestimating programme costs. The result was persistent shortfalls, leading to programmes being postponed or stretched out further over time, which in turn tended to lead to further cost increases.

The 10-year equipment plan

The UK government claims that it has now established control over the equipment budget, and can ensure that procurement plans match budget planning assumptions over the next 10 years, although whether this proves to be a reality remains to be seen. One new development is that, since 2012, the MOD has been producing a 10-year equipment plan, which provides projections of the different components of equipment spending over the coming 10 years, along with expected spending on particular programmes, and on potential future programmes for different categories of equipment, with the aim of ensuring that spending and procurement plans match.¹⁶

¹⁴ See e.g. Ministry of Defence, ‘The defence equipment plan 2015’, 22 Oct. 2015, bit.ly/2bQrWAI

¹⁵ Gray, B., ‘Review of acquisition for the Secretary of State for Defence’, Oct. 2009, bit.ly/2cwcYW0

¹⁶ MOD, Defence equipment plan 2015, note 14. Of course, assumptions about future budgets may change, as a result of both economic circumstances and political decisions, in particular by future governments.

¹⁷ Ibid.

In total, the MOD plans to spend £166 billion (at current prices) on equipment over the 10 years from 2015/16 to 2024/25. Over the more predictable horizon of the current parliament, from 2015/16 to 2019/20, the planned total is £78.5 billion, rising from £14.9 billion to £17.1 billion over the period. Of the £166 billion, £68.5 billion is for procurement of new equipment, while £84.1 billion is for equipment support. The remainder is a contingency provision and unallocated ‘headroom’ to allow for programmes not currently on the planning horizon.

The total equipment spend includes:¹⁷

Submarines	£43 billion (including Trident Replacement)
Surface ships	£19 billion
Land equipment	£17 billion
Weapons	£13.2 billion (e.g. missiles etc.)
Combat air	£17.4 billion (combat aircraft and UAVs)
Air support	£12.6 billion (transport, refuelling and surveillance aircraft)
Helicopters	£10.6 billion
ISTAR	£3.2 billion (Intelligence, Surveillance, Target Acquisition & Reconnaissance)
Information Systems & Services	£18.9 billion

Current major projects

Table 1 lists the largest major procurement projects that are still ongoing, and which have received ‘Main Gate’ approval (allowing the programme to progress from the assessment phase to the demonstration and manufacture stage), along with their costs, as well as over-run compared with initially approved costs, and actual or expected in-service date, again with the over-run compared with the plan.

Table 1: Major ongoing MOD procurement projects¹⁸

Name	Description	Cost/Overrun	In-service date/overrun
Typhoon	Fighter Aircraft	£17.53b./£2.2b.	June 2003/54 months
Voyager	Strategic Tanker/Transport aircraft	£11.8b./-£400m.	May 2014/0
Astute	Nuclear attack submarines	£9.6b./£1.4b. (1st 3 of 7)	2010-2024/58 months
Queen Elizabeth Class	Aircraft Carrier	£6.2b./£2.7b.	Feb. 2018/31 months
Scout	Armoured Fighting Vehicle	£5.5b./0	Jan. 2020/-6 months
Lightning II	Fighter/Attack Aircraft (JSF)	£4.9b./-£700m.	Dec. 2018/0
A400M	Transport aircraft	£2.7b./£500m.	Sep. 2015/79 months

In addition, the Trident replacement programme, the Successor-Class nuclear weapons submarine programme, is currently projected by the government to cost £31 billion for procurement, with a £10 billion contingency fund for cost overruns. Various estimates of the lifetime cost of the system, including operational, maintenance and decommissioning costs, range from £100 billion to £205 billion.¹⁹ This was recently approved in a non-binding parliamentary vote, but has not yet gone through a formal ‘Main Gate’ process.

¹⁸ National Audit Office, Major Projects Report and the Equipment Plan 2015/16-2024/25, 22 Oct. 2015, bit.ly/2ckjY12

¹⁹ Mills, C., ‘Replacing the UK’s “Trident” nuclear deterrent’, House of Commons Briefing Paper no. 7353, 12 July 2016, bit.ly/21cEk3j

Top MOD suppliers

Regarding the main suppliers to the MOD, BAE Systems is in a dominant position. Table 2 shows the top 10 suppliers to the MOD in 2014/15, in terms of the amount paid to them. This includes both military equipment and services, and general services.

Table 2. Top 10 suppliers to the MOD 2014/15²⁰

Company	Amount Paid (£million)	Products/services
BAE Systems	3,517	Diverse
Babcock International	1,488	Services, especially for ships/naval bases
Airbus	936	Transport aircraft, diverse
Finmeccanica	824	Helicopters, electronics
Rolls-Royce	761	Aero, naval engines
Hewlett Packard	705	IT Services
Lockheed Martin	631	Aircraft, diverse
Serco	583	Facilities management, inc. Atomic Weapons Establishment
QinetiQ	524	R&D
Boeing	488	Diverse

3 PREVIOUS ESTIMATES OF ARMS EXPORT SUBSIDIES

While the MOD is the UK arms industry's largest customer, the figures presented in section 2 show that exports are also a highly significant component of the industry's turnover. Given successive governments' determination to maintain a strong arms production capability within the UK, they have tended to regard the promotion of arms exports as an important strategic objective, often with little regard to considerations of human rights and conflict prevention and mitigation. This support for arms exports is frequently packaged in terms of the creation and preservation of jobs, although as noted above, arms exports account for less than one half of one per cent of UK employment.

Support for exports takes many forms, of which the most important are political, but there is also direct and indirect financial support, or subsidies, for arms exports.

Several previous studies have sought to estimate the level of subsidies provided by the government to UK arms exports, or conversely, to measure fiscal gains to the exchequer resulting from arms exports. These have differed considerably in their methodology, and have therefore produced very different results. Some of the key variables are:

- estimating the share of expenditures relating to arms export support of budgetary items that serve multiple purposes, where no disaggregation is available—for example, the proportion of UK Defence Attachés' work that is estimated to be for arms export support;
- the approach to estimating the subsidy involved in providing Export Credit Guarantees for arms exports, in terms of the notional return on capital that is foregone by providing these guarantees (see section 4);
- the treatment of government funding of arms industry R&D, namely how much, if any, of this can be considered a subsidy to arms exports;
- assumptions about the savings to the UK MOD, if any, that result from arms exports allowing companies to spread their fixed costs over a higher production volume; and
- assumptions about costs of hard-to-measure factors such as distortion to UK procurement decisions resulting from the desire to promote exports.

²¹ Dunne, J. P., 'Killing Jobs', Report for Campaign Against Arms Trade, April 1996.

²² Martin, S., 'The subsidy savings from reducing UK arms exports', *Journal of Economic Studies*, Vol. 26 no. 1, 1999, pp15-37.

²³ Chalmers, M., Davies, N. V., Hartley, K., and Wilkinson, C. 'The economic costs and benefits of UK defence exports', *Fiscal Studies*, Vol. 23 issue 3, Sep. 2002, pp343-367.

²⁴ Ingram, P. & Davis, I. 'The subsidy trap: British government financial support for arms exports and the defence industry', Oxford Research Group/Saferworld, July 2001.

