

# Chapter 13

## The UK Experience with Offsets<sup>1</sup>

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### 13.1 Introduction

Although not unique, the UK's experience of offsets is unusual. The UK is a substantial exporter of arms and thus domestic manufacturers frequently incur offset obligations when selling overseas. The UK also imports defence equipment, largely but not exclusively from the US, and typically invites offset proposals from potential suppliers. British industry is thus in the unusual position of both giving and receiving substantial amounts of offset work, and this duality makes the UK an attractive subject for a case study of the impact of offsets. Most other countries are typically importers of defence equipment and thus only receive offset work. The US is different again being largely a seller of arms and thus only gives offset work.

In the US, both sub-contractors and labour unions have claimed that offsets reduce domestic employment opportunities, transfer technologies, and create potential competitors in world markets.<sup>2</sup> These claims have led to calls for Congress to limit the amount of offset work that US firms can offer. Conversely, recipients of offset work in many countries often claim that such work would have been won by domestic manufacturers anyway, that it is invariably low technology (metal-bashing) print to order work, and that it does little to enhance domestic technological capabilities and thus the economy's international competitiveness. Given that UK manufacturers both give and receive offsets, their experience offers a rare opportunity to compare the alleged effects of offsets.

However, the UK has a substantial indigenous defence manufacturing capability and this might colour the attitude of UK industry towards offsets. In many countries, without such an extensive indigenous capability, the procurement choice will usually be between alternative imported systems, each with its own offset. Because such imports bring work for domestic firms, offsets are seen as a 'good thing'. In the UK, the availability of a domestic product means that the procurement choice is often wider, and that the choice is either the domestic option or an import with offset. In these circumstances, the offset option, because it typically means less work for UK manufacturers than that brought about by the domestic product, might be seen as a 'bad thing'. Thus firms in

countries with similar offset requirements might still have very different attitudes to offsets depending on the level of indigenous capability.

There are very few economic evaluations of offset programs, not least because of the considerable problems associated with such an exercise. First, there is little, if any, routinely published data. Hence the analyst is reliant on the goodwill of those in industry and government to discuss such matters. Second, offsets are big business and are thus commercially sensitive. In an era of high unemployment, vote conscious governments are sensitive to the charge of spending large amounts of tax-payers' money on products that generate few domestic jobs. One response to this is to cite the number of jobs created by offset work. Nevertheless, governments remain vulnerable to criticism of the efficacy of their offsets policy which is thus a politically sensitive issue. Third, those involved with offsets in both industry and government have vested interests. Consequently, it is sometimes difficult to disentangle fact from fiction.

This last problem can, to some extent, be ameliorated by comparing the impact of incoming and outgoing offset work. Given that the same firms will be both receiving and giving offset work, and assuming that offset requirements do not vary widely from one country to another, then it is to be anticipated that, say, the employment and technology effects should be similar for both types of offset. From the analyst's point of view, the major advantage of the fact that UK industry both gives and receives offset work is that it permits such a comparison to be made.

The purpose of this chapter is to outline the major issues associated with offset, as seen from a UK perspective, and to review the relevant evidence. Given these findings, likely future policy developments are discussed.

### **13.2 The Defence Committee's Investigation into the Boeing Offset Agreement**

In the 1970s, with the growth of unemployment and the ever-increasing costliness of defence equipment, purchasers sought domestic industrial benefits when buying off-the-shelf, foreign designed equipment. By the end of the decade, the UK had a similar policy and the first purchase to attract an offset was the Harpoon missile. However, until the mid-1980s, UK purchases with offset were relatively small and attracted little public attention. In 1986–8, however, the UK Government simultaneously awarded a \$1,1500 million contract to Boeing for the supply of seven airborne warning and control system (AWACS) aircraft and cancelled the troubled rival indigenous Nimrod project. To reduce the adverse impact on the UK's defence industrial base of such a decision, Boeing had

offered a 100% offset and claimed that this would lead to 40,000 man years of work for British industry spread over a five-year period. The MoD broadly agreed with Boeing's claim, believing that the job losses resulting from the cancellation of the Nimrod project would be equalled, if not exceeded, by job gains from the offset. When the contract was finally signed the offset was to be 130% of the purchase price, to be fulfilled over an eight-year period.

The existence of an offset commitment to the UK by a foreign contractor does not guarantee that orders will be placed with UK firms. The aim is to get UK firms onto the bidders list which, in the large US market, is viewed as a substantial benefit, as adequate competitions can often be run between internal suppliers without the need to consider potential European sources (ie the offset is a way of entering the US market). However, UK firms will only win the order if their product is competitive in terms of price, quality and delivery.

