OFFSETS IN DEFENSE TRADE

Sixth Study
Conducted Under Section 309
of the Defense Production Act
of 1950, as Amended

Prepared by
U.S. Department of Commerce
Bureau of Industry and Security
Office of Strategic Industries and Economic Security
Strategic Analysis Division

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Table of Contents

Executive Summary v

Summary of Findings ..... **v**

Conclusions ..... **vii**

1. Background 1

1.1 The Global Defense Environment **1**

1.2 Legislation and Regulations **5**

1.3 Official U.S. Government Policy **6**

1.4 Offset Terminology **7**

1.5 Offsets Illustration **9**

1.6 Countries and Regions **11**

1.7 Outline of Report **11**

2. Statistical Overview 13

2.1 Offsets Summary Data **13**

2.2 Overview of New Offset Agreements, 1993-1999 ..... **14**

2.3 Overview of Offset Transactions, 1993-1999 ..... **16**

2.4 Concentrated Nature of Offset Activity **18**

3. Impact of Offsets on the U.S. Defense Industrial Base 21

3.1 Defense Preparedness **21**

3.2 Employment **22**

4. Offset Activity in 1999 25

4.1 Offset Agreements, 1999 ..... **25**

4.2 Offset Transactions, 1999 ..... **26**

4.3 1999 Offset Transactions by Region **27**

4.4 1999 Offset Transactions by Type and Category **28**

5. Offset Agreements Activity, 1993-1999 31

5.1 Offset Agreements 1993-1999 ..... **31**

6. Offset Transaction Activity, 1993-1999 35

6.1 Offset Transactions, 1993-1999 ..... **35**

6.2 Trends in Offset Transactions for the Top Six Recipient Countries 36
6.3 Offset Transactions Largest Recipients, 1993-1999 37
6.4 Offset Transactions by Category, 1993-1999 38
6.5 Offset Transactions by Type (Indirect vs. Direct), 1993-1999 39
6.6 Offset Transactions by Category and Type, 1993-1999 40
6.7 Offset Transactions by Industry 41
7. Aerospace Offset Activity, 1993-1999 47
7.1 Aerospace Offset Transactions, 1993-1999 50
8. Other U.S. Government Offset Activities 53
8.1 Interagency Offsets Steering Committee 53
8.2 Presidential Offsets Commission 54
9. Country Preferences, 1993-1999 59
9.1 Finland 61
9.2 The Netherlands 64
9.3 Israel 66
9.4 Switzerland 68
9.5 The United Kingdom 70
Conclusions 73
Appendix A: Section 309 of the Defense Production Act
Appendix B: Department of Commerce Rules Regarding Reporting of Offset Activity
Appendix C: Defense Offsets Disclosure Act of 1999
Appendix D: Offset Transactions by Industry
Appendix E: Country Offset Policies
Appendix F: Glossary & Offset Example
Appendix G: List of U.S. Government Offset Reports

Tables

Table 1-1: Major U.S. Arms Sales, 1993-2001 3
Table 1-2: Purchasing Countries and Groups Requiring 12
Table 2-1: Salient Offset Totals, 1993-1999 14
Table 4-1: 1999 Export and Offset Agreement Values by Country 25
Table 4-2: Offset Transactions by Category, 1999 29
Table 5-1: Export Contract Values and Offset Agreements by Year for Europe and Non-European Areas, 1993-1999 (in $ millions) 32
Table 6-1: Top 15 Recipient Countries by Actual Value of Offset Transactions, 1993-1999 36
Table 6-2: Offset Recipient Entities with Greater than $100 Million 38
Table 6-3: Offset Transactions by Category and Type, 1993-1999 41
Table 6-4: Offset Transactions by Major Economic Sector, 1993-1999 43
Table 6-5: Total Offset Transactions for Top 11 Major Economic Sectors, 1993-1999 44
Table 6-6: Offset Transactions by Type for Top 11 Major Economic Sectors, 1993-1999 46
Table 7-1: Export Sales and Offset Agreements for Aerospace-Related and All Export Contracts 1993-1999 (in $ millions) 48
Table 7-2: Aerospace-Related Offset Transactions 51
Table 7-3: Actual Value and Credit Value of Aerospace Offset Transactions and All Offset Transactions By Region, 1993-1999 52
Table 9-1: Offset Activity of Top Five Countries, 1993-1999 59

Charts

Chart 2-1: Export Contracts and Offset Agreements, 1993-1999 15
Chart 2-2: Linear Trendlines of Offset Activity, 1993-1999 16
Chart 2-3: Offset Transactions, 1993-1999 17
Chart 2-4: Concentration of Large New Offset Agreements, 1993-1999 19
Chart 4-1: Top 10 Countries by Offset Transactions (in $ millions), 1999 27
Chart 5-1: Offset Agreements by Region (by Value), 1993-1999 31

