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Comparing British and German offset strategies

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Introduction[1]

A comparison of Britain and Germany offers insights into the origins of national offset policies. Both countries are among the larger arms producers and exporters in Europe. They both run a number of large arms procurement programs, including collaborative ones. Some defense companies, like BAE Systems, produce arms in both countries. Additionally, both countries share membership in international organizations, notably the European Union and NATO, that have some bearing on defense industrial policies and are signatories (in 2000) of the six country Framework Agreement on defense industrial restructuring in Europe. Furthermore, on a number of important features of defense production, exports, and procurement, Britain and Germany are similar. For instance, the arms industry is privately owned, and government ownership is minimal and confined to a few research and development facilities. But there are also striking differences, particularly on defense industrial policy, including export policies. Similarly, British and German offset strategies are markedly different in perception if less so in results.

The comparison of the British and German cases allows for fresh perspectives on the nature of defense offsets. Offsets are often analyzed, at least by economists, within frameworks of efficiency, competition, and net welfare gains. The objective of analysis is prescription: how to develop better offset policies. While valid, analysis which is blind to the particularities of the defense industry, as well as to the defense industrial policy of a state, cannot be comprehensive. This chapter emphasizes the analysis of the *status quo* and how it came about. It does not prescribe a particular approach to offsets. Still, interesting lessons can be drawn. This chapter describes the differences in the countries' approaches to procurement, including import offsets, particularly in collaborative projects, and to export policy, with a focus on export offsets. Finally, some of the underlying causes for the differences are analyzed.

Overview of procurement policies and the role of import-offset requirements

United Kingdom

British defense procurement policy aims to provide the necessary equipment for its armed forces in a cost-effective manner. Currently, Britain operates a mainly open, competitive

procurement policy under the Smart Acquisition framework. Compared to other European countries Britain has a large procurement budget and is still able to run national projects. In Britain, an agency of the Ministry of Defense, the Defense Procurement Agency, is responsible for procurement and offset policy, while another agency, the Defense Export Services Organization, supports defense exports and implements offset policy. The Department of Trade and Industry also maintains an interest in defense industrial matters. British defense industry is in private hands. It is dominated by BAE Systems but the defense industrial base is considered globally competitive. Compared to other European firms, British firms are much more active in the United States. Britain is the second largest arms exporter in the world. Government relations with British defense firms range from the very supportive (on exports) to relatively strained (on procurement).

HISTORICAL BACKGROUND

For much of the cold war period, the relation between the state and defense industry could best be described as monopsonist: the state controlled the extent and type of defense industry and operated a protectionist procurement policy to preserve defense industrial assets (Dunne and Macdonald, 2001). This was seen as crucial to maintain an industry that had been leading in many sectors after the end of the second world war, but was losing its edge against US and, from the 1960s onward, European producers. By the late 1970s, Britain's remained one of the few European defense industries to be able to compete on some world markets, but it was heavily dependent on government intervention to do so.

During the 1980s, the neo-liberal "value for money" approach favored by the Thatcher governments affected the defense industry and the defense procurement budget. All major government-owned companies were privatized. However, the Levene Reforms on procurement are regarded as the key moment of change. These reforms ensured that competition became the norm wherever possible; there was a move to firm or at least fixed price contracts[2] and to competition at all stages of the procurement process. New and non-British suppliers were encouraged to bid by an insistence that even subcontracts were placed competitively and by MoDs insistence of breaking preferred supplier links (Schofield, 1995).

These changes carried implications for government-industry relations and for the role of exports in the British defense market. Relations between state and industry became increasingly adversarial on procurement issues as major systems were purchased abroad (mainly from the US) and industry was forced to become leaner and more competitive, securing its place in the world market.

A major complication for competitive procurement was the emergence of one major British defense producer, BAE Systems. Procurement officials had little choice but to buy either from BAE Systems or from overseas. Obviously, the strong concentration of military technology, skills, and employees under one company roof provided BAE Systems with considerable economic and political weight.

Although the 1997 Ministry of Defense Strategic Defense Review (commissioned by the new Labor administration) encouraged industrial partnership in procurement, and embedded it in a new system of defense procurement, the Smart Acquisition initiative, the commitment to competition in the defense market remains strong. The review

recognized the changing nature of the defense industrial base, and pointed to the reduced number of suppliers as a reason to form longer-term partnerships. However, government insistence on competitive tendering led to the Defense Procurement Agency's controversial policy of encouraging foreign-owned firms like Thales to establish a considerable presence in Britain. The resulting distrust of the Agency by British firms (especially BAE Systems) led to great pressure being put on government to clarify defense industrial policy, which was duly done in 2002 (MoD, 2002). The result is more industry friendly but the emphasis on competition remains strong.