²⁵ Ingram, P. and Isbister, R. 'Escaping the subsidy trap: why arms exports are bad for Britain', Saferworld/BASIC/Oxford Research Group, Sep. 2004, bit.ly/2bJ60x2

²⁶ Jackson, S. 'SIPRI assessment of UK arms export subsidies', report for Campaign Against Arms Trade, 25 May 2011, bit.ly/1ttzGja

In chronological order, the most important previous studies are:

- *Killing Jobs*, a report by Prof. Paul Dunne for CAAT in 1996, which estimated an annual subsidy of £1 billion for arms exports. This was based on the assumption that a proportion of government funding of R&D, equal to the proportion of arms exports in total arms industry output, should be included in the subsidy figure;²¹
- *The subsidy saving from reducing UK arms exports*, by Stephen Martin in the *Journal of Economic Studies* in 1999, estimated an annual subsidy of £228 million in 1995 prices;²²
- *The economic costs and benefits of UK defence exports* ('The York study'), a report prepared in 2001 for the MOD, by Malcolm Chalmers, Neil Davies, Keith Hartley and Chris Wilkinson (two MOD and two independent economists), which found that reducing arms exports by 50% would involve a net annual cost to the UK government of £40-£100 million. This is based on methodologies giving low estimates for some elements of subsidy, or not including them at all (in particular no R&D subsidy), and a higher value than other reports for savings to the MOD from reduced unit costs through exports;²³
- *The Subsidy Trap*, by Ian Davis and Paul Ingram for Oxford Research Group and Saferworld in 2001, which estimated an annual subsidy of £420 million, plus an additional indirect subsidy of £570 million through government funding of weapons development costs;²⁴
- *Escaping the Subsidy Trap* by Paul Ingram and Roy Isbister for Saferworld, BASIC and Oxford Research Group in 2004, which estimated £453 million in direct subsidies, and potentially as much as £483 million through R&D funding, net of savings from reduced unit costs;²⁵ and
- *SIPRI assessment of UK arms export subsidies for CAAT*, by Susan Jackson, which provided a brief update of subsidy estimates, using a methodology similar to *Escaping the Subsidy Trap*. Jackson estimated direct subsidies averaging £130.5 million per year from 2007/08 to 2009/10, plus an additional £576 million in R&D subsidies.²⁶

4 IDENTIFIABLE SUBSIDIES TO ARMS EXPORTS

This section enumerates the clearly identifiable subsidies to arms exports. The next section will consider the much harder question of indirect support via research and development funding, set against the potential savings to the government resulting from arms exports, due to lower unit costs.

The subsidies considered here include, firstly, direct support to arms exporters, through help with marketing, etc., and secondly, the implicit subsidy involved in providing export credit guarantees (ECGs). The fact that these forms of subsidies are clearly identifiable as such does not mean that they are easy to quantify, and some of the figures below are estimates or ranges.

4.1 The UK Trade & Investment Defence & Security Organization (DSO)

The DSO was established in 2008, within the government department, UK Trade & Investment (which became the Department for International Trade in July 2016). DSO replaced, and performs similar functions to, the MOD's Defence Export Services Organisation (DESO). The organisation's aim is to 'help the UK defence and security industries to export', by 'building strong relationships with industry and overseas governments'.²⁷ Its services include:

- providing support to companies at arms exhibitions in the UK and elsewhere, including practical and logistical support, and helping to build relationships between companies and potential export clients, arrange meetings and assist with marketing;²⁸
- the UKTI DSO Export Support Team, a 'specialized unit of serving military personnel' who provide various services, advice and assistance to companies seeking to export, although companies are charged for these services;
- providing free basic company briefings, and offering more detailed chargeable and customized briefings;
- PR and media support; and
- a variety of support for cyber security exports (not necessarily arms-related).

²⁷ UK Trade & Industry Defence & Security Organization, bit.ly/2bQOMd0

²⁸ More details at UK Trade & Industry Defence & Security Organization, 'Defence and security exporting: event and exhibition support', updated 5 July 2016, bit.ly/1CBh8Sa

²⁹ UKTI Annual Report and Accounts 2013/14, bit.ly/2eUwpEg

³⁰ UKTI programme spend for 2014 to 2015, 24 July 2015, bit.ly/2cfXp0g; and UKTI administration spend 2014 to 2015, 17 June 2015, bit.ly/2cwhGDp

³¹ Hansard, Parliamentary Answer, 13 Jan. 2015.

³² Hansard, Parliamentary answers 13 Jan 2015 and 24 Feb 2016.

³³ Hansard, Parliamentary Answer 16 June 2004. Figures are also available for 2000-01, but these are not comparable, as the total for the DAF dropped considerably from 2000-01 to 2001-02 when some areas of its spending – relating to e.g. training of foreign forces in fragile and conflict-risk countries – was transferred to the inter-departmental Conflict Pools.

The net operating costs of the DSO in 2012-13 and 2013-14 were £3.0 million, according to the UKTI Annual Report and Accounts for 2013-14. (Previous reports did not disaggregate the DSO costs).²⁹ For 2014-15, line-item spending information is available through the UKTI's transparency information monthly data releases.³⁰ Total programme and administration costs for the DSO from this source amount to £5.5 million for 2014-15. From this must be deducted income from the fees paid by companies that have been assisted. Assuming the same ratio of income to expenditure as in 2012-13 and 2013-14 would give a net figure of £4.3 million, and thus a 3-year average of **£3.7 million per year**.

4.2 The Defence Assistance Fund (DAF)

The DAF 'is an internal Ministry of Defence resource used to help to develop and maintain bilateral defence relationships in support of wider UK Government objectives'.³¹ These objectives include promoting arms exports. In the past, parliamentary answers have provided specific figures for DAF expenditures on export promotion, but more recent answers have claimed that the cost of disaggregating these figures would be too high.

The average cost of the DAF from 2011-12 to 2014-15 was £13.6 million per year.³²

Between 2001-02 and 2003-04, an average of 56% of the DAF was spent on arms export promotion.³³ Applying this share gives an estimate of **£7.6 million per year** in support for arms exports.

DSO presence at Farnborough 2014

Credit: CAAT Licence: CC BY-SA 4.0



³⁴ See Hansard, Parliamentary Answer, 24 Feb. 2016; *The Subsidy Trap*; and Adam Ingram, MP, Minister of State, MoD, in response to a parliamentary question by Malcolm Bruce, MP, Official Report, House of Commons, 30 June 2004, col 350W.

³⁵ 'David Cameron defends arms deals with Gulf States', *Daily Telegraph*, 5 Nov. 2012, bit.ly/1EGRvS9

³⁶ Mason, R. 'David Cameron boasts of "brilliant" UK arms sales to Saudi Arabia', *The Guardian*, 25 Feb. 2016, bit.ly/2bJ6KIW

4.3 Defence Attachés

Defence attachés, working in many UK embassies worldwide, perform a variety of roles in defence diplomacy and intelligence, among which is the promotion of UK arms exports. The proportion of time devoted to this is not clear. A 1989 National Audit Office report estimated a figure of 40%. However, subsequent parliamentary answers have tended to give figures of 5-11%, while the most recent answer did not provide any estimate.³⁴ *Escaping the Subsidy Trap* took a figure of 10% from a parliamentary answer in 2004, and added another 5% for indirect promotional support that was likely to take place in the course of other activities, giving a total of 15%.

The proportion of defence attachés' work that relates to arms exports is likely to be highly variable, depending on the current state of the export market, government priorities, and the requirements of other aspects of the post. This study therefore estimates a range of possible values of 10%-40% for the share of defence attaché costs that relate to arms exports.

The total cost of defence attachés in 2013/14, including 'platforming charges' to the MOD from the FCO for accommodation in embassies, was £41.8 million, while in 2014/15 it was £44.9 million, for an average of £43.35 million. This gives an estimated range for the arms export-related share of **£4.35–£17.35 million**.