Chart 6-1: Trends in Actual Offset Transaction Values for Top Six Recipient Countries, 1993-1999 37
Chart 6-2: Offset Transactions by Category, 1993-1999 39
Chart 6-3: Offset Transactions by Type (Direct, Indirect, and Unspecified), 1993-1999 40
Chart 6-4: Offset Transactions by Type for Top 11 Major Economic Sectors, 1993-1999 45
Chart 7-1: Aerospace Export Sales by Region, 1993-1999 49
Chart 7-2: Aerospace Offset Agreements by Region, 1993-1999 50
Chart 9-1: Offset Transactions by Type for Five Countries 60
Chart 9-2: Offset Transactions by Type for Finland, 1993-1999 62
Chart 9-3: Offset Transactions with Finland by Category, 1993-1999 63
Chart 9-4: Offset Transactions by Type for the Netherlands, 1993-1999 65
Chart 9-5: Offset Transactions with the Netherlands by Category, 1993-1999 65
Chart 9-7: Offset Transactions with Israel by Category, 1993-1999 67
Chart 9-8: Offset Transactions by Type for Switzerland, 1993-1999 68
Chart 9-9: Offset Transactions with Switzerland by Category, 1993-1999 69
Chart 9-10: Offset Transactions by Type for the United Kingdom, 1993-1999 70
Chart 9-11: Offset Transactions with the United Kingdom by Category, 1993-1999 71

Figures

Figure 1: Offsets Illustration 10

Executive Summary

This is the sixth report on offsets in defense trade prepared pursuant to Section 309 of the Defense Production Act of 1950,[1] as amended. The Office of Strategic Industries and Economic Security within the U.S. Department of Commerce, Bureau of Industry and Security[2] has been delegated responsibility to prepare the reports required under Section 309. In order to assess the impact of offsets in defense trade, the Department of Commerce obtained data from U.S. firms involved in defense offsets.

This report covers offset agreements and transactions entered into from 1993 through 1999. In addition, the report: (i) discusses the changes in the industrial base during the reporting period as a result of consolidations and mergers in the defense industry; (ii) reports on ongoing U.S. Government interagency activity and discussions with foreign government officials on offsets; (iii) presents summaries of offset agreements and transactions for the reporting period; and (iv) highlights other country practices utilizing offsets.

Summary of Findings

Total offset activity can be measured by the number and value of new offset agreements entered into between U.S. defense contractors and foreign governments, and the number and value of individual transactions related to the agreements that are carried out during the reporting period.

Offset Agreements, 1999: In 1999, U.S. defense contractors reported entering into 32 new offset agreements with 10 different countries. The total value of new offset agreements was $1.45 billion, representing 72 percent of the total value of related U.S. defense export contracts ($2.01 billion). Both the total value of defense exports and the total value of the offset agreements were at their lowest levels in 1999, compared to the rest of the reporting period (1993-1999).

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[1] Codified at 50 U.S.C. app. § 2099 (1994 and Supp. V, 1999).
[2] On April 18, 2002, the name of the Bureau of Export Administration was changed to the Bureau of Industry and Security.

Offset Agreements, 1993-1999: For the period 1993-1999, U.S. defense companies reported entering into 307 offset agreements with 34 countries. The companies identified 198 different weapon systems or subsystems with an export contract value of $40.2 billion; related offset agreements were $22.3 billion (55 percent of the export contract value). Sales of aerospace weapon systems made up nearly 90 percent of the dollar value of the reported defense export contracts ($35.9 billion).

The dollar values of both export contracts and offset agreements varied annually, as did the associated offset percentages. Although the data show a general drop in overall U.S. export contracts and related offset agreements from 1997 to 1999, the value of the offset agreements as a percent of the reported defense export contract value continues to increase.

Europe continues to be the major destination for U.S. defense exports. Although Europe accounted for 42 percent of total U.S. defense export contracts, new offset agreements with Europe accounted for two-thirds of all new agreements. The rest of the world (non-European countries) accounted for one-third of the offset agreements but 58 percent of the export contracts. Asia accounted for 18 percent of the value of new agreements, the Middle East 14 percent, and the Western Hemisphere just 2 percent.

While the non-European nations had higher export contract totals, Europe had a much greater offset impact because of the higher offset percentages required.

Likewise, in 1999, European nations received higher offset percentages per export contract. In Europe, offsets were equal to an average of 100 percent of the value of the export. In non-European nations, the average value of the new offset agreements was 64 percent of the total contract value.

Offset Transactions, 1999: In 1999, U.S. companies reported offset transactions with a total actual value of $1.81 billion, down 21 percent from the total in 1998 of $2.28 billion and lower

than the transaction value for any of the previous six years. This decline is consistent with the drop in defense sales and the number of offset agreements.

Offset Transactions, 1993-1999: During the reporting period, companies cited 3,869 offset transactions executed in 33 countries. These transactions were linked to 238 weapon systems under various existing offset agreements. The total value of these transactions was $15.9 billion.

Conclusions

U.S. defense exports were negatively affected by both the retrenchment of global military expenditures and the increased enforcement of strict foreign offset policies. At the same time, offsets have become an increasingly important factor in determining contract awards, and thus have a direct bearing on U.S. defense contractors' access to foreign markets. Offset agreements in excess of 100 percent of the contract value are occurring with increasing frequency, and in some cases have exceeded 300 percent. From the U.S. perspective, Europe is clearly the central focus of this trend, dominating offset agreements and transactions with U.S. companies. Because 90 percent of offset agreements are aerospace-related, concerns about the continued economic stability of U.S. prime contractors and the aerospace infrastructure have increased.