THE ROLE OF OFFSETS

The British government refers to offsets associated with British arms imports as industrial participation (IP). The Defense Procurement Agency (DPA) is responsible for setting British industrial participation policy and the Defense Export Services Organization (DESO) for its implementation.

Both the defense industry and government have long seen arms import-related offsets as an unavoidable nuisance. Their fundamental objection to such offsets is based both on the strong position of industry (there was no great need for technology transfer) but importantly also on MoDs preference for open, competitive procurement. However, both industry and government have accepted import offsets as a necessity so long as protectionist policy exists elsewhere, most notably in the United States. The 2002 Industrial Policy Paper states: "The goal is a fair and accessible competitive defence market, both at prime contractor and sub-systems level, where this can genuinely be achieved, allowing the UK defence industry to compete on merit for leadership of and involvement in foreign programmes" (MoD, 2002, p. 16, note 1).

Government has therefore developed a systematic policy to deal with import offsets. British policy sets a threshold whereby, if there is an offshore capital element of more than £10 million (or £50 million for French and German companies under a reciprocal waiver agreement), industrial participation bids may be requested through either the offshore (geographically defined) prime contractor or a UK-based subcontractor.[3] Ownership is unimportant: at question is the location of the work. The 2002 Industrial Policy Paper gave two major objectives for industrial participation: technology transfer and investment in particular industrial capabilities (MoD, 2002, p. 12). These industrial capabilities are divided into two specific groups: a very small number of capabilities, which for national security reasons have high priority, and a much larger group of capabilities which the government deems desirable to retain in the UK industrial base (MoD, 2002, pp. 11–12).

It is official policy that bids should only be requested automatically from the United States, otherwise on a case by case basis. But in practice such requests are the rule. The work must be defense-related, new, of equivalent technical quality, achieved within the duration of the contract, and at no additional cost to the MoD. There is no compulsion to offer an IP package. In mid-2002 the total value of IP agreements stood at £5.2 billion (predominantly from the US) of which £2.7 billion were outstanding (£0.2 billion direct offsets; £2.5 billion indirect offsets).[4] Much of the benefit goes to small and medium-sized enterprises (SMEs) instead of to large-scale contractors.

The MoD emphasizes that the IP proposal is less important than getting the right equipment at the right price, and that while IP will not win you a contract, it may lose it. Typically Britain asks for and receives 100 percent offsets, even though high rates of offsets are not well regarded as it only increases what British firms will be asked for overseas. More indirect offset is proposed than direct which is less financially secure, but more efficient procurement is thought to result when an established supply chain is used. Equally, even lower direct offsets can be advantageous if the product is likely to be exported widely. For example, Britain was the launch customer of the C-130J Hercules transport aircraft, but through IP (even though the direct offsets element is relatively low) some UK SMEs are now embedded in the supply chain for other exports.

As far as indirect offsets are concerned DESO recognizes that the civil-military divide is difficult to draw with very high technology work and it operates on a pragmatic approach (although industry would prefer an even more pragmatic one). The UK does not offer multipliers for technological transfers, and award of offset credit rests on the firm actually using the technology in the market place. There is increasing use made of technological and asset transfers to fulfill offsets in Britain. For example, Boeing invested in the Aerospace Manufacture Research Center at Sheffield University. Parliamentary interest in IP is relatively high and its use is monitored following the AWACS affair in the 1980s when it was commonly felt that Britain had gained little from a major procurement contract compared to other European countries (House of Commons, 1989; Martin and Hartley, 1996). Industrial interest is also naturally great and the Defense Manufacturers Association runs an IP forum to facilitate contacts between foreign arms sellers and potential UK partners and to encourage information exchange on IP opportunities. Interestingly, both industry and government belie ve that as defense firms both become multinational and increasingly pursue strategic alliances to help gain overseas contracts (as BAE did in the Czech Republic to help sell Gripen), formal direct offsets are likely to gradually disappear.