To be eligible as offset, the MoD requires that the work must meet a number of criteria:

- a. it should consist of orders for defence products and services, or orders for high technology products for civil application
- b. it should be 'new' work, placed as a result of the offset agreement and consist of products not previously purchased, products purchased from new suppliers, or represent a significant increment to existing levels of business
- c. the work should contain as large a proportion of high technology orders as possible which encourage UK companies to consolidate and advance their capabilities, broaden their product base or improve their competitiveness; and
- d. that orders should be placed over a period not exceeding that of the delivery of the foreign contractor's equipment.

However, in 1988 press reports about the Boeing offset alleged:

- a. that low technology work was being counted as offset;
- b. that some of the offset work would have been placed with UK contractors irrespective of the offset agreement ie it was not new work generated by the offset; and
- c. that the volume of offset work was lower than anticipated and that, as a result, few jobs were being created and/or sustained.

These claims prompted an investigation of the workings of the AWACS offset agreement by the Parliamentary Defence Committee. They took evidence from Boeing, UK industry, and the MoD, and their report provides one of the few detailed investigations of the impact of any offset.<sup>3</sup>

### 13.2.1 New Work

The requirement that offset work should be new work, generated by the offset, is a particularly difficult one to enforce as it would seem impossible to judge whether industry would have won a contract without the offset agreement. This difficulty is exacerbated by the fact that Boeing annually places large amounts of work with UK suppliers e.g. in 1987 Boeing placed contracts worth almost \$1 billion with British industry. Thus, there quickly emerged the issue of whether follow-on contracts should be offset eligible. MoD agreed that 60% of the value of purchases involving follow-on work to contracts that Boeing had placed with UK suppliers before 6 November 1988 (the date Boeing submitted its best and final offer price for the AWACS aircraft) could be counted as offset credit. The Defence Committee commented that there was a strong argument for disallowing these contracts as offset credits and considered the imposition of a 40% discount as extremely favourable to Boeing. Certainly, both the Society of British Aerospace Companies and the Defence Manufacturers Association thought that much offset approved work was not new business.

### 13.2.2 High Technology

Work meets the MoD's technology requirement if it is of a similar technological standard to that contained in the AWACS. Clearly, there will be some low technology work on AWACS (e.g. aircraft galleys) and thus contracts for the supply of similar items will be acceptable towards the offset. Indeed, such work would be needed for Nimrod. However, the Defence Committee expressed the hope that such low technology work should not come to constitute a significant proportion of approved offset work.

The AWACS offset agreement permitted contracts for work on new Boeing commercial aircraft to count as offset credit and, in particular, for 35% of the value of any purchase of Rolls-Royce engines to be counted towards the fulfilment of Boeing's offset obligation up to a maximum of \$800 million. The Defence Committee made two points about this. First, that this permitted over one-half of the offset obligation to be met by the purchase of civil aerospace products when the offset was designed to compensate defence manufacturers for the cancellation of Nimrod. Second, that the purchase of Rolls-Royce engines to go in civil aircraft is not in the gift of Boeing (as the airline selects the engines it requires) and, therefore, considerable doubt is cast on the idea that these purchases occurred as a result of the offset.

When negotiating the offset agreement with Boeing, the MoD wanted as much work as possible to be on the AWACS system itself. Such work would be the equivalent, in terms of quality, of the high technology work lost on the

Nimrod project. However, the scope for Boeing to offer such direct offset work was limited because the AWACS aircraft was already in production and most of the AWACS supplier sources were already well established. Thus most of the offset (about 95%) was necessarily indirect which, the MoD argued, was not a matter of concern providing that it meets the necessary offset criteria.

### 13.2.3 Job Implications

Boeing's offset obligation was financial, and its fulfilment was measured in terms of the value of approved offset work; the agreement does not set a target for jobs to be created. However, the apparent potential of the offset programme to provide at least as many jobs as would be lost in the cancellation of the Nimrod programme was a strong argument in favour of the Government's decision to purchase the AWACS system. The Defence Committee commented that it should therefore have been an important test of the effectiveness of the offset programme that it created the expected employment. Initially, the MoD made no attempt to monitor the number of jobs created. However, the Defence Export Services Organisation (DESO), which administers UK offset policy, did remedy this after the Defence Committee expressed surprise that monitoring had not been undertaken from the beginning of the offset programme.