BIS calculates that export sales facilitated by offsets maintained 38,400 work-years annually between 1993 and 1999, while the offset transactions displaced about 9,500 work-years annually.

In the coming year, using authorities granted under the Defense Production Act of 1950, as amended, the Department of Commerce is committed to work with U.S. industry, the Department of Defense, and foreign governments to analyze the impact of offsets on all parties and to seek ways to mitigate the effect of offsets on competition, thus ensuring a robust and vibrant U.S. defense industrial base.

1. Background

1.1 The Global Defense Environment

Although the United States Government views offsets as an economically inefficient way to conduct trade, offsets remain a policy choice of foreign governments and, therefore, a reality in the international defense market to which U.S. defense firms must respond. Under these circumstances, U.S. policymakers should take into account the current state of the global defense industry before proposing changes in offset policy and other regulations.

The U.S. defense industry has changed significantly since the end of the Cold War. Globalization of the defense industry and the increased reliance on commercial technology have fundamentally changed the traditional relationships between foreign customers, U.S. suppliers, and the U.S. Department of Defense (DOD). This change in the global defense market coupled with the reduction in DOD's procurement budget challenges U.S. defense firms to expand market share more aggressively worldwide, while attempting to maintain their technological edge.

The end of the Cold War expanded comparative advantages for the United States in defense exports. The collapse of the Soviet Union significantly reduced its ability to export weapon systems in the early 1990s. In addition, European allies reduced investments in the defense sector, especially after the Gulf War.

Although procurement and defense-related research and development (R&D) expenditures decreased in the 1990s, U.S. defense expenditures still greatly exceed those of its NATO allies. This imbalance has led to a widening defense technology gap, as demonstrated in the 1999 coalition action against Serbia. Armed with more advanced defense technology, the U.S. share of the international arms market has grown to approximately 55-60 percent, even though the

global defense export market has shrunk significantly (by as much as 50 percent, according to some estimates).

In addition to the technology gap and the diminished competition from the former Soviet Union, the consolidation of U.S. defense firms contributed to the increase in U.S. market share during the reporting period. The merger of Boeing and McDonnell-Douglas and the acquisitions made by Lockheed Martin and Raytheon created fewer large U.S. defense companies, offering a wide array of defense equipment and services. The fragmented European defense industry was not able to compete effectively against these U.S. mega-firms and initiated its own version of industry consolidation. Two large European firms emerged – British Aerospace (BAE) Systems and the European Aeronautic Defence and Space Company (EADS) – to provide an alternative to U.S. defense products. This recent industry consolidation and rationalization in Europe led to increased competition for U.S. defense firms in the new defense market.

Another effect of globalization has been the virtually universal access to commercial technology, and its potential use for both civil and military applications. Many of the most critical technologies (e.g. space, surveillance, sensors and signal processing, simulation, and telecommunications) now are equally available to the United States and its allies.

Although U.S. defense firms have maintained a large share of the defense export market worldwide, increased European support has resulted in much stronger competition from European defense manufacturers. Purchasing nations now have many equipment choices from both European and U.S. sources. Therefore, the decisions of purchasing governments are influenced increasingly by factors unrelated to price, quality, and delivery time. The ability of competing companies to provide industrial benefits or offset packages is one of the most important selection criteria for the purchase of new weapon systems.

Within this new environment of mega-defense suppliers chasing fewer customers, offset packages play a more critical role in global defense procurement competitions. The majority of

large arms sales won by U.S. industry since the early 1990s have included comprehensive offsets or "industrial benefits" packages. A sample of the major U.S. arms sales is shown in Table 1-1.

Table 1-1: Major U.S. Arms Sales, 1993-2001

Year	Equipment	Customer Country	Dollar Value
1993	F/A-18 Aircraft	Switzerland	$2 billion
1995	AH-64 Apache Helicopter	Netherlands	$1 billion
1995	AH-64 Apache Helicopter	United Kingdom	$2 billion
1996	Airborne Reconnaissance System	Korea	$400 million
1996	Light Armored Vehicles (APC)	Kuwait	$325 million
1996	Replacement Maritime Patrol Aircraft	United Kingdom	$1.8 billion
1997	F-100 Frigates (AEGIS System, SPY-1D Radar)	Spain	$740 million
1997	ANZAC Helicopter Program (SH-2G)	Australia/New Zealand	$340 million
1998	Patriot Missile System	Greece	$610 million
1999	F-16 Aircraft	Greece	$2 billion
1999	AH-64 Apache Helicopter	Singapore	$1.7 billion
2000	F-16 Aircraft	Chile	$600 million
2000	F-16 Aircraft	U.A.E.	$7 billion
2000	Norwegian Frigate Program (AEGIS System, SPY-1D Radar)	Norway	$800 million
2001	767 Tanker Aircraft	Italy	$600 million

Source: Industry Press Releases

Many European defense firms receive support from their national governments, including financing for defense exports. U.S. defense firms generally do not receive financing support. However, a major advantage for U.S. defense firms in the worldwide defense market is the broad range of technology (both direct and indirect) and other business opportunities that can be transferred through offset programs. U.S. technology in defense– and more importantly in related fields such as information technology–is extremely attractive to customer nations, both in advanced and newly industrializing economies.