The British government's free trade policy toward the defense market coupled with its belief that its defense firms can prosper in a freer market is most pronounced at the European level. It is of the opinion that offsets and similar work share or *juste retour* arrangements in collaborative projects should be phased out together with other barriers to trade to maximize the efficiency of the European defense market. To this end, and recognizing that there was no consensus at the EU or Western European Armaments Group (WEAG) level, it has enthusiastically supported two intergovernmental initiatives that aim to make collaborative projects and the European defense market more efficient. OCCAR was set up to jointly manage procurement projects (for France, Germany, Italy, and the UK) and was thought to offer European nations improved management of collaborative projects. The relinquishment of *juste retour* in favor of global balance was considered a major step forward. The British government is also enthusiastic about the Framework Agreement, where it sees an opportunity to solve many of the problems of fragmentation in the European market. In July 1998, the defense ministers of the six major arms producing countries in Europe (France, Germany, Italy, Spain, Sweden, and the United Kingdom) signed a Letter of Intent aimed at facilitating cross-border restructuring of their defense industries. A Framework Agreement was agreed in July 2000 with the intent that when those countries cooperate with one another they can do so more efficiently and effectively, and that many obstacles to trade will be progressively

removed. Britain proposed an offset waiver within this group in 2002 and was hopeful of gaining agreement on it.

Germany

German procurement policies are marked by a close, though not tension-free relationship between domestic companies and the procurement authorities, namely the *Bundesamt für Wehrtechnik und Beschaffung* (BWB), in charge of management, and the supervisory *Hauptabteilung Rüstung* in the Ministry of Defense, which is in charge of policy. In November 2000 an arms procurement council *(Rüstungsraf)* was set up comprising the heads of the armed services, the Chief Comptroller, Director General of Armaments, and the heads of the budget, defense administration, and IT departments. Its task is to plan German defense procurement through prioritization.

The relation between industry and procurement authorities is close, although German defense industry is totally privately owned, and the major producers also have substantial civilian components. Competition among the major German defense producers is limited. Certain companies, or more often consortia of companies, are preferred suppliers for certain types of products. Foreign suppliers are more or less forced to participate in such consortia in order to be successful. An observer has written: "German defence industrialists run an 'open' national supplier cartel, whose only common purpose is defence against outsiders who are not capable of retaliating" (Kerber, 2002, p. 29).

Direct offsets, through the participation of German companies in more or less all procurement orders to the tune of German financing, have played a major role in building and supporting the German defense industry. Nevertheless, Germany does not have an official industrial participation policy.

HISTORICAL BACKGROUND

Germany's history has played an influential role in its attitudes toward, and actions on, questions of armaments. Immediately following the second world war Germany was disarmed, and it was not until 1954 with the signing of the Paris Treaties, and West Germany's 1955 accession to NATO, that a new army was formed. Tight restrictions were maintained on the development and production of weapons.

At the time when German rearmament took place, there was naturally no defense industry in existence in Germany following, as it did, almost a decade of demilitarization. The German government of the time was determined to rebuild a domestic industry, partly for strategic reasons, but predominantly in order to participate in technological progress made in the military sector and to steer regional economic development. Established industries in Germany opposed rearmament, fearing that a diversion of resources to defense would disrupt the economic miracle. It was agreed therefore that defense procurement should benefit the overall industrial development of German industry especially by subsidizing scientific and technical developments in areas where Germany was comparatively backward (Brandt, 1966).

West Germany adopted a middle-of-the-road strategy, whereby much equipment would be purchased overseas but existing capacities in the civilian sector would be used or adapted for production in Germany. International collaboration offered the best chance

of overcoming its deficits on the defense industrial scene, The rejection of the idea of building up a defense industrial sector has meant that to this day, German companies involved in defense production also have considerable civilian operations.

The German defense industry thus developed largely along economic lines, based on technological advantages and government priorities on location. Government ownership, while extensive until the 1980s in the newly emerging aerospace industry, was not viewed as an activist instrument to construct a comprehensive national defense industry (at least after the days of Franz-Josef Strauss), but as a defensive strategy to support infant, and failing, industries. To this day Germany does not have an explicit defense industrial policy: both government support of the industry and acquisition policies have been opportunistic, driven by commercial opportunities, employment and technology policy, and regional politics.[5]

Germany does, though, abide by certain principles, which while never formally codified as an official policy, are important in the procurement decisions taken by German governments:

> maintenance of technological and industrial capacity through collaboration within NATO;
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> facilitation of Germany's integration into the European Union and transatlantic alliance;
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> pursuit of industrial policy particularly in the area of aerospace to help build up dual-use capacities;
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> acquisition of technology (military or dual-use) through licensed production (in the belief that military technology would spin off to benefit general economic growth).