Based on company responses, the estimated UK employment benefits of the AWACS offset programme are summarised in Table 1. Admittedly, the employment figures are based on the period July 1988 to December 1990 and omit the periods from November 1986 to June 1988 and from January 1991 to May 1992. Nevertheless, two aspects of the results are interesting. First, 38% of the respondents claimed no employment impacts. Second, since the start of the job monitoring exercise, the net number of jobs sustained is 1279 and the net number of jobs created is 113, a grand net total of 1392 jobs (in those companies that responded to the survey). If the figures in Table 1 are expressed in job years and are adjusted to allow for non-respondents, the maximum total of jobs sustained and created is 2151 job years. These data cover 30 months of the AWACS offset although the full programme lasted 67 months. Grossing up the figure of 2151 job years so that it relates to all 67 months of the programme yields a figure of 4804 job years. Even using the higher figures, the actual numbers are considerably below the original Boeing claim of 40,000 man years of work over 5 years (equivalent to some 20,000 man years over the 2.5 years of the job monitoring exercise). However, an MoD statistical analysis of the offset orders showed a total of 37,500 man years of work sustained in UK industry — a figure close to the Boeing estimates.<sup>4</sup> The substantial discrepancy between the Boeing/MoD estimates and the company responses (in Table 1) remains to be explained and

**Table 1:** Employment Impacts of the AWACS Offsets

Period	No. of companies consulted	No. of non-responses	No. of companies claiming no effect	No. of companies saying job sustained	No. of companies saying job created	Total number jobs sustained <sup>(1)</sup>	Total number of jobs created
July–Dec 1988	107	25	30	45	7	790	12 <sup>(2)</sup>
Jan–June 1989	108	28	33	40	7	536	6 <sup>(2)</sup>
July–Dec 1989	106	22	34	42	8	698	97
Jan–June 1990	67	10	17	35	5	573	4 <sup>(2)</sup>
July–Dec 1990	56	9	19	27	1	706	0
Overall response	444	21%	38%	54%	8%	1279	113

**Notes:**

- (1) Each total contains the same 500 jobs at one company plus the same 6 jobs at two other companies: hence net number is 1279.
- (2) Each of these totals contains the same 3 jobs created at one company: hence the net number of jobs created is 113

**Source:** HCP 218.<sup>6</sup>

casts doubts on the claimed employment benefits of the offset programme. Possible explanations include the discrepancy between jobs and man-years estimates, the difficulty which companies encounter in trying to estimate employment impacts, the need to ensure that all estimates are for full-time equivalents, and the reliability of company responses. Alternatively, the difference could reflect the fact that the MoD counted a too high a proportion of offset sales as new business, whereas companies believed that new business was only a fraction of the total offset. One expert believed that genuinely new business was typically 25% to 40% of an offset, with a maximum of 50%. MoD's position is to claim that the success of offset agreements can only be measured in financial terms.<sup>5</sup>

### 13.3 Other Studies of UK Offsets

It is against this background that the authors undertook two studies of offsets.<sup>7</sup> The first focused on offsets associated with UK imports of defence equipment,

while the second examined the impact of offsets when UK firms exported their products. With regard to the first study, DESO supplied details of the 18 leading UK companies which had undertaken most of the offset eligible work since the mid-1980s. These companies were approached at the end of 1992 and a questionnaire was used as the basis for a semi-structured interview about the impact of offsets. Four of the firms were part of the same company and a single response covered the group's activities. Another firm returned three copies of the questionnaire, with each response reflecting the experience of a different business within that company. Three firms declined to participate in the study and another three firms could find no trace of having undertaken offset work (despite being on the MoD/DESO list of companies)! This yielded 10 completed questionnaires for analysis.

Although the sample is small in terms of the number of firms interviewed, these companies accounted for just over 88% of the gross output of the UK's aerospace industry in 1991. Moreover, given that these firms have undertaken most of the offset work, one might, if anything, anticipate a biased response in favour of the policy. In the absence of any data, the survey approach is the only method of obtaining insights into offsets and testing hypotheses about new business, profitability, technology, etc.

Before outlining the survey results, the reader might find it useful to know how the MoD executes its offset policy. The foreign prime contractor (e.g. Boeing) will submit to DESO the values and dates of purchase orders that it has placed with UK firms and which it wishes to claim towards its offset obligation. DESO will then write to the UK firm and ask it to verify this information. DESO will also enquire whether the contract:

- a. introduces new technologies or enhances the firm's competitiveness;
- b. represents new business or a significant increment to existing business;
- c. involves high or low technologies; and
- d. involves civil or defence work and, if the former, whether the technology involved could be said to be of benefit to the defence field.