4.4 Official visits and other government efforts

Not all government support for arms exports comes from these specific official channels. When it comes to major arms deals, the UK government provides support from the very top, most publicly in terms of official visits by the Prime Minister and other senior ministers to potential client countries. For example, in November 2012, Prime Minister David Cameron made a 3-day tour of Gulf States for the explicit purpose of promoting arms sales, in particular the Eurofighter Typhoon.³⁵ As recently as February 2016, Cameron boasted of the UK's 'brilliant' arms sales to Saudi Arabia, and emphasized the government's role in promoting these and other sales:

'With the Typhoon there is an alliance of countries: the Italians, Germans and ourselves. We spend a lot of time trying to work out who is best placed to win these export orders... The British have been working very hard in Oman... It is a collaborative project. We use the collective skills but also the collaborative muscles of all the governments to try and help make sure we can sell them around the world'.³⁶

The total cost of such activities is hard to assess: direct costs of visits are probably relatively small, but the opportunity cost of ministerial, Prime ministerial, and civil service time devoted to arms export promotion should also be considered.

This study cautiously includes a figure of **£10 million per year** in the estimate of UK subsidies to account for government-to-government arms export promotion efforts, including official visits.

4.5 Export Credit Guarantees

Export Credit Guarantees (ECGs) are essentially a form of publicly-guaranteed insurance provided to exports against the possibility of default by clients. They are a common feature of most developed countries,

As recently as February 2016, Cameron boasted of the UK's 'brilliant' arms sales to Saudi Arabia, and emphasized the government's role in promoting these and other sales

³⁷ UK Export Finance, Annual report and accounts 2013-14, p10, bit.ly/2caZjAl

³⁸ Ibid. p10.

³⁹ Ibid. p11.

⁴⁰ See *Killing Jobs, The Subsidy Trap*.

⁴¹ Hansard, Parliamentary Answer, 9 May 2016.

⁴² 'BAE terminates Government insurance for controversial Saudi arms deals', Campaign Against Arms Trade, 29 May 2009, bit.ly/1Vu6qo6

and in the UK are provided by UK Export Finance (UKEF), formerly the Export Credits Guarantee Department. As well as guarantees to exporters themselves, other services provided by UKEF are:³⁷

- guarantees to banks to support working capital financing and raising contract bonds on behalf of exporters;
- guarantees to banks and investors in the debt capital markets in respect of medium/long-term loans to overseas buyers who purchase goods and services from UK exporters;
- lending directly to overseas buyers who purchase goods and services from UK exporters; and
- political risk insurance for investments made overseas.

Major arms deals are a common recipient of ECGs, and at times have represented a majority of EKEF/ECGD business, although it has tended to be less in recent years. Other sectors that commonly receive export finance include civil aerospace, oil and gas, and construction, chiefly relating to major capital or semi-capital goods. Airbus aircraft have accounted for a large proportion of the value of guarantees given in many years. The purpose of UKEF is '...to complement the private market. It seeks to support exports which might otherwise not happen, thereby supporting UK exporters and indirectly their supply chains. The space in which UKEF operates is therefore largely determined at any one time by the willingness and capacity of the private market to assume financial risks in support of exports'.³⁸

That ECGs represent an implied subsidy to exporters is recognized by the UKEF: 'The financial liabilities assumed by UKEF when supporting UK exports involves a risk transfer from the private to public sector i.e. the taxpayer'.³⁹ Some of this subsidy is, however, recouped in the form of insurance premiums paid by exports and other recipients of UKEF support.

In the past, subsidies to arms exports through ECGs were rather higher as claims paid out due to non-payment were significant, and the ECGD was not required to break even. Later, although the ECGD was required to break even, other areas may have cross-subsidised arms exports.⁴⁰ In recent years, the proportion of support to arms exports has been lower, as have claims arising from non-payment (indeed there were no such claims between 2010-11 and 2014-15 relating to arms exports).⁴¹ Moreover, an important element of ECG support to arms exports ended in 2008 when BAE Systems unilaterally cancelled its ECG insurance policies relating to its arms sales to Saudi Arabia. This may have been a result of pressure on the ECGD to exercise more due diligence with regard to reducing the risk of corruption in the deals covered, following the scandal surrounding the cancellation of the Serious Fraud Office's investigation into BAE's Saudi sales, and the heavy criticism of the UK by the OECD that followed.⁴²

43 National Economic Research Associates, 'The Economic Rationale for the Public Provision of Export Credit Insurance by ECGD', 26 July 2000.

The implicit cost involved in ECGs is the requirement to place public capital at risk in backing export deals. This capital should be expected to provide a rate of return, based on an appropriate 'risk premium', which depends on the level of riskiness of the deal supported. There is a subsidy if the premiums paid by exporters in relation to the insurance cover they receive do not match up to the appropriate risk premium. This was acknowledged in a National Economic Research Associates (NERA) report commissioned by ECGD in 2000.⁴³

The proportion of arms-related business in the ECGD/UKEF portfolio has varied considerably over the years (see table 3 below). In recent years, since 2008 when BAE pulled out of cover for Saudi Arabia, it has been very low in most years, with a very large exception in 2012/13 when it accounted for 47% of new UKEF cover.

Table 3: Arms-related share of new UK Export Finance business

Year	Arms share of UKEF business supported
2014/15	5%
2013/14	<1%
2012/13	47%
2011/12	<1%
2010/11	4%
2009/10	1%
2008/09	1%
2007/08	57%
2006/07	42%
2005/06	23%
2004/05	38%
2003/04	39%

However, in determining the implicit subsidy to arms exports through ECGs, the important figures are not the share or amount of new ECG business for arms exports, but the amount of capital at risk in relation to arms exports. This figure used to be published in ECGD reports and accounts, but since the 2005/06 report and accounts it is no longer provided, representing a decrease in transparency. However, figures for exposure in the military sector have been provided through parliamentary answers. The figures for 2010/11 to 2014/15 are shown in table 4 below.

Table 4: Arms share of UK export finance exposure, 2010/11-2014/15

Year	2010/11	2011/12	2012/13	2013/14	2014/15
Amount at risk (£m)	1,156	1,743	3,364	3,063	2,899
% of total	8.5%	12.2%	18.5%	17.8%	15.5%

However, the level of subsidy also depends on the appropriate risk premiums for the countries and deals in question. This is difficult to estimate, as no breakdown by country of exposure in the arms market is provided. In *The Subsidy Trap*, the authors assumed an average *sovereign risk* premium—based on the risk associated with holding government debt from a country—of 5%, based on figures for some key emerging markets, and the assumption that ECGs for arms exports were likely to be for emerging markets. They added to this a 1% *contract risk premium*, based on the assumption that default in relation to arms export contracts is more likely, as non-payment may be due, for example, to claims of defective

44 *Subsidy Trap*, p23.

equipment or late delivery.⁴⁴ It should also be noted that arms contracts carry political risk, for example, in the case of change of regime or if an arms embargo means that equipment is produced but cannot be delivered. *Escaping the Subsidy Trap* followed a similar approach, but took an average sovereign risk premium of 3.5%.

For this study, there is more information to go on, because since the 2007/08 report, the UKEF Annual Report and accounts have started listing arms export deals in the itemized list of insurance cover provided. In contrast to the lack of reporting of sums at risk by the business sector, this represents a considerable improvement in transparency.

For the purposes of this study, this information is then combined with a list of country default spread risk premiums prepared by Professor Aswath Damodaran of New York University, based on credit ratings by Moody's and other ratings agencies.⁴⁵

45 See bit.ly/1jDAjgP

The most significant recent arms contract supported by UKEF was signed in 2012 with Oman, for £2 billion, for the sale of Typhoon combat aircraft by BAE Systems. This accounts for the large increase in arms-related exposure in 2012/13. Oman has a sovereign risk premium of 0.78%.

To get a rough estimate of the appropriate overall risk premium, and the resulting implicit subsidy, this study assumed that in 2012/13 £2 billion of the arms-related exposure was for the Oman deal, declining to £1.8 billion in 2013/14 and £1.6 billion in 2014/15. The 0.78% risk premium was then applied to these amounts. For the remainder of the arms-related exposure, this study calculated a weighted average of the sovereign risk premiums for the countries that have placed major orders for UK arms since 2000, resulting in an average risk premium of 2.6%. This figure was applied to the arms exposure figures for 2012/13-2014/15 minus the assumed figures for Oman, and to all of the exposure in 2010/11 and 2011/12. The details of this calculation are given in Appendix B.