Offset programs have become one of the few distinguishing characteristics between U.S. and European defense products. Higher levels of U.S. investment (in both the public and private sector) in defense and commercial R&D throughout the last decade have resulted in the development of technologies in aerospace and other critical sectors that are very attractive to purchasing nations. These nations use offsets as a means of gaining access to U.S. expertise and markets. In this way, offsets have become an important factor in the success of U.S. defense firms in the global defense market, but at a price to the subcontractor base and non-related industries.

In summary, the transformation of the global defense market in the last ten years has established new relationships between U.S. defense firms, the U.S. Department of Defense, and U.S. allies. U.S. industry responded quickly to the new terms of trade structured by this rapid globalization by consolidating into several large firms that have successfully expanded their market share. The ongoing consolidation in Europe and the increased national government support of European firms, however, have resulted in greater competition for defense export from European firms worldwide.

In this context of a globalized defense industry and market, offsets are a competitive tool vital to success.[3] A primary challenge for the U.S. Government and the U.S. defense industry is to find a solution that will reduce the negative effects of offsets associated with defense purchases while maintaining and/or enhancing U.S. competitiveness in this critical industry sector.

[3] Generally, offsets are not permitted under the Agreement on World Procurement of the World Trade Organization (WTO). However, defense procurement is not covered under the agreement. For more information, see the WTO website: http://www.wto.org/english/tratop_e/gproc_e/over_e.htm.

1.2 Legislation and Regulations

In 1984, Congress enacted amendments to the Defense Production Act of 1950, as amended (DPA), which included the addition of Section 309 addressing offsets in defense trade.[4] Section 309 of the DPA requires the President to submit an annual report on the impact of offsets on the United States to the Congress's then-Committee on Banking, Finance, and Urban Affairs of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate.

Initially, the Office of Management and Budget coordinated the interagency process of preparing the report for the Congress. Other agencies involved in the process included the Departments of Commerce, Defense, Labor, State, and Treasury, and the Office of the United States Trade Representative. In 1992, Section 309 of the DPA was amended, and the Secretary of Commerce was given the responsibility of preparing the report for the Congress, on the President's behalf.[5]

Under Section 309, the Secretary of Commerce is authorized to develop and administer the regulations necessary to collect offset data from the U.S. defense industry. The Secretary of Commerce delegated this authority to the Bureau of Industry and Security (BIS), which published its first offset regulations in the *Federal Register* in 1994. See Appendix B for a copy of the regulations as published.[6]

The 1992 amendments to Section 309 of the DPA made other changes to the offset data collection process. The amendments lowered the offset agreement reporting threshold from $50 million to $5 million for U.S. firms entering into foreign defense sales contracts subject to offset agreements. Firms report all offset transactions for which they receive offset credits of $250,000 or more. Every June, companies report offset agreement and transaction data for the previous

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[4] See Pub. L. 98-265, Apr. 17, 1984, 98 Stat. 149.
[5] See Pub. L. 102-558, Oct. 28, 1992, 106 Stat. 4198; see also Section 4 of Exec. Order No. 12919, 59 Fed. Reg. 29525 (June 3, 1994).
[6] See 59 Fed.Reg. 61796 (Dec. 2, 1994), codified at 15 C.F.R. §701.

calendar year to BIS. The data elements collected each year from industry are listed in Section 701.4 of the Department's offset regulations and are shown in Appendix B.

1.3 Official U.S. Government Policy

The official U.S. Government policy on offsets in defense trade was developed by an interagency offset team and issued by the President in 1990. In 1992, this policy was set into law as follows:[7]

> (a) In General. Recognizing that certain offsets for military exports are economically inefficient and market distorting, and mindful of the need to minimize the adverse effects of offsets in military exports while ensuring that the ability of United States firms to compete for military export sales is not undermined, it is the policy of the Congress that-
>
> (1) no agency of the United States Government shall encourage, enter directly into, or commit United States firms to any offset arrangement in connection with the sale of defense goods or services to foreign governments;
>
> (2) United States Government funds shall not be used to finance offsets in security assistance transactions, except in accordance with policies and procedures that were in existence on March 1, 1992;
>
> (3) nothing in this section shall prevent agencies of the United States Government from fulfilling obligations incurred through international agreements entered into before March 1, 1992; and
>
> (4) the decision whether to engage in offsets, and the responsibility for negotiating and implementing offset arrangements, reside with the companies involved.
>
> (b) Presidential Approval of Exceptions. It is the policy of the Congress that the President may approve an exception to the policy stated in subsection (a) after receiving the recommendation of the National Security Council.
>
> (c) Consultation. It is the policy of the Congress that the President shall designate the Secretary of Defense to lead, in coordination with the Secretary of State, an interagency team to consult with foreign nations on limiting the adverse effects of offsets in defense procurement. The President shall transmit an annual report on the results of these consultations to the Congress as part of the report required under section 309(a) of the Defense Production Act of 1950.