Depending on the respondents answers to these questions, DESO will allow anything between zero and 100% of the amount claimed by the foreign firm. If the latter is dissatisfied with the outcome of this process, it can re-submit contracts for approval and negotiate with DESO over the amount allowable. Ultimately, however, DESO's decision is final. One consequence of this procedure is that UK firms, as distinct from the prime contractor, will not know for certain which contracts are actually counted by MoD as offset work although they will, of course, know which contracts are being claimed towards an offset obligation. This lack of information only serves to increase the difficulty of ascertaining the impact of UK offset policy.

### 13.4 Survey Results

The survey asked questions about bidding for and undertaking offset work, the importance of offset work to firms, its profitability, the reasons for their success in obtaining offset work, and the benefits of offsets. Initially, questions were asked about bidding for and obtaining offset work. Table 2 presents a summary of firms' responses to these questions. The large disparity in the size of the firms responding to the questionnaire presents a problem. If one simply looks at the number of firms giving the same response to a question then this will tend to give more weight to the (larger number of) small firms in the sample. Alternatively, if one weights each firm's response by its share of aerospace output then this will give more weight to the (relatively few) large firms. The compromise adopted is to report both indicators for each question.

Half of the respondents had been knowingly invited to bid for offset work and the same firms had knowingly bid for such work. However, nine of the ten

**Table 2:** Survey Responses About Bidding for and Obtaining Offset Work

	Yes		No	
	Number of responses	Output of UK aerospace industry (%) in 1991	Number of responses	Output of UK aerospace industry (%) in 1991
Has your firm ever knowingly been invited to bid for offset work?	5	61	5	39
Has your firm ever knowingly bid for offset work?	5	61	5	39
When bidding for work, do you always know whether the purchaser will claim it towards an offset obligation?	1	<1	9	>99
Has your firm ever undertaken work which the buyer claimed towards an offset obligation?	8	>99	2	<1

respondents did not always know whether the purchaser would claim contracts for which it had bid as offset work. Of these respondents, two of the small firms believed that they had not undertaken any work which the buyer claimed as offset.

Firms were asked to indicate the percentage of their turnover in 1991 that was offset work. Responses varied from less than 1% to 35% and these are summarised in Table 3. As the Table indicates, there is a considerable difference between the responses of small and large firms. For all five small firms, offset work accounted for over 5% of turnover yet for the large firms this figure was, in all cases, less than 5%.

Offset contracts might be more profitable than other work if UK firms, knowing that foreign suppliers have to meet an offset obligation, seek to capitalise on this by slightly increasing their profit margins. Alternatively, UK firms might cut their profit margins on offset work as a way of entering the sizeable US market. However, all respondents reported that offset work was equally as profitable as other work.

Four firms had undertaken direct offset work for Boeing on the AWACS, two had done work for McDonnell Douglas on the Harpoon missile, and one had done work for Boeing on the Chinook update. A very small proportion of firms' offset sales involved items to be included directly in the equipment which gave rise to the offset obligation. Four firms (accounting for over 60% of UK aerospace output in 1991) reported that this figure was less than 5% and another two (accounting for over 20% of industry output) said that it was zero. Two firms did not know what this figure was likely to be.

Firms were asked to rank, in order of importance (from 1 = most important to 5 = least important), five reasons why the respondent thought that foreign firms placed offset work with them. Table 4 summarises these responses. Here, we were interested in the effect of the purchaser's offset obligation. One (albeit large) firm put the purchaser's offset obligation as the most important reason.

**Table 3:** The Importance of Offset Work to Firms

Offset work in 1991 as percentage of turnover	Number of respondents	Output of UK aerospace industry 1991 (%)
<1	2	78
1-5	1	19
5-10	2	1
10-15	2	1
>15	1	1

Four firms thought that the offset obligation was the least important reason. Five of the eight firms cited their product quality as the most important reason why foreign firms placed offset work with them. To obtain an overall indicator of the importance of the offset obligation, an average ranking for each reason is reported in the penultimate column. This gives equal weight to all firms' responses and confirms the impression that the offset obligation is the least important reason why UK firms won offset contracts. Of course, it is possible to argue that the rankings of large firms should be given greater weight than those of smaller firms and hence the average ranking reported in the last column of Table 4 weights each firms' ranking by its share of total aerospace output. As a result, the offset obligation becomes a much more significant reason why UK firms won offset work.