To this is added an assumed 1% additional contract risk for all ECGs, in keeping with the methodology of *Subsidy Trap* and *Escaping the Subsidy Trap*.

Combining these estimated risk premiums with the above figures for arms-related exposure, gives an average figure for the return on capital to be expected over the 5 year period 2010/11 to 2014/15 of **£68.4 million**. (See Appendix B for details)

46 Hansard Parliamentary answer, 9 May 2016.

Set against this, the average value of premiums from arms-related business over this period was **£9.8 million**.⁴⁶ However, it is also necessary to include a share of the annual staff, administration and other operating costs of UKEF, based on the arms-related share of new business each year, which works out at **£2.4 million** per year.

Thus, the net implied subsidy to arms exports through UKEF comes to an annual average of **£61 million** for the period 2010/11 to 2014/15. Given the potential for a considerable margin of error in this figure, perhaps a range of **£49–73 million** would be appropriate, allowing for a 20% margin of error in either direction. However, the assumed contract risk premium of 1% is very conservative. Each additional 1% of risk premium in this case would add an additional £24.5 million to the subsidy.

4.5 The Commercial Exploitation Levy

The UK government charges arms exporting companies a small fee, the 'Commercial Exploitation Levy', to take account of the benefits to the companies in terms of their exports from government-funded R&D (discussed in section 5). Over the period 2012/13 to 2014/15, this averaged **£9.5 million** per year, which must be deducted from the subsidy figure.

4.6 Total direct subsidies

Summarizing the above, the figures for direct government subsidies to UK arms exports are as follows:

UKTI Defence & Security Organization	£3.4 million
Defence Assistance Fund	£7.6 million
Defence Attachés	£3.4-£17.4 million
Other government support, e.g. official visits	£10 million
Net ECG subsidy	£49-73 million
Less Commercial Exploitation Levy	-£9.5 million
Total	£64-102 million

5 BROADER COSTS AND BENEFITS OF ARMS EXPORTS FOR GOVERNMENT FINANCES

This section considers a number of issues where the existence of a subsidy—or, on the contrary, a net gain to government finances resulting from arms exports—is much more debatable and hard to identify, let alone measure.

These issues are:

- 1 a possible subsidy to arms exports through government funding of arms companies' R&D;
- 2 potential savings to the UK government in its own domestic arms procurement, resulting from arms exports, as a result of lower unit costs because fixed costs are spread over a larger total production level; and
- 3 potential costs from distortion of UK MOD procurement decisions resulting from the desire to promote exports. The first two issues in particular are closely linked, as R&D are a significant part of the 'fixed costs' of a given weapons system.

5.1 Government funding of military R&D by industry

The UK MOD spent £3.1 billion on R&D associated with equipment procurement in 2014/15, up from £2.4 billion in 2013/14. From 2006/07 to 2012/13, the total had fallen from £2.7 to £2.0 billion.⁴⁷ Of the £2,373 million spent in 2013/14, £1,516 million was classified as 'Frascati defined R&D', that is, spending that fits the internationally accepted (through the OECD) 'Frascati guidelines' for what should count as R&D spending.⁴⁸

Of this, £1,371 million, or 91%, was spent 'extramurally', that is, with organizations outside the MOD, mostly the UK arms industry (though some may be with foreign industry and e.g. universities). If a similar share is assumed for the 'non-Frascati' component of R&D, then it can be concluded that the MOD spends between £1.8 billion and £2.8 billion per year on extramural R&D, mostly with UK industry.

In most technology-dependent industries and markets, companies invest in R&D to develop new technologies and products, which they hope to bring to market and make profits from, recouping in the process their R&D investment.

⁴⁷ UK Defence Statistics, Defence Departmental Resources 2015, 8 Oct. 2015, bit.ly/2dI5jRZ

⁴⁸ OECD, Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, 8 Oct. 2015, bit.ly/1RmdfbF. For an explanation of how the use of the Frascati guidelines affects the measurement of MOD R&D spending, see Stone, K. C. and Bennet, N. J., 'Determining the Frascati compliance of MOD research & development expenditure', DASA Defence Statistics Bulletin no. 9, May 2009, bit.ly/2bJ61RL

However, the arms industry is not a normal industry, and the arms market is not a normal market. National arms industries are treated as being of key strategic importance, and are given priority in many arms procurement contracts. For major procurement projects, companies' R&D costs are paid for by the government as part of the cost of procurement. Over 2013-2014, for example, only 12.3% of BAE Systems' R&D expenditure was funded by the company itself, with the rest being funded by customers, namely the UK government and export customers.⁴⁹ Some of the company-funded R&D will relate to the 5-10% of BAE's revenues that come from non-military sales, including the very tech-heavy cyber security sector. Thus, the vast majority of BAE's military R&D expenditure is customer-funded.

This can be strongly argued to represent a subsidy to the arms industry in general—although the boundary between 'subsidy' and 'payment for services' is hard to draw, especially in the context of such an unusual market: what would an 'unsubsidized' arms industry look like? Rather than R&D representing a high degree of risk—both in terms of the success or failure of these efforts, and of whether these costs will be recouped through successful commercialization of the resulting products—it certainly creates a very favourable set of business conditions for the industry. In major military contracts, the government tends to pay for cost increases, so the recouping of R&D costs by the company, along with a comfortable profit margin, is essentially guaranteed.

A more difficult question is whether this government R&D funding represents a subsidy specifically to arms exports. In *Killing Jobs*, a proportion of total R&D spending equal to the estimated share of exports in total arms industry output was treated as a subsidy to arms exports, thus based on the 'average cost' for R&D, spread over the full amount of output. This is an arguable position, but it says nothing about the 'marginal cost' of supporting arms exports—how much *extra* R&D spending by the MOD is generated as a result of arms exports?

In *The Subsidy Trap*, and *Escaping the Subsidy Trap*, the authors argued that only the *development* side of the R&D costs should be allocated proportionately to exports. This was on the basis that basic research costs could be treated as a genuinely 'fixed' cost, so that no additional cost to the MOD results from arms exports compared to MOD procurement; but that additional development costs are incurred in the course of adapting systems for export customers, and that this spending would not therefore be genuinely fixed, but would increase in proportion to additional export orders.

This approach, however, assumes that the UK MOD pays for this additional development expenditure for export contracts. But this seems highly unlikely, and this study has not found any evidence for it in particular cases. Rather, additional development costs for developing customized versions of a system are likely to be paid by the export customer. Thus, this approach does not demonstrate the existence of a marginal cost to the MOD in terms of R&D spending resulting from arms exports.

The two papers take slightly different approaches to estimating an R&D export subsidy: *The Subsidy Trap* bases its calculation on the fact that development costs (the 'D' in R&D) accounted for 15% of the cost of MOD arms procurement in the period considered, and that therefore 15% of the value of arms exports (minus the commercial exploitation levy) represented a subsidy for arms exports. *Escaping the Subsidy Trap* notes that around 40% of weapons systems constructed in the UK were for export, and therefore argues

Over 2013-2014, for example, only 12.3% of BAE Systems' R&D expenditure was funded by the company itself, with the rest being funded by customers, namely the UK government and export customers

that 40% of MOD development spending represents a subsidy for exports. Both approaches involve the same assumption that these export-related development costs are funded by the UK MOD.

However, the arms industry undoubtedly receives an export benefit from MOD funding of R&D. In addition to the profit the company receives on the contract with the MOD, it gains a system that it can market for export, with most of the R&D costs (aside from additional development costs for customized export versions) already paid for. Thus, it can market its systems more cheaply for export than if it had to pay its own R&D costs up front, before marketing them to domestic and export customers (and spreading these R&D costs over all sales). In this sense, it can be said that the MOD effectively subsidizes companies' arms exports.