This produced a procurement sector with high levels of collaborative projects and a defense industrial sector firmly embedded in the civilian economy (Cowen, 1986). But the lack of any official policy has made the aims and objectives of German defense procurement rather opaque.

German defense industry developed strengths in niche areas, such as tank production and naval shipbuilding, closely related to similar strengths in civilian industry, namely the automobile industry and merchant shipbuilding, but remained weaker in aerospace and electronics. The industry has gone through a period of rapid consolidation in the 1990s which left the country with a handful of mid-sized defense manufacturers that employ some 90,000 workers as compared with 280,000 ten years ago (Küchle, 2001).

THE ROLE OF OFFSETS

Industrial offsets played a major role in the development of the German defense industry after world war II. Procurement authorities insisted on work to be conducted in Germany to the tune of German funding, wherever this was technically and financially feasible.[6] Additional costs of production under licence in Germany were accepted when this led to technology transfers to Germany. In cases where domestic production did not make sense, German authorities negotiated for industrial offsets for its defense industry (Cowen, 1986).

Offset requirements were primarily managed through procurement policies but no official policy was formulated. Only German companies were effectively allowed to participate. Foreign suppliers had to pair up with German companies and share the work. Consortia where German partners could additionally gain in terms of technology and long-term production capacity were preferred. It should be noted that Germany was unusually successful in using offsets to "grow" an indigenous defense industry: this was almost certainly because the importance of successful German rearmament to its NATO allies meant that they were willing to accept these terms.

The German approach to offsets proved difficult in the early phases when there was hardly a German defense industry to cooperate with. In the 1950s and 1960s, foreign suppliers were therefore allowed to set up subsidiaries in Germany to compete for procurement contracts. Later on, many of these affiliates either went out of business or were swallowed by the growing German companies.

At present, the German procurement preference for companies operating in Germany does not seem likely to change, even though it now will include more foreign-owned companies. Procurement continues to support the "cartel" (Kerber, 2002) of German companies by only giving contracts to such consortia where German partners have a work share corresponding to German procurement expenditure.

Germany's objectives of Europeanization and collaboration in procurement to maximize resources mean that the government is, like Britain, supportive of OCCAR and the Framework Agreement, although it emphasizes that it sees these as steps toward a European Armaments Agency. About 70 percent of Germany's major procurement projects are developed and produced in international projects.[7] As the importance of German defense industry grew and procurement resources decreased, Germany has become more insistent on its rightful work share in these projects although it accepts a managed approach to collaboration such as OCCAR's global balance system. German industry, however, would prefer action to come from the European Union as it feels that the Letter of Intent process is codifying their disadvantaged status vis-à-vis government support at a European level.

Comparative analysis of import offset policies

The British and German cases present two types of defense industrial preferences with respect to offsets: industry perspectives on import offsets are largely dependent on their position vis-à-vis competition in the arms market. A strong competitive defense industry will in principle be against offsets. It will still seek offsets as a second-best in markets where others do the same, but it clearly perceives this as a loss in opportunity and business. A weak industry, however, will regard direct offsets as a crucial instrument to improve their competitiveness through technology transfers, which enable receiving industries to improve their longer-term production capabilities.

Governments, at least in the British and German cases, have provided support to industry's position on offsets. The British government, which is devoted to open competition in procurement, is actively seeking offsets despite in principle being opposed to them. Industry may clamor for an even more pro-"buy British" stand, but the fact remains that the British government will regularly request offsets beneficial to British defense industry. Offset policy, as defined by the government, is setting the ground rules

for both the government and industry when it comes to offsets. They signal to potential foreign suppliers what to expect in procurement competition but also define the roles of government and industry in this area.

Germany, interestingly, has no such explicit offset policy, largely because offsets have been, and still are, built into the procurement system. Government-industry relations are so close that foreign suppliers have no chance to gain contracts other than through cooperation with German companies. Government has shaped the industrial scene, too, by preferring large conglomerates in which defense was not the major activity to companies highly dependent on defense. It has also used defense procurement for non-defense purposes, such as regional and technology policy. All this has happened in an *ad hoc* fashion, without an explicit defense industrial policy.