Respondents were also asked to estimate the percentage of their offset eligible sales that they believe they would have won in the absence of the purchaser's offset obligation. There are obvious problems of bias in such a question. Six firms responded that they would have won all of these sales, one firm did not have any idea, and another, one of the large firms, believed that it would not have won any of these sales.

Six firms thought that none of their offset work had brought new technology into the firm. One firm was unable to give a figure but thought it to be minimal. Another firm thought it small and certainly less than 5% of all their offset eligible sales. We also interviewed a US firm that was awarding offset work to UK industry. This US respondent argued that it was placing R&D work with UK firms but only those who were willing to accept fixed-price contracts. This

**Table 4:** UK firms' beliefs about why foreign firms placed offset work with them

Reason why foreign firm placed offset work with UK company	Frequency with which reason achieved ranking							average	
	1	2	3	4	5	n/a	a	b	
<i>Because of:</i>									
the purchaser's offset obligation	1	—	1	2	4	—	4.0	2.6	
the price of your product	3	2	2	—	1	—	2.3	2.4	
the quality of your product	5	2	—	—	1	—	1.8	3.2	
work you already do for the buyer	3	1	—	1	2	1	2.7	3.2	
other reasons	3	1	—	—	1	3	2.0	1.6	

**Note:** See text for details of how the average ranking for each reason was calculated.

respondent said that UK sub-contractors could not expect cost-plus R&D contracts when it, the prime contractor, had committed itself to supply goods to its clients on the basis of a fixed price contract.

Another criticism of offset work is that it is typically of short-duration ceasing on completion of the American firm's offset obligation (not least because the firm might have offset obligations elsewhere and thus needs to transfer work out of the UK). Conversely, the work might continue if the US buyer is seeking to bank offset credits in the anticipation of incurring an obligation in the UK at some later date. One (small) firm said that follow-on work had been generated and four other firms (three of them small) expected the work to continue with or without the offset. One small firm said that the work was only short-term. One of the large firms was unable to offer an opinion while another said that direct offset work was short term whereas indirect offset was not.

Another benefit claimed for offsets is that it can improve the competitiveness of those undertaking such work. This might come about through a contract to develop a new product or through winning work which involves the installation of new production techniques. Alternatively, such sales, particularly in the large US market, might increase learning economies and thus reduce unit production costs. On all three counts, the competitiveness of the UK firm would be improved. However, we found it difficult to find any substantial evidence to support these claims. Six firms said that offset sales had not improved their competitiveness while one, a large firm, said that any improvement to their competitiveness had been small.

Overall, these results offer a broader picture of offsets than that coming from the Defence Committee's report. Nevertheless, the underlying message is very similar. Although offsets do appear to offer some benefits, UK industry believes that these are quantitatively quite small and certainly appear to fall far short of the massive benefits which one might have anticipated from a \$1.5 billion programme of new work. This is confirmed when one recalls that the firms in the survey were those who (according to MoD) had benefited most from offset work. This is not to say that offsets *per se* do not work; rather that current policy does not achieve all that it might. This is a theme that we return to later.

Of course, it is always possible that firms will be responding to enquiries about incoming offset work strategically; that is, responding in a such a way as to achieve the desired policy response. One way to analyze this possibility is to examine whether outgoing offset work has a similar, but opposite, impact on UK industry to incoming work. This prompted the dispatch of a questionnaire to all 49 members of the British Defence Manufacturers Offset Group (BDMOG) in early 1993. Responses covering 35 of these members were received. Two respondents declined to participate in the study and in five cases a single

response covered more than one member (eg different divisions within the same firm were members of the BDMOG). This yielded 26 responses and, of these, two further firms were also excluded from the analysis as one was not involved in defence markets while another produced solely for the UK market. Thus the final result was 24 questionnaires for analysis from firms who accounted for almost 90% of UK defence exports in 1991.

As Table 5 reveals, the 24 survey responses came from a variety of firms whose defence exports in 1991 ranged from zero to goods and services worth hundreds of millions of pounds. Of these 24 firms, 12 had been a contractor for a military export sale that had involved an offset since 1 January 1985 and 7 had been a sub-contractor assisting a prime contractor to fulfil its overseas offset obligation since 1 January 1985. Larger firms are more likely to have been involved with offset, both as a contractor and as a sub-contractor assisting another firm to meet its offset obligations.