[7] Congress incorporated this policy statement into law with the Defense Production Act Amendments of 1992 (Pub. L. 102-558, Title I, Part C, §123, 106 Stat. 4198).

1.4 Offset Terminology

There are several basic terms used in discussions of offsets in defense trade. For more definitions and an illustrative example of an offset arrangement, please see the Glossary in Appendix F.

Offsets: Compensation practices required as a condition of purchase in either government-to-government or commercial sales of "defense articles" and/or "defense services" as defined by the Arms Export Control Act (22 U.S.C. § 2751, et seq.) and the International Traffic in Arms Regulations (22 C.F.R. §§ 120-130).

Direct Offsets: Contractual arrangements that involve defense articles and services referenced in the sales agreement for military exports. These transactions are directly related to the defense items or services exported by the defense firm and are usually in the form of co-production, subcontracting, technology transfer, training, production, licensed production, or financing activities.

Indirect Offsets: Contractual arrangements that involve goods and services unrelated to the exports referenced in the sales agreement. These transactions are not directly related to the defense items or services exported by the defense firm. The kinds of offsets that are considered "indirect" include purchases, investment, training, financing activities, marketing/exporting assistance, and technology transfer.

Co-production: Overseas production based upon government-to-government agreement that permits a foreign government or producer(s) to acquire the technical information to manufacture all or part of a U.S. origin defense article. Co-production includes government-to-government licensed production, but excludes licensed production based upon direct commercial arrangements with U.S. manufacturers.

Licensed Production: Overseas production of a U.S.-origin defense article based upon transfer of technical information under direct commercial arrangements between a U.S. manufacturer and a foreign government or producer.

Subcontractor Production: Overseas production of a part or component of a U.S.-origin defense article. The subcontract does not necessarily involve license of technical information and is usually a direct commercial arrangement between the defense prime contractor and a foreign producer.

Overseas Investment: Investment arising from an offset agreement, often taking the form of capital dedicated to establish or expand a subsidiary or joint venture in the foreign country.

Technology Transfer: Transfer of technology that occurs as a result of an offset agreement and that may take the form of research and development conducted abroad, technical assistance provided to the subsidiary or joint venture of overseas investment, or other activities under direct commercial arrangement between the defense prime contractor and a foreign entity.

Countertrade: In addition to the types of offsets defined above, various types of commercial countertrade arrangements may be required. A contract may include one or more of the following mechanisms:

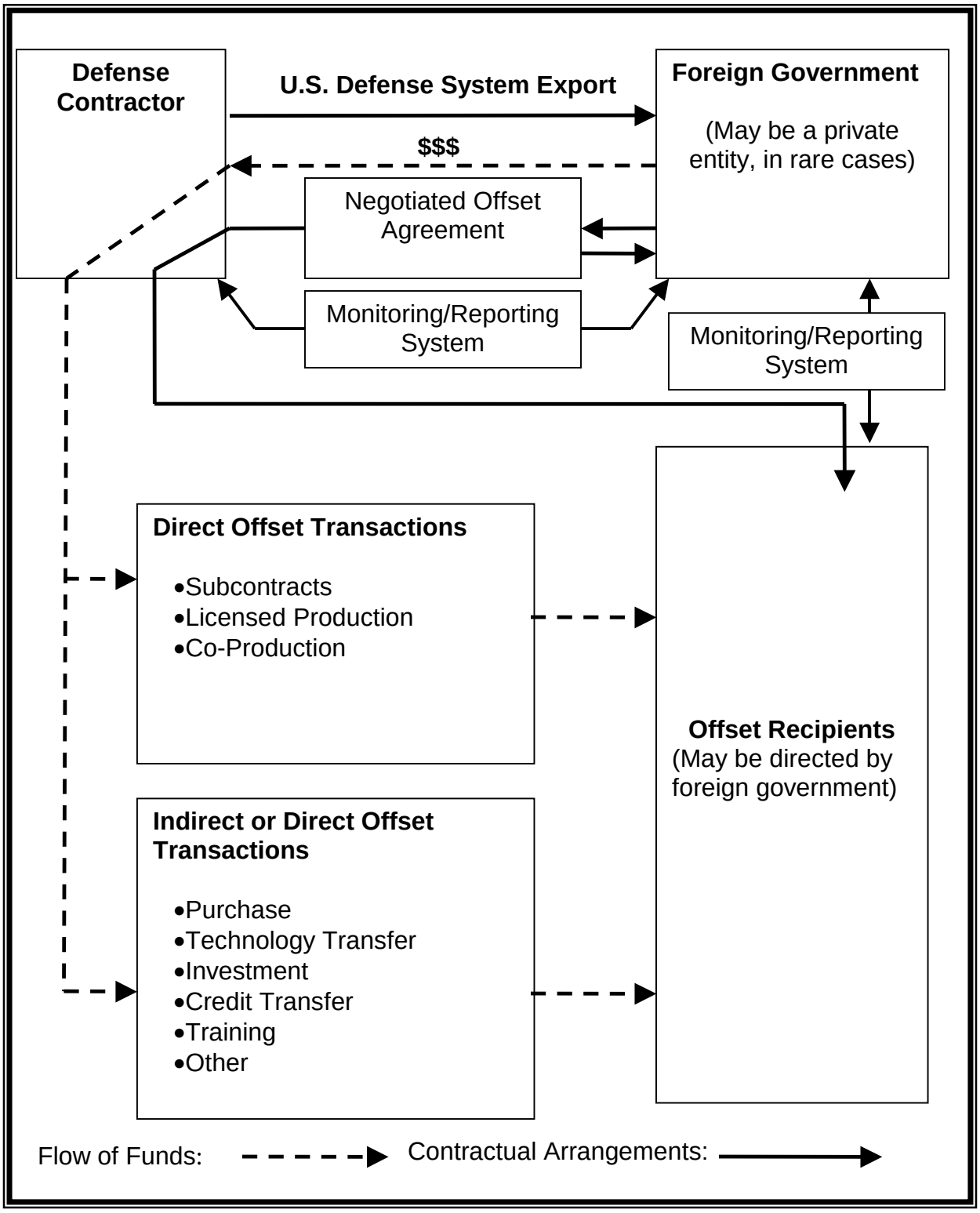
> Barter: A one-time transaction only, bound under a single contract that specifies the exchange of selected goods or services for another of equivalent value.
> Counterpurchase: An agreement by the initial exporter to buy (or to find a buyer for) a specific value of goods (often states as a percentage of the value of the original export) from the original importer during a specified time period.
> Compensation (or Buy-Back): An agreement by the original exporter to accept as full or partial repayment products derived from the original exported product.