However, to say that there is a subsidy to arms exports would seem to imply that this is money that the government could choose *not* to spend. To do this, the MOD would have to require arms companies from which it orders military equipment to share the R&D costs with the MOD, thus reducing the companies' profit margins on such contracts, on the basis that they could expect to recoup their share of these costs through export orders. Whether or not such a move would be feasible from a political or a business point of view, it would only be possible if the system were still to be exported. Therefore, it cannot be considered an *additional* cost that falls to the government as a result of arms exports, and the government's support for arms exports. Rather, if the argument is correct that the industry receives a subsidy for exports by having R&D paid for in advance by the government, then this is due to a failure by the MOD to take proper advantage of arms exports to reduce its procurement costs.

Thus, government funding of arms industry R&D—along with practices such as single-source contracting, and the tendency for the MOD to shoulder cost increases in major projects—can certainly be seen as providing the industry with a 'free lunch', awarding it large profits at minimal risk. This funding also clearly benefits companies in their efforts to export arms (compared to a situation whereby companies would have to make their own R&D investments to develop new weapons, which it would then have to market to both MOD and export customers). But it cannot be seen as representing an additional cost to the government resulting from arms exports; insofar as it can be said to involve a subsidy to arms exports, it is one that may not be possible to recoup in full, and which could only be recouped if exports continue.

5.2 Savings to the MOD from lower unit costs resulting from exports

It is frequently claimed by the UK government and the UK arms industry, as well as some economists, that arms exports reduce the cost of arms procurement to the government, by allowing the fixed costs of production to be spread over a larger level of output, thus reducing the unit cost of a system. Were arms exports to be banned or significantly reduced, these fixed costs would have to be borne entirely by the UK MOD, assuming that the government wanted to continue procuring the equipment from UK suppliers.

The York study estimated that a 50% cut in UK arms exports would, over the long run, increase costs to the MOD for arms procurement by the equivalent of £80 million per year, thus implying a £160 million a year saving in total from arms exports. *Escaping the Subsidy Trap* gave an estimate of £105 million a year (set against factors such as the R&D subsidy it identified). The report also cited a DESO claim that exports saved the MOD £300 million a year, including the Commercial Exploitation Levy and MOD disposals of surplus equipment.

However, as both *The Subsidy Trap* and *Escaping the Subsidy Trap* point out, there are a number of problems with the unit cost argument:

- 1 fixed costs are not truly fixed—in the medium term, levels of overheads tend to go down in proportion to revenue. One study found that the post-war contraction in the arms industry left the proportion of arms industry employees working in functions such as administration, marketing and R&D roughly the same. Similarly, capital requirements are likely to depend on the volume of production;
- 2 the MOD is typically the lead customer for weapon systems produced by UK industry. At the time a contract is negotiated, exports will be highly uncertain, and cannot necessarily be factored into pricing arrangements. Therefore, the MOD will typically have to pay the programme-related fixed costs up front as part of the procurement contract. This is certainly the case with R&D, where R&D for new projects is indeed funded by the MOD;
- 3 weapon systems typically have to be significantly modified and redesigned for export customers, with each buyer wanting a system adapted to their particular needs. This involves further development costs, thus reducing economies of scale and learning, and any potential saving to the MOD.

These counter-arguments have received backing from an unexpected source, namely a 2014 report commissioned by the MOD from DSTL Policy and Capability Studies, on ‘Embedding exportability in the UK Ministry of Defence’, released in 2016 under a Freedom of Information request.⁵⁰ This report argues for MOD procurement processes to take greater account of the potential for export much earlier in the process of defining and specifying capability requirements of new weapons systems. It sets out numerous alleged potential benefits of the higher level of exports that might be expected from such measures, but on unit costs for the MOD it argues:

“Lower unit costs should occur with increased output through the spreading of ‘fixed’ overheads, economies of scale and learning. If lower unit costs are not fully reflected in lower unit prices to MOD, then firms will gain from higher unit profits (or lower efficiency and greater organizational slack). This is a particular problem when MOD is the lead customer for any UK defence product. Any benefits from economies of scale or learning are likely to be reaped by export customers or the firm developing the product as increased profit.”

⁵⁰ ‘Embedding exportability in the UK Ministry of Defence’, DSTL Policy and Capability Studies, 28 May 2014, bit.ly/1vnYWcl

⁵¹ Ibid, p22.

⁵² Ibid. p25.

⁵³ See bit.ly/2bQP0a

⁵⁴ 'Multiple profit rates on contracts could save MOD millions', SSRO, 8 July 2016, bit.ly/2bWhpEx

Generally defence products are produced in modest volumes through low batch rate production. Each customer tends to have bespoke requirements, which leads to many different versions and configurations, further limiting the extent of any economies of scale and learning.

The US market is potentially the only market that offers real economies of scale for defence production (i.e. JSF production > 3000). This opportunity however is only really applicable to sub-systems/systems as larger platforms tend to have to be manufactured in the US, providing limited benefits to UK industry and the MOD.”⁵¹

The report concludes on this point:

“Reduced unit costs are unlikely due to low unit outputs, MOD often acting as lead customer, and the bespoke nature of each customer’s requirements reducing learning/scale economies.”⁵²

The theory that exports allow the MOD to offer companies a lower rate of profit on contracts can to some degree be tested by comparing profit rates on systems where exports are expected (e.g. Eurofighter Typhoon), and those where they are not (e.g. nuclear armed submarines, the Astute class nuclear powered submarines, and the new aircraft carriers). Such contracts tend to be sole sourced, i.e. without competitive tendering, and the MOD now has a Single Source Regulation Office (SSRO) to establish an appropriate rate of profit for such contracts, and to monitor what can be counted by companies as allowable costs for the purpose of calculating what the MOD must pay.⁵³ Recently, the SSRO reduced the rate of profit for sole-sourced contracts from 10.6% to 8.9%. There has also been discussion of the potential for applying multiple profit rates depending on the nature of the contract, the degree of risk and its complexity, etc., rather than the current ‘one size fits all’ profit rate.⁵⁴ However at no point does the SSRO suggest that the potential for exports should be a factor, with companies accepting a lower profit rate on the MOD contract where export potential exists. Hence, it would appear that, based on current practice, the MOD does not enjoy lower prices for systems that can be expected to be exported, but rather, must pay industry the full fixed and variable costs of developing and producing a new system, plus a given profit rate.

It is possible that the unit costs argument may have some validity at the level of sub-systems, where larger production volumes may apply, as the same or similar sub-system may be sold for inclusion in multiple complete systems. But the case remains speculative, and the practical evidence absent.

What might be more plausibly argued is that, in the absence of exports, it may no longer be viable for UK industry to maintain certain capabilities, due to large gaps in domestic orders. This could require the MOD to procure future systems of this type from overseas. This would not necessarily be more expensive, indeed it might be cheaper in many cases. The support for exports is a matter of industrial policy choice, rather than based on cost saving. However, the weight that should be given to maintaining particular production capabilities in the UK is beyond the scope of this report.