Those (12) firms that had, since 1985, exported defence equipment involving an offset were asked to supply details about any one of these export sales which the respondent considered to be typical of exports with an offset. One firm was unable to supply the detailed information which we required. Of the 11 sales for which details were supplied, 8 were for aerospace products and all of the contracts were signed between 1986 and 1992. The contract values ranged from £2 million to £350 million, with a contract duration ranging from 6 months to 10 years. The average contract value was £64 million and had a mean duration of just over 4 years. The value of the offset associated with these contracts ranged from £0.7 million to £200 million and the time allowed for its

**Table 5:** Size Distribution of Survey Respondents

Value of defence exports in 1991 (£m)	Number of respondents to survey	Number of firms that have been:	
		contractor for military export with offset since 1985	sub-contractor assisting prime with offset since 1985
0–10	9	1	1
10–20	4	3	—
20–40	2	2	1
40–80	2	—	—
80–160	2	1	—
160–320	2	2	2
over 320	3	3	3
Total	24	12	7

fulfilment ranged from 18 months to 10 years. The average offset value was £41.5 million and just over 5 years was allowed for its fulfilment.

To examine whether UK jobs were being exported in order to meet offset obligations, respondents were asked to estimate the number of additional employee-years of work that would have been generated by the sale for the firm's domestic operations in the absence of any offset requirement. Seven firms replied that the offset would have no impact on the volume of work. The other estimates ranged from a loss of 50 to 350 employee-years with the total loss being some 626 employee-years. In other words, whilst the value of offsets was relatively large (over £640 million), the adverse employment impacts were trivial.

Concern has also been expressed by sub-contractors in the US that primes attempt to meet their offset obligations not by transferring work from their own factories but by taking work from their sub-contractors and placing this with firms in the country where the offset obligation has been incurred. Clearly, offset obligations can be met from a variety of sources (eg prime/sub-contractors, domestically or overseas) and respondents were asked to indicate the approximate percentage of the offset obligation which was expected to have been met by these different sources. Table 6 details the responses to this question.

**Table 6:** Who Fulfils the Offset?

Offset	Percentage of offset obligation met by:					
	Vendor's operations		Vendor's sub-contractors			
	Domestic	Overseas	Domestic	Overseas	Other firms	
1	5	0	5	0		90
2a	75	25	0	0		0
2b	50	25	15	10		0
3	100	0	0	0		0
4	0	0	100	0		0
5	5	0	95	95		0
6	100	0	0	0		0
7	100	0	0	0		0
8	100	0	0	0		0
9	100	0	0	0		0
10	5	0	7	88		0
11	0	100	0	0		0

**Note:** the figures for 2a relate to the specific offset under discussion. However, in the opinion of the respondent this is atypical of offsets and thus the data for 2b relate to offsets in general as far as this firm is concerned.

Five of the respondents indicated that their domestic operations would be meeting all of the offset obligation. Three respondents suggested that it would largely be met by their sub-contractors while another claimed that the offset obligation would be met neither by themselves nor by their subcontractors but by other firms. Using one firm's estimate that one employee-year would be taken from its UK sub-contractors for every £70,000 worth of offset, then the offsets associated with the 11 export sales in this study will cost UK sub-contractors some 479 employee-years of work. Adding this figure to the number of employee-years of work taken from the vendor's own factories, yields a total loss to British industry of some 1105 employee-years of work. This is hardly a staggering figure when it is recalled that the total value of offsets for the sample is some £456 million! Moreover, such job losses can be viewed as part of the price of obtaining export business which, in turn, supports employment in the UK (i.e. UK firms would not have obtained the foreign order without an offset package).

As Table 7 demonstrates, offsets can be met in a number of ways and the actual method chosen will often depend on the type of economy where work

**Table 7:** How is the Offset Obligation Met?

Offset	Percentage of offset obligation met by:						
	Co-production	Licensed production	sub-contractor production	overseas investment	technology transfer	counter-purchase	other
1	5	5	20	5	5	60	0
2a	0	0	0	70	5	25	0
2b	0	20	40	0	5	35	0
3	0	0	0	0	20	80	0
4	0	50	0	0	50	0	0
5	0	0	100	0	0	0	0
6	20	0	80	0	0	—	70
7	0	0	10	0	20	0	0
8	0	0	100	0	0	0	0
9	0	0	0	0	100	0	0
11	0	0	24	0	0	76	0
All	2	3	16	36	7	33	2