Export offsets

United Kingdom

The British government provides a considerable level of support for companies wishing to export defense equipment. This is regarded as legitimate support as it helps to maintain the viability of the UKs defense industrial base. Ministers actively lobby on behalf of British defense firms and further support is provided by an agency of the MoD. There is also the Defense Export Services Organization (DESO), an unusual organization, which has few international counterparts. Its role is to provide assistance to British defense companies and to overseas customers interested in acquiring British defense products. As, collectively, the world's second biggest arms exporter British firms are frequently faced with the challenge of outgoing, or export offset deals. It is recognized that in some countries the offset package is of more importance than the main tender. The number of countries adopting offset requirements is growing, the offset percentage demanded is increasing, and the complexity of the pertinent regulations is high. DESO therefore explains the rules and regulations of the customer country to firms, establishes contact with offset contacts there, and facilitates the development of offset projects. It concentrates its efforts on smaller exporters who do not have dedicated offset staff. In many cases, as the indigenous defense industry is too small or the offset demands too high, indirect civilian offset is used. This makes it harder for defense prime contractors, which in Britain tend to have less of a civilian component than in Germany, to fulfill their offset obligations. DESO also tries to spot projects that could be used for offset credit, even using non-UK companies and regional policy agencies to start projects that the defense firms can invest in.

Export offsets are both a source of opportunity and a problem for industry. Industry recognizes that offsets will remain for the foreseeable future, even as it fears that ever increasing levels of offset will eventually lead the system to collapse. There is some industrial concern especially from lower-tier suppliers that foreign countries' desire to protect and expand their indigenous defense industry is simply bringing more firms into a market which already suffers from overcapacity. They also realize that British defense firms need to play the offset game with increasing skill. The Defense Manufacturers Association established the British Defense Manufacturers Offset Group in 1990 to

increase levels of information and advice available. Trade Partners UK also awarded a contract in 2001 to the British Consultants Bureau to provide advice to UK SMEs on offset and countertrade issues. This package of services is generally considered to be of major assistance to UK defense firms, especially given that exports represent approximately 40 percent of UK defense industrial production. Nevertheless offsets are seen more as a problem to be dealt with than as an opportunity.

Germany

As a result of Germany's experience in world war II, involvement in the international arms trade is a sensitive topic. Originally restricted to exports of weapons received from allies in the 1950s, arms exports grew with the build-up of the German defense industry as from the late 1960s. Export policy has remained more restrictive than that of other main producers in Europe, such as Britain and France. Still, Germany is one of the five or six largest exporters of military equipment in the world. One reason for this position in a highly competitive market has been its extensive willingness to offer offsets.

When German companies began to penetrate the international arms markets in the 1960s, their willingness to offer production of German products under licence gave it a distinct marketing edge. Many customers were keen to master the domestic production of small arms, but also of warships and armored vehicles. The dominant suppliers, including the United States, the Soviet Union, and the UK, hesitated to provide such offsets, for strategic and economic reasons. Strategically, they were interested in the dependency growing out of arms sales. Economically, they feared the development of competitors that might be able to produce with lower costs.

German producers, as latecomers in the international arms markets, saw their chance in offering production technology. The success of German arms exporters since the 1970s was largely grounded in this willingness to transfer technology. It was supported by the general expertise of German industry in industrial project management. German firms did not help to erect defense companies, but a wide range of factories. Usually a consortium of a defense company owning the relevant technology, and a project manager, with expertise in building factories, was in charge of providing customers with packages containing weapons and production capacities.

In addition to these direct offsets, German industry also developed specific expertise in indirect offsets. This was largely done through the trading departments within the large conglomerates that also produced arms. An example is Thyssen, which builds warships and armored vehicles but largely is a steel producer and trader. One company in particular developed skills relevant to marketing German arms through indirect offsets: Rheinstahl. This company is a trading house in metal ores and metal products but also of production facilities related to metals. It has paired, for several decades, with the major German shipyards. Rheinstahl negotiated the commercial side of naval deals and provided the offsets, for instance by buying metal ore from Brazil or copper ingots in Chile, while the shipyards negotiated on technology and provided the ships. In addition, business itself has supported offset trade through an informal group that developed into the *Deutsches Kompensations Forum* in 2000.

The German government sees export offsets as entirely a matter for the firms concerned. The officials deciding whether export permission is granted do not consider

the offset side of any deal at all (although the effects of technology transfer are considered). They provide little support for German firms needing to develop offset packages.