1.5 Offsets Illustration

Figure 1 shows the contractual relationships and money flows that often are involved in a typical export contract and accompanying offset agreement. The foreign government transfers funds to the defense contractor as payment for the defense article. The defense contractor recovers expenditures associated with *direct* offset transactions through foreign government payments for the sale. For *indirect* offsets, the contractors are reimbursed only for administrative costs by the purchasing government; they recover any other costs through resale of or marketing assistance for products manufactured in the purchasing country, by returns on their investments, or by other market mechanisms. Indirect offsets also may be related to the production of defense items other than the defense articles sold. Whether direct or indirect, offset transactions return funds to the purchasing country. The offset funds spent in the foreign country to fulfill offsets are, therefore, a means by which the foreign government redirects public expenditures back into its own country.

Viewed in this manner, foreign governments support local industry through the use of offsets. Foreign governments may use offset transactions to maintain industries that might otherwise fail or to enhance the technology, promote investment, provide markets, and stimulate employment in various sectors in its home country.

Figure 1: Offsets Illustration



1.6 Countries and Regions

For ease of analysis, and in some cases to protect company confidentiality, countries actively requiring offsets in defense trade during the 1993-1999 period were divided into the following four geographic regions:

- Europe
- The Middle East
- North and South America
- Asia

The countries found in each region are shown in Table 1-2 below.

1.7 Outline of Report

This sixth report on offsets in defense trade to the Congress was prepared by the Department of Commerce in consultation with the Departments of Defense, Labor, and State, the Office of the U.S. Trade Representative, and the Central Intelligence Agency. The report begins with an overview of the data collected from U.S. industry for 1993 through 1999, followed by an assessment of offsets on the U.S. defense industrial base and a discussion of new offset agreements and transactions for 1999. Next, the report presents detailed sections on offset agreements and offset transactions for 1993-1999, followed by an industry-level analysis of offset transaction data. The report includes a section focusing on the aerospace industry and the impact that offsets have had on the competitiveness of U.S. aerospace firms in the global market. The report ends with an analysis of the offset preferences for the five countries requiring the largest offsets during the seven-year period.

The appendices to the report include: (i) a discussion of the actions to date of the Presidential Commission on Offsets in International Trade; (ii) a glossary of offset terms and an illustrative example; (iii) the information collection regulations promulgated by the Department of Commerce in connection with offsets; (iv) and summaries of offset laws and regulations for 25 specific nations.

Table 1-2: Purchasing Countries and Groups Requiring Offset Agreements, by Region	
Europe	**Middle East**
Austria	Israel
Belgium	Kuwait
Czech Republic	Saudi Arabia
Denmark	Turkey
EPG – The European Participating Group (Belgium, The Netherlands, Norway)	United Arab Emirates
Finland	
France	**North and South America**
Germany	Brazil
Greece	Canada
Italy	
Luxembourg	**Asia**
NATO	Australia
Netherlands	China
Norway	Indonesia
Portugal	Malaysia
Slovenia	New Zealand
Spain	Singapore
Sweden	South Korea
Switzerland	Taiwan
United Kingdom	Thailand

Source: U.S. Department of Commerce/BIS Offsets Database

2. Statistical Overview

The Office of Strategic Industries and Economic Security has received data on offsets from U.S. firms covering the years 1993-1999. The data submitted includes the values of U.S. export contracts and the offset agreements entered into as conditions of acquiring those export contracts, as well as offset transactions executed in fulfillment of previously reported offset agreements. Some of the offset transactions reported referenced offset agreements entered into before 1993 (when the Department of Commerce first initiated reporting requirements).