**Notes:**

- (i) The figures for offset 2a relate to the specific offset under discussion. However, the respondent argued that this is atypical of offsets in general and the data for 2b relate to offsets in general;
- (ii) The omission of data for offset 10 is because the respondent was unable to answer this question.

has to be placed. For example, it will be easier to provide production work for the aerospace industry in those countries with a well developed industrial base. Conversely, overseas investment and counterpurchase might be the only way of fulfilling an obligation if the purchaser's economy is predominantly agricultural and/or based on oil. Of the total offset obligations (£403.3 million), overseas investment and counterpurchase each provided about one-third of the total offset requirement, although the fact that overseas investment was only used in one other offset (and even in this case only accounted for 5% of the obligation) suggests that the sample data might exaggerate its importance.

Concern has also been expressed that offsets can play an important role in eroding the international competitiveness of a domestic industry by transferring technology and know-how to foreign companies who then proceed to compete with the original suppliers in international defence markets. Survey respondents were asked whether the offset had led to, or was expected to lead to, any technology transfer. Seven firms replied affirmatively and one further firm said that, although no technology transfer was associated with the offset under discussion, offsets did typically lead to such transfers. These eight respondents were asked whether this transfer of technology had improved, or was likely to improve, the competitiveness of the respondent's rivals and five firms replied affirmatively. Two of largest firms both replied in the negative — one pointed out that where possible it was yesterday's technology which would be transferred or that if it was to be current technology the firm would seek to retain control of it by establishing a joint venture company in the foreign country in which it had a majority stake.

Evidence was also sought on two further areas of controversy in the offset literature. One of the supposed benefits for firms with an offset obligation is that through the need to place work with firms in the foreign economy it will discover new, lower cost, sources of supply. However, recipients of offset work have claimed that it is typically short-term work and that once a prime contractor has fulfilled its offset obligations it will transfer such work elsewhere — perhaps to a firm in another country where it has outstanding offset obligations.

In six of the eleven offset sales the respondents said that the offset obligation had led to the discovery of new, lower cost, sources of supply and in all six cases the intention was to continue to do business with new sources once the offset obligation had been fulfilled. Respondents pointed out that offset work was likely to be short term when the supplier was uncompetitive but the purchaser needed to place work there to fulfil the offset obligation.

The results of these two surveys suggest that incoming and outgoing offset work have broadly similar albeit opposite impacts. As far as exports are concerned it would seem that offsets are having only a minimal impact on UK employment levels despite the substantial sums involved. Similarly, although

there are substantial sums of incoming offset work, the impact on domestic employment levels is also surprisingly low. There appears to be relatively little technology transfer and neither types of offset seems to have any significant impact on the international competitiveness of the UK economy. Both the surveys and the Defence Committee's report give the impression that although from a financial perspective offsets often involve significant sums, in terms of jobs, technology and international competitiveness, their impact is considerably smaller. The fact that outgoing offset work is having little detrimental effect on the UK economy will be welcome news, although the corollary of this, that incoming work is having little positive impact, will be of more concern.

### 13.5 Implications for Policy

It is not difficult to reconcile the size of the AWACS offset with its relatively small impact on the real economy reported by British firms. First, Rolls-Royce is unlikely to believe that it sold civil aero-engines to foreign airlines as a result of Boeing's offset obligation. However, Boeing was able to count up to \$800 million worth of civil engines towards its offset obligation. Second, Boeing was able to count 60% of follow-on work for contracts placed prior to purchase of AWACS towards its offset obligation. Again, British industry, with good reason, might well have considered that such work would have been won irrespective of the offset and thus would not include the employment effects of this work in their survey responses.

It is unlikely that any future vendor of equipment to the MoD would be able to count aero-engines or follow-on work against its offset obligation. Of course, it might well be that the Rolls-Royce engines were allowable against Boeing's obligation in order to boost the size of the offset and thus make the cancellation of the UK's own Nimrod programme more politically acceptable. Apart from the aero-engines and follow-on work issues, respondents expressed concern about UK offset policy. Although there was a general dislike of offsets and support for the Government's position of discouraging the use of offset as an instrument of defence procurement, firms argued that a stronger offset policy was necessary to ensure that British industry was not disadvantaged by the practices of other countries towards non-indigenous procurement. Respondents wanted a 'level playing-field' and there was a feeling that the MoD should require offsets from all countries which demand offset from UK industry.