The German defense industry feels disadvantaged by the existing regulations, which it says damage its competitiveness in relation to other European firms. It is certainly true that German export rules are often an issue in agreeing collaborative projects. The German government also does not engage in export promotion in the way of the British or French governments, although in the 1990s some low-key activity has begun (for example, the German navy had an arms promotion tour to South Africa). Equally, where export credit guarantees are concerned the German government "Hermes" credit guarantee agency is generally barred from assisting with defense sales (except to EU/NATO or other like-minded countries).

The lack of government support might be thought to be negative for German firms. Nevertheless, German firms are putting together major offset packages such as the 16 billion rand offset deal to sell four frigates to South Africa (value 6 billion rand) or the three submarines to South Africa again (offset 30.3 billion rand; value 5.2 billion rand).[8] This is largely because compared to other European firms, and certainly to the US, the defense firms are more experienced in the offset game.

Comparative analysis of export offsets

British companies principally regard export offsets as a nuisance which complicate matters. They look to the government to help in keeping the costs of export offsets down. The British government lends its support because it is keen for the British defense industry, one of the few competitive British industries left, to be strong in exports.

The German government, in contrast, operates a hands-off policy with respect to the official promotion of arms exports. It also is keen that the German defense industry should export but fears, for historical reasons, being perceived as an unethical supplier and so follows relatively strict export rules compared to other European countries. It is, however, willing to bend the rules, for instance for naval shipbuilding, which can export to many more countries than say the tank-building industry.

More importantly, by insisting on defense production capabilities within larger conglomerates instead of dedicated defense firms, the government has built-up a defense industry structure that has some advantages in world export markets where offsets are important. The German government can have both: a strong export industry and show moral restraint. Another contributing factor was that the German government was not interested in the strategic aspects of arms transfers, and thus had no hesitation in allowing foreign countries to produce German weapons under licence.

Conclusions

Offsets are the coin of the weak in arms production. Stronger industries are opposed, both on the import and export side, and only accept offsets as a second-best in highly imperfect markets. Direct offsets can, as the German example demonstrates, help to build-up a domestic arms production base. However, even in the German case, it should

not be overlooked that the strong areas of industry are less those that benefitted from technology transfers, such as aerospace, than those that had close links to civilian activities, particularly shipbuilding and armored vehicles.

The analysis of the longer term effects of offsets is even more sobering when the main customers benefitting from earlier German technology transfers are considered. Few of these continued producing in quantity after the end of the immediate offset arrangements. In some cases, technology transfers resulted in commercial disasters, such as in Argentina, where German ships, tanks, and aircraft were produced under license (see Scheetz, 2004). In others, production was discontinued because of the lack of customers. It remains a basic fact that defense production is only sustainable where there is a general industrial environment that can support this activity (see Brauer, 2004).

On the other hand, it makes little sense to view offsets in isolation. The British government, which is not keen on offsets, is promoting its industry by other means. Thus it runs an extensive, and costly, export promotion program.

In the end, there is no hiding from the fact that the arms market is characterized by what Ann Markusen (2004) has called "illiberal trade," where non-economic motives and behavior are rampant. Offsets are less illiberal than some instruments and policies, but they remain an obligation many participants in the trade would shed if they were not faced with strong partners insisting on them. However, as this study has shown, some cope better than others with this situation. The German industry and government have, largely through the late-comer status of the German defense industry, made much out of offsets, both on the import and export side while the British industry and government, starting from a much stronger position, would prefer to get rid of them altogether.

Notes

1. This chapter is primarily based on information gained from a series of interviews carried out in Britain and Germany with Ministry of Defense officials and industrial representatives in the summer of 2002.
2. Firm price contracts mean that the contracted price does not change at all; fixed price contracts only allow for inflation-linked price changes.
3. Britain does not aggregate contracts; the threshold applies to each contract separately.
4. For the UK, direct offsets refer to work on that particular contract, indirect offsets refer to other defense-related work.
5. The aerospace industry in the 1950s and 1960s can be seen as an exception. Lavish subsidies, aggressive and expensive import substitution, licenced production, and finally coproduction, were used to gain the technology the industry needed to flourish but had missed out on during the period before rearmament.
6. Part of German procurement was offset of a different kind, namely for the stationing of allied, particularly US troops in Germany. For these deliveries, German authorities could obviously not ask for compensation.
7. See http://www.bxa.doc.gov/OSIES/ExportMarketGuides/European/germany.pdf.
8. Figures taken from *Business Day* (19 November 1998).

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