2.1 Offsets Summary Data

During 1993-1999, a total of 39 U.S. defense companies reported entering into 307 offset agreements with 34 countries. The companies identified 198 different defense systems or subsystems with an export contract value of $40.2 billion, and related offset agreements of $22.3 billion. Sales of aerospace weapon systems made up nearly 90 percent of the export contracts' value ($35.9 billion). The related offset agreements averaged 55 percent of the export contract value and the average term of the offset agreements was 85 months.

With respect to offset transactions, companies reported 3,869 offset transactions executed in 36 countries. The transactions were linked to 238 defense systems under various existing offset agreements, some of which were entered into before 1993. The value of the offset transactions from 1993-1999 was $15.9 billion. U.S. companies received $18.2 billion in offset credits for their efforts, which was equal to 118.9 percent of the actual value.[8] Table 2-1 provides an overview of the offsets database.

[8] The "credit value" is an incentive that some foreign governments provide for certain kinds of offset transactions. This value varies greatly by country and by the kind of offset transaction (i.e., purchase, technology transfer, investment, etc.), but is normally more than the actual value. The percentage difference between the actual value and the credit value is the multiplier. For the entire database, the multiplier is 118.6 percent, which means the credit value is 18.6 percent more than the actual value. Generally, multipliers are provided only by developing countries.

Table 2-1: Salient Offset Totals, 1993-1999								
New Offset Agreements								
	Number of				**Values, in $ billions**			
Year	**Companies Reporting**	**Countries Making Agmts**	**New Offset Agreements**	**Export Systems**	**Export Contracts Value**	**Offset Agreements Value**	**Percent Offsets**	**Average Term of Agreement (in months)**
1993	18	17	29	28	$13.95	$4.79	34.4%	87
1994	18	20	49	43	$4.79	$2.05	42.8%	79
1995	19	18	45	34	$7.40	$6.03	81.5%	93
1996	15	19	50	34	$2.99	$2.27	76.0%	94
1997	13	19	58	49	$5.84	$3.85	65.8%	79
1998	11	17	44	35	$3.26	$1.85	56.7%	83
1999	9	10	32	24	$2.01	$1.45	72.3%	75
Totals	*39	*34	307	198	$40.24	$22.29	55.4%	85
Offset Transactions								
	Number of				**Values, in $ billions**			
Year	**Companies Reporting**	**Countries Involved**	**Offset Transactions**	**Export Systems**	**Actual Value**	**Credit Value**	**Percent Credit**	
1993	23	27	439	63	$1.81	$2.16	118.7%	
1994	21	26	550	61	$1.89	$2.16	114.3%	
1995	20	26	667	76	$2.66	$3.33	125.3%	
1996	21	26	621	81	$2.70	$3.07	113.6%	
1997	18	26	576	67	$2.71	$3.26	120.3%	
1998	19	30	579	79	$2.28	$2.60	114.0%	
1999	12	24	437	60	$1.81	$2.24	124.0%	
Totals	*41	*36	3869	238	$15.87	$18.82	118.6%	

Source: U.S. Department of Commerce/BIS Offsets Database
*These figures represent the total number of different companies and different countries reported over the period.

2.2 Overview of New Offset Agreements, 1993-1999

On an annual basis from 1993-1999, the dollar values of both export contracts and offset agreements varied greatly, as did the associated offset percentages. The value of the offset agreements as a percentage of the value of the export contracts ranged from 34 to 82 percent. Behind this variance were major individual contracts that affected the data totals, and a wide

variation in the countries entering into agreements in any given year – each with unique offset policies and requirements. In general, countries with more advanced economies demand greater levels of offsets than developing countries. Chart 2-1 shows these seven-year values and their volatile nature.

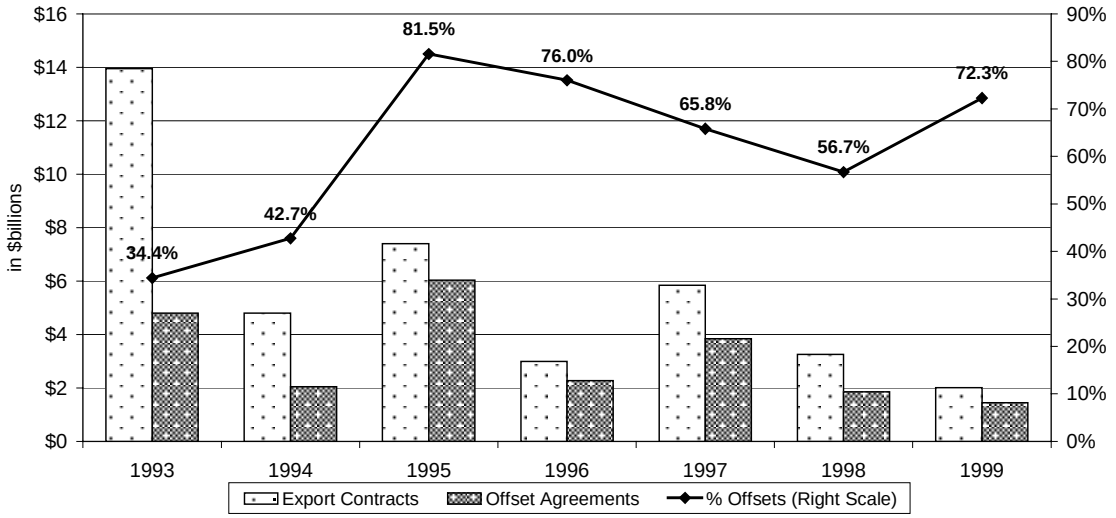


Chart 2-1: Export Contracts and Offset Agreements, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