Particular criticism was made of the fact that the UK did not normally seek offset from WEAG countries and yet these countries invariably required offsets when purchasing from UK manufacturers: Table 8 outlines some of the WEAG

**Table 8:** Examples of WEAG offset requirements

Nation	Offset requirement
Belgium	Mandatory 100% of contract value; high technology work
Denmark	Mandatory 100% of contract value; defence related and work of similar technology to that of the product purchased.
Netherlands	Mandatory 100% of contract value; to be direct offset and of similar technology to product purchased.
Norway	Mandatory 100% of contract value; work to be of similar technology to that of product purchased with penalties for non-performance.
Portugal	Mandatory 100% of contract value and 60% to be defence industry related. Penalties for non-performance.
Spain	Expected 100% of contract value. Work to be of similar technology to goods purchased.

**Source:** Survey respondents.

nations' current offset demands. Firms also argued that the MoD's value threshold (£10 million) should be considerably lowered and that, like other nations, UK policy should include penalties for non-performance. One respondent pointed out that the MoD had placed a series of contracts over a matter of months with a firm in one of the WEAG states. Each contract was just under the threshold but together they totalled a sum far in excess of £10 million. The survey respondent had recently made a sale to the same WEAG country and, as a consequence, had incurred an offset obligation which was of a similar value to that of this country's sales to the MoD. Whereas the UK firm now had to place work in the overseas country, the foreign vendor of equipment to the MoD was under no such obligation to place work in the UK.

Finally, there is the issue of the cost of an offset compared with an off-the-shelf purchase and who pays this premium. Typically, defence ministries (including the UK MoD) insist that no premium is paid for the offset. However, the cost and price premia reported by respondents to the survey of UK exporters (see Table 9), suggest that offsets are not costless and that typically the buyer bears most of this cost. If similar cost and price premia apply to UK imports with offset, a sensible way to proceed would seem to be to seek a number of quotes from any potential foreign vendor, reflecting various offset levels e.g. at 0%, 50% 100% and 150%.<sup>8</sup>

**Table 9:** Cost and Price Premiums Imposed by Offsets (Compared with an Off-the Shelf Sale)

Firm number	Contract value (£m)	Cost premium associated with offset (%)	Percentage of cost premium added to contract price
1	120	>0	100
2	350	8	100
3	2	60	100
4	30	15	100
5	23	5	100
6	50	35	0
7	18	?	?
8	4.5	0	n/a
9	19	3.5	0
10	52.6	0	n/a
11	38	3	100
Mean	64.3	14.4	75
Median	30	5	100

### 13.6 Conclusion

Despite the difficulties associated with research into offsets, the picture to emerge from this chapter is a coherent one. Although large financial sums are often involved, the real impact of offsets, in terms of jobs, technology and international competitiveness, is likely to be much smaller. For the UK as an exporter of defence equipment this is, obviously, a reassuring finding. However, as a potential importer with offset, it casts doubt on the ability of current offset policy to compensate UK industry, in anything other than a most marginal way, for the purchase of a foreign system in preference to a domestic option. Moreover, there is a clear disparity between the UK's offset requirements and those imposed on UK suppliers by WEAG states. This suggests that a review of policy might be timely. Moreover, any such review could consider the implications of the fact that offsets are not costless and hence that, for future defence purchases, various quotes might be sought reflecting different levels of offset.

## Endnotes

1. This chapter resulted from a research project funded by the ESRC (grant No. R000233146). The authors are grateful to all those who contributed to the surveys.
2. OMB, **Impact of Offsets in Defense-Related Exports**. Office of Management and Budget, Executive Office of the President, Washington DC, 1987 and OMB, **Offsets in military exports**. Office of Management and Budget, Executive Office of the President, Washington DC, 1990.
3. HCP 286, **The Working of the AWACS Offset Agreement**. House of Commons, Defence Committee. London: HMSO, 1989.
4. HCP 394, **Statement on the Defence Estimates 1991**. House of Commons, Defence Committee, London : HMSO, 1991, p. 61.
5. HCP 218, **Statement on the Defence Estimates 1992**. House of Commons, Defence Committee, London : HMSO, 1992, p. 19.
6. *Ibid.*
7. For full details see Martin S. and Hartley K., UK Firms' Experience and Perceptions of Defence Offsets, **Defence and Peace Economics**, 1995, forthcoming and Martin S. and Hartley K., Defence Equipment, Exports and Offsets: The UK Experience. **Defense Analysis**, 1995, forthcoming.
8. Hall P. and Markowski S., On the normality and abnormality of offset obligations, **Defence and Peace Economics**, 1994, vol. 5, no.3, pp. 173–188.

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