5.3 Distortion of MOD procurement choices

“We must also be careful that the Defence Budget is not disproportionately used to support British Defence Industry... the Defence budget does not exist primarily to subsidise the Defence Industry or promote Defence exports. It exists to maximise Defence capability.”⁵⁵

⁵⁵ Royal United Services Institute, Annual Chief of the Defence Staff lecture 2013, 18 Dec. 2013, bit.ly/2cb0kZn

These words were spoken by General Sir Nicholas Houghton, Chief of Defence Staff, at the annual Royal United Service Institute (RUSI) lecture. Houghton echoed a common criticism of UK military procurement as being far too focused on big, expensive, high-tech prestige projects—such as the new Queen Elizabeth class aircraft carriers and the F-35 Joint Strike Fighter—and too little on personnel, and on cheaper but militarily crucial ‘force multipliers’ (such as command, control, communications, computers and intelligence (C4I)), and cheaper, less technologically sophisticated systems that could be afforded in larger numbers.⁵⁶

⁵⁶ See e.g. Foreman, J. ‘Labour’s defence opportunity’, Demos blog post, 4 Apr. 2014, bit.ly/2bWhF6n; Forbes, W., ‘Dreams: white elephants, golden turkeys’, *Daily Mail Online*, 13 Jan. 2014, bit.ly/2cwj8pg

A 2010 report by Bernard Gray into UK arms procurement⁵⁷ found a severe mismatch between procurement ambitions and available funding, and blamed, among other things, a ‘conspiracy of optimism’ between MOD and industry that led to programmes that were late, over-budget, and failed to deliver the full capabilities promised.

⁵⁷ Gray, B. (Note 15) ‘Review of acquisition for the Secretary of State for Defence’, Oct. 2009, bit.ly/2cwcYW0

A key aspect of many of the problems with UK arms procurement, as General Houghton alluded to, is that procurement decisions are arguably often made with the interests of the UK arms industry at the forefront, rather than getting value for money for the MOD. This is a factor of the UK government’s strategic desire to preserve a domestic defence industrial base, and also of the undue influence that the industry has within the MOD, as has been well documented in the CAAT report *Who Calls the Shots?* The perverse logic seems to be that debatable procurement decisions are taken now, so as to preserve the UK arms industry, and to maintain the freedom of action to make further debatable procurement decisions in the future.

There is a very strong case, therefore, for arguing that the interests of major UK arms companies, especially BAE Systems, play an excessive and

Government funding of arms industry R&D—along with practices such as single-source contracting, and the tendency for the MOD to shoulder cost increases in major projects—can certainly be seen as providing the industry with a ‘free lunch’, awarding it large profits at minimal risk

distorting role in UK procurement decision-making. A specific question for this report is the extent to which procurement decisions are distorted specifically in order to promote arms exports. The argument here is that the MOD may decide to 'buy British', despite a foreign design offering better value for money, so as to help a company sell the system in question to a foreign buyer; it would hardly be a good advertisement for the system if even the UK MOD cannot be persuaded to buy into it. Such distorted procurement decisions, leading to excessive spending for the capability delivered, would then represent an indirect subsidy to arms exports.

Escaping the Subsidy Trap presents one example of such distortion at some length, namely a 2003 decision to buy the Hawk-100 trainer/light attack aircraft from BAE Systems for £800 million, with a whole-life cost of £3.5 billion, which seems to have been in part motivated by the desire to help BAE win a £1.1 billion contract to sell the Hawks to India. That deal was signed in 2004, with a follow-up order in 2010, and another pending at the end of 2015. The decision was controversial in that plans to put the trainer programme out to international tender were abandoned in favour of a non-competitive procurement of the Hawk. Some reports suggested that alternative aircraft, such as the Italian Aermacchi 346, would have saved £1 billion over the 25-year life of the aircraft. The top MOD civil servant, Kevin Tebbit, refused to sign off on the deal until ordered to do so by the Defence Secretary, Geoff Hoon.⁵⁸

⁵⁸ *Escaping the Subsidy Trap*; Hencke, D., 'MOD chief refused to sign £800m Hawk order', *The Guardian*, 10 Dec. 2003, bit.ly/2blsfNn; and Fagan, M. 'How the Hawk fought off an Italian predator', *Daily Telegraph*, 19 July 2004, bit.ly/2c7IB6G

The motivation for this deal was in part to ensure the survival of BAE's Brough factory in Yorkshire, which would be guaranteed by the UK and Indian orders. Thus, export promotion was not the sole motivation, but was clearly an important one, whether in its own right and/or as a means of ensuring the future of the Brough plant and the domestic production capability it represented.

The suspected £1 billion extra cost over 25 years amounts to an average of £40 million per year. The authors of *Escaping the Subsidy Trap* estimate on this basis a total annual subsidy of £200 million in relation to procurement distortions, on the grounds that this programme represents only a small proportion of total UK procurement, and that similar distortions are likely to be found across the MOD equipment budget.

However, no other recent examples of procurement distortions motivated by export promotion have been put forward, or at least not prominently or with clear evidence. Indeed, the Gray review of MOD procurement, which was frequently scathing about procurement policies and practices, did not present any examples of this, but rather argued that the MOD did not pay enough attention to exportability when setting requirements for new weapons systems, frequently resulting in systems that were too bespoke, complex and expensive to attract export customers.⁵⁹

⁵⁹ Gray, B. (note 15), p 84.

The Hawk is still flying, and thus the estimated £40 million a year extra cost to the MOD that resulted from choosing a UK system is still being borne. It is hard to argue, at present, for a higher figure.

This £40 million a year figure may therefore be added to the estimates of direct subsidies in section 4, giving a grand total figure for UK government subsidies to arms exports of **£104–£142 million**.

6 CONCLUSIONS

The arms industry, in comparison to other industries, has a unique status in UK policy, despite representing only around 1% of GDP and 0.6% of employment. Due to the prevalent belief that maintaining a domestic arms production capability is of crucial strategic importance, the industry receives enormous levels of support and protection from the government, including:

- shielding many key arms purchases from foreign competition;
- government funding of R&D;
- government absorption of most of the risk of cost overruns on major programmes;
- major political influence through a ‘revolving door’ with the MOD and policy influence through high-level advisory bodies;
- protection from corruption investigations in relation to export deals; and
- intense lobbying by government ministers, up to the Prime Minister, for export contracts.

Specifically, the government provides a variety of direct subsidies to arms exports. This includes support for export promotion via the UKTI Defence & Security Organisation, the Defence Assistance Fund, the military attaché network, and official visits; and export credit guarantees which act as subsidized insurance against default. These subsidies are estimated to be in the range of **£104 million–£142 million** annually.

The argument that arms exports save the MOD money through lower unit costs for its own procurement is severely weakened by the fact that the MOD acts as the lead customer for most of the largest projects, where future exports will be highly uncertain, and by the bespoke nature of systems sold to each customer. This study also considered whether R&D funding represents an additional subsidy to arms exports, but insofar as it can be argued to do so, it is a subsidy that cannot easily be recouped, and certainly not unless the exports continue.

A further aspect of the interrelationship between MOD procurement and exports is those cases where the MOD procures a more expensive UK system, wholly or partly in order to facilitate exports of the same system. At least one relatively recent such case can be identified, namely the 2003 procurement of the Hawk 100, where the decision to procure this system instead of one supplied by an international competitor may be costing the MOD an additional £40 million per year. Other such cases may exist, but have not currently been identified. Nonetheless, this case is a powerful example of a military procurement system that frequently behaves as if its primary goal is the preservation and promotion of the UK arms industry.

APPENDIX

Appendix A: A primer on UK military spending

The question of how much the UK spends on the military (or ‘Defence’) sounds like a simple one, but unfortunately it is not quite so straightforward, and figures for the defence budget are reported in a number of different ways—which have also changed over time, so that interpreting the numbers can be quite confusing. This is not a matter of deliberate obfuscation; rather, the question of what exactly counts as military spending is not completely straightforward, and neither are public sector accounting practices, which determine how different types of spending—in particular capital spending on equipment and infrastructure—are accounted for.