Based on the data from 1993-1999, an apparent trend is the general drop in reported defense exports and related offset agreements, and the rise in the value of the offsets as a percent of the value of the export contract. This is shown on Chart 2-2. The value of U.S. export contracts shows an especially sharp decline from 1993-1999, while the value of related offset agreements show a more moderate decline over the same time period. The steepness of the down trend in export contracts is greatly influenced by two major contracts negotiated in 1993, one with Taiwan and the other with Saudi Arabia, which together totaled nearly $10 billion. This was accompanied by low percentage offset agreements. If the 1993 export contract data were not considered, the decline in the offsets percentage would be much more moderate. Also, defense spending in Europe – traditionally the largest market for the United States – dropped sharply in the last decade, which has led to less purchasing of U.S. defense systems.

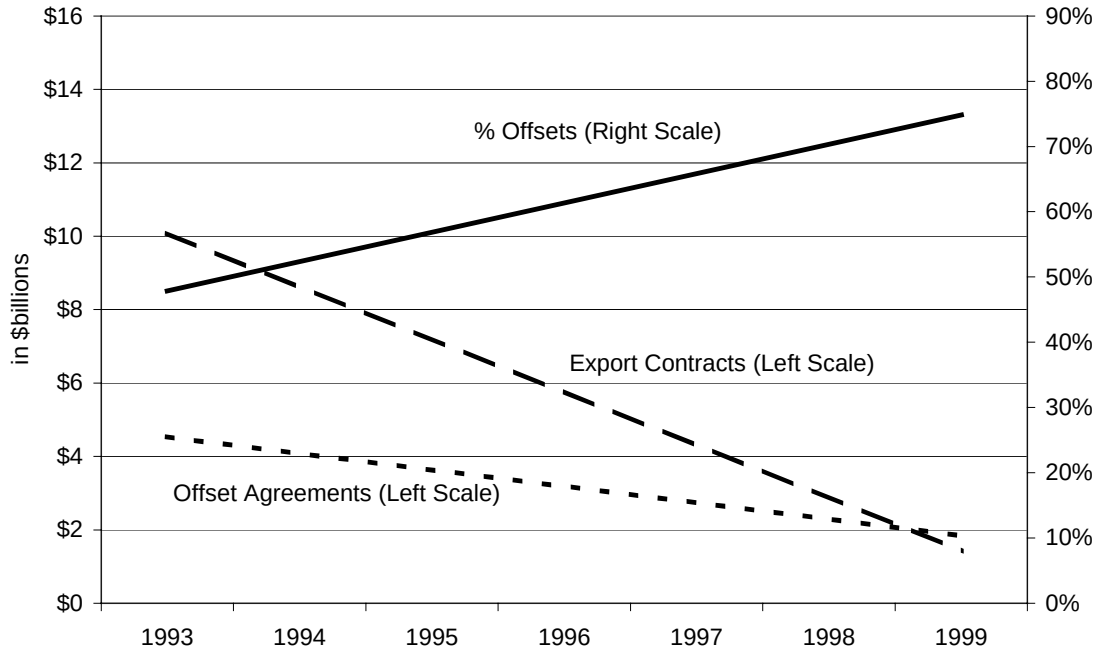


Chart 2-2: Linear Trendlines of Offset Activity, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

2.3 Overview of Offset Transactions, 1993-1999

Offset transactions applied to outstanding offset agreements totaled $15.9 billion during the seven-year period from 1993 to 1999. Direct offset transactions were valued at $6.4 billion, and represented 40 percent of total offset transactions. U.S. companies reported receiving $7.4 billion in offset credits for the direct transactions, which translates into 116 percent of the actual value of the offset transactions. Direct offset transactions as a share of total transactions ranged from 32 percent in 1993 and 1994, to a high of 62 percent in 1998.

As shown in Chart 2-3, no significant trend in direct transactions is discernable. The high percentage share of direct offset transactions in 1998 is a result of unusually high direct offset totals for Italy, the United Kingdom, Israel, and the Netherlands. Italy had the largest value of direct transactions and had no indirect or unspecified types.

During the reporting period, indirect offsets were valued at $9 billion, and accounted for 56 percent of all transactions. U.S. companies reported receiving $10.8 billion in indirect offset credits, which translates into 120 percent of reported actual values for indirect offset transactions. As a share of total offsets, indirect offset transactions ranged from 37 to 65 percent over the reporting period. The lowest percentage of indirect offsets (37 percent) occurred in 1998, in juxtaposition to the high direct offset percentage that year. In all other years, indirect offsets accounted for 57 percent or more of all offset transactions.