Spending reviews, budgets, estimates and spending reports

The main medium-term public expenditure decisions in the UK are taken at periodic spending reviews, frequently following a general election. These set spending plans for each department for a number of fiscal years ahead (UK fiscal years run from the 1st April to the 31st March). The 2010 spending review set spending plans up to 2014-15, a 2013 spending round extended these by one year to 2015-16, and the 2015 spending review set plans up to 2019-20.⁶⁰

The annual government Budget, usually published and presented to Parliament by the Chancellor of the Exchequer in February or March, focuses mainly on taxation policy, but may adjust spending plans from the spending review. The Budget is a legislative measure, voted on by Parliament, which legally sets tax and spending levels for the coming fiscal year.

Subsequently, the government publishes the Main Supply Estimates, setting out in more detail the spending plans for each department for the year, in accordance with the Budget. The Main Estimates for 2015-16 were published in July 2015.⁶¹ These are sometimes followed later in the year by Supplementary Estimates, adjusting spending based on changing circumstances during the year.

Of course, it is very rare for anything in life to go as planned, so of course actual spending rarely matches the budget exactly. Actual expenditure for each department is typically published in a Departmental Annual Report and Accounts.⁶² However, for the MOD, another crucial source of data is the UK Defence Statistics, which (among other things) presents key summary information on MOD expenditure over a number of years. At present, the most recently available UK Defence Statistics report on expenditure (‘Departmental Resources’) is for 2014-15.⁶³

⁶⁰ See ‘Spending review and autumn statement 2015’, bit.ly/1LzmPys

⁶¹ See ‘Central Government Supply Estimates 2015-16’, bit.ly/2dKLdbl

⁶² The MOD Annual Report and Accounts for 2015-16 is at bit.ly/2c0JMUm

⁶³ UK Defence Statistics 2015, Departmental Resources, bit.ly/2bWaWcD

Departmental Expenditure Limits, Defence Spending, Resource and Cash Accounting

A Department's budget is expressed in the form of two Departmental Expenditure Limits (DELs): the Resource DEL and the Capital DEL. The Resource DEL consists of 'current' expenditure, that is, spending on resources that are used within the year: salaries and benefits, running costs such as fuel, rent, heating and lighting, food, consumables (including, for the military, ammunition used during the year).

The Resource DEL also includes an amount for depreciation, that is, the loss in value for capital assets over the course of the year through use. This is in keeping with accounting practices for companies and other private organizations. In the case of the MOD, capital assets consist primarily of military equipment, as well as land, buildings, and non-military equipment such as cars and computers.

The Capital DEL consists of spending on new capital assets during the year. In the case of the MOD, this again consists primarily of military equipment, including 'work in progress' on assets under construction.

The total DEL is the sum of the Resource DEL and Capital DEL. However, this is not the same as total defence spending (or spending for another department); to include both newly-acquired capital AND depreciation on existing capital would involve double counting: the MOD would 'pay' for the equipment once at the time of purchase, and again over the course of its life through depreciation. Therefore, in calculating the final level of departmental spending, depreciation must be subtracted. Thus:

$$\text{Defence spending} = \text{Resource DEL} + \text{Capital DEL} - \text{Depreciation}$$

The figures in the Spending Review already deduct depreciation from the Resource DEL, but those in the Main Estimates do not, and do not present the resulting 'Defence Spending' line. This is a potential source of confusion.

Why bother with counting depreciation at all, if it is added only to be afterwards subtracted? It aligns government accounting more with business accounting practices, and allows a better measure of how much resources are actually consumed in a given year.

This accounting approach is known as *Resource Account Budgeting* (RAB). Another key feature of RAB is that spending is accounted for on an *accruals* rather than a cash basis: that is, money is counted as spent when the resources it pays for are consumed, rather than when the cash is paid. For example, electricity is accounted for on the basis of how much is used during the year, rather than when the electricity bill is paid.

The figures for defence spending over time, as defined above, are affected by changes in accounting practices. This includes the switch from cash to RAB, which happened in 2 stages in 2001/02 and 2003/04, and a switch to 'Clear Line of Sight' (CLOS) budgeting from 2011/12, which adjusted RAB in a number of ways, most importantly (for the MOD), removing a 'Cost of Capital Charge' from the Resource DEL; this was a non-cash item that represents the 'opportunity cost' of holding capital assets, in terms of the notional interest that could be obtained from having the value of the assets in cash instead. Such an item is rarely if ever included in military spending figures for other countries.

These various changes in accounting practices create a problem in assessing long-term trends in UK military spending. Fortunately, the Main Estimates and the UK Defence Statistics also present a *Net Cash Requirement* (NCR) figure for the MOD for each year, which is the actual cash needed by the department to fund its spending during the year. This is much closer to the old cash-based system of accounting, and allows for a consistent measure over time. For this reason, SIPRI uses the NCR in its database to measure UK military spending.

A final category of spending presented for each department is Annually Managed Expenditure (AME), which does not count as part of the DELs. This is spending that is attributable to a department but managed centrally, and which typically depends on legislation and other factors outside the budget. For example, welfare payments count as AME for the Department of Work and Pensions, as their level depends on benefit levels and claimant numbers, rather than the annual Budget act. For the MOD, a major component of AME is War Pensions, which are not counted as military spending by SIPRI (in contrast to regular military retirement pensions), as they relate to the legacy of past military activity.

NATO figures for UK military spending differ from both the SIPRI figures (using the NCR) and the RAB/CLOS measure preferred by the government, chiefly because they have changed the way they treat military retirement pensions. These have made the NATO figures higher than the SIPRI ones in some recent years. The MOD spending figures that SIPRI uses includes MOD contributions towards the future pensions of serving personnel, but not the pension payments to current retirees (including both would represent double counting). From 2016, NATO figures for the UK will include War Pensions, which will help the UK to maintain its commitment to spending 2% of GDP on the military.

Figure 2 below presents UK military spending, based on both the figure for the (changing) MOD definition, and the NCR, from 2001-02 to 2015-16. The figures are in current prices, that is, unadjusted for inflation. Figure 3 presents the SIPRI figures for UK military spending (based on the NCR) from 2001-2015, in constant (2014) pounds, that is, adjusted for inflation, and as a percentage of GDP. The figures are adjusted to a calendar year basis.

Figure 2: UK military spending – Resource and cash basis

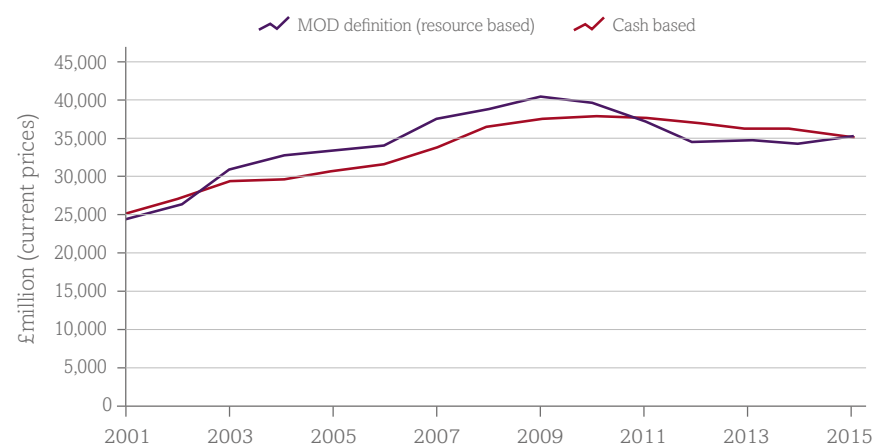
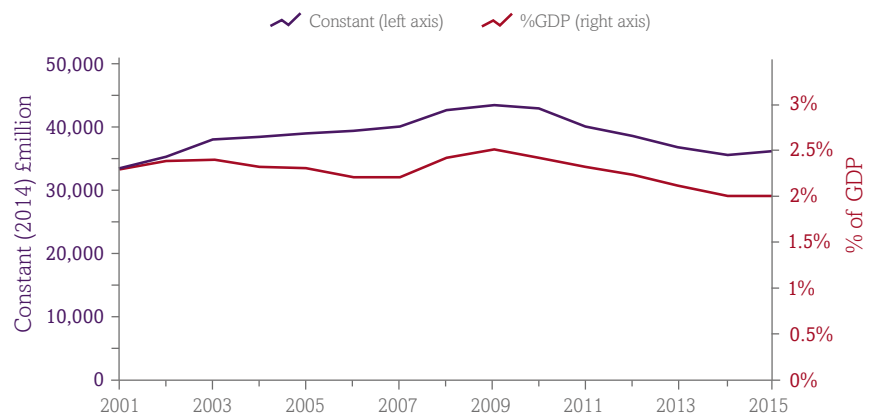


Figure 3: UK military spending, constant prices and as a share of GDP



Appendix B: Estimating the ECGD risk premium

In section 4.5, this study provided estimates of the implicit subsidy to arms exports through Export Credit Guarantees provided by UK Export Finance, based on the annual figures for UKEF arms-related exposure, and estimates for the appropriate risk premium that should be applied to this exposure. This appendix details how these estimated risk premiums were calculated.

The key pieces of information used for this were:

- the level of UKEF cover relating to arms exports each year;
- lists of arms export deals supported by UKEF from 2007/08;
- SIPRI figures for the volume of UK arms export orders to relevant countries since 2000; and
- information on country default spread risk premiums.

For convenience, information from table 4 is repeated, showing the level of arms export-related exposure for UKEF from 2010/11 to 2014/15:

Year	2010/11	2011/12	2012/13	2013/14	2014/15
Amount at risk (£m)	1,156	1,743	3,364	3,063	2,899

The main arms contracts supported by ECGs from 2007/08 onwards are shown in table 5 below.

Table 5: Main arms-related contracts underwritten by UK Export Finance since 2007/08 (amounts under £500,000 omitted)

Year	Recipient country	Exporter liability (£m)	Equipment sold	Maximum
2014/15	Indonesia	Thales Air Defence	Air Defence System	106
2014/15	Indonesia	Thales UK Ltd.	Air Defence System	26
2013/14	Lebanon	Not revealed	Bomb blast curtains	1
2012/13	Indonesia	Gamma TSE	Intelligence equipment	4
2012/13	Oman	BAE Systems	Typhoon aircraft	2,008
2011/12	Turkey	Not revealed	Military vehicles	1
2010/11	UAE	Airbus Military	transport/tanker aircraft	114
2008/09	Indonesia	Thales Airborne Systems	Equipment for 4 naval ships	12
2007/08	Indonesia	Fernau Avionics	Radar	2
2007/08	Saudi Arabia	BAE Systems	Saudi British defence cooperation programme	750
2007/08	Trinidad & Tobago	VT Shipbuilding	Offshore patrol vessels	276*

* This deal was subsequently cancelled by Trinidad & Tobago.⁶⁴

Clearly, the Oman deal represents a very large proportion of the total UKEF arms-related exposure from 2012/13 onwards. However, given that the Saudi deal recorded in table 5 above was presumably one of those for which ECG cover was cancelled by BAE in 2008, it is clear that a considerable portion of the exposure must relate to guarantees given before 2007/08, when no breakdown is available.

The above list, however, gives some idea of the countries that are the recipient of arms exports with UKEF support.

Further information may be gained by looking at the major customers for UK arms exports, using the SIPRI Arms Transfers Database. This study considered orders placed since 2000, looking at the 'Trend Indicator Value' (TIV) of equipment ordered by each country. This is not a financial measure, but can give an indication of the countries that are major customers for UK arms, and that may therefore be significant recipients of ECGs. High-income OECD countries were excluded, as these are less likely to require ECG cover for such deals, and Saudi Arabia was also excluded, given the cancellation of ECG cover for BAE.

This information gives a picture of which countries are the major customers for UK arms, and, from 2007/08, of the value of deals covered by ECGs to these countries. To obtain an appropriate risk premium for the ECG cover provided for arms exports, figures for individual country risk premiums are also needed. This study used a list of country default spread risk premiums prepared by Professor Aswath Damodaran of New York University, based on credit ratings by Moody's and other ratings agencies.⁶⁵ Table 6 below shows the UK's major arms customers since 2000 (excluding developed countries and Saudi Arabia, as discussed above), the share of the total TIV values of UK arms export orders to this subset of countries, and the country default risk premium for each country. Countries known to have received ECG cover for arms sales since 2007/08 are shown in bold. The sale of patrol boats to Trinidad & Tobago was cancelled, so this country does not appear in the list; nor do Lebanon and Turkey, which received very low levels of ECG cover (see table 5), and whose TIV values of orders from the UK in this period are insignificant.

Table 6: Shares of TIV values of major conventional weapons ordered from the UK since 2000 (excluding developed countries and Saudi Arabia), and the country default risk premium for each

Country	Share of total TIV	Country default risk premium
India	25.4%	2.44%
Oman	19.0%	0.78%
Indonesia	9.3%	2.44%
Chile	8.7%	0.67%
Romania	6.9%	2.44%
Brazil	5.8%	2.44%
Greece	3.9%	11.08%
Algeria	2.6%	6.4% ⁶⁶
China	2.5%	0.67%
South Africa	2.5%	2.11%
Thailand	2.0%	1.77%
Malaysia	1.6%	1.33%
Bahrain	1.3%	2.44%
Bangladesh	1.2%	3.99%
Lithuania	1.1%	1.33%
UAE	1.1%	0.55%

⁶⁵ See bit.ly/1jDAjgP

⁶⁶ No rating is given for Algeria, as a 'frontier market', but the figure is based on information on comparable countries.

It is not possible to derive precise average risk premiums from these figures, because (a) they do not represent financial values; (b) it is not known which deals were covered by ECGs; (c) the rate at which exposure declines as recipient countries pay for the arms they have purchased is not known; and (d) the risk premium figures are taken from January 2016, and since this study is interested in an average over a number of years, these premiums may have varied.

Nonetheless, this provides some idea of the type of risk profile of countries receiving arms under UKEF guarantees. Many of the large recipients seem to cluster in the 2-2.5% range of risk premium, with some such as Oman and Chile having considerably lower premiums, and others such as Greece and Algeria having considerably higher ones.

Based on this information, and taking a weighted average of the risk premiums for each country, this study estimates an average country risk premium of 2.6% for all deals except the £2,008 million Oman Typhoon deal, to which Oman's risk premium of 0.78% was applied.

To these figures, a contract risk premium of 1% was added (see section 4.5), thus obtaining a total risk premium of 1.78% for the Oman deal, and 3.6% for everything else.

As noted in section 4.5, this study assumed that £2 billion of the UKEF arms exposure in 2012/13 was for Oman, with £1.8 billion in 2013/14 and \$1.6 billion in 2014/15.

The total annual implied subsidy (before deducting premiums paid by the companies to UKEF), can therefore be calculated as follows, using the figures for UKEF arms exposure in table 4:

Table 7: Estimation of implicit ECG subsidy by UKEF, 2010/11-2014/15
(Figures in £m)

Year	Arms Exposure	Less Oman Exposure	1.78% of Oman exposure	3.6% of other exposure	Total
2010/11	1,156	1,156	0	41.6	41.6
2011/12	1,743	1,743	0	62.7	62.7
2012/13	3,364	1,364	35.6	49.1	84.7
2013/14	3,063	1,263	32.0	45.5	77.5
2014/15	2,899	1,299	28.5	46.8	75.2
Average					68.4

Campaign Against Arms Trade, Unit 4, 5–7 Wells Terrace, London, N4 3JU
☎ +44 (0)20 7281 0297 ✉ enquiries@caat.org.uk 🏠 caat.org.uk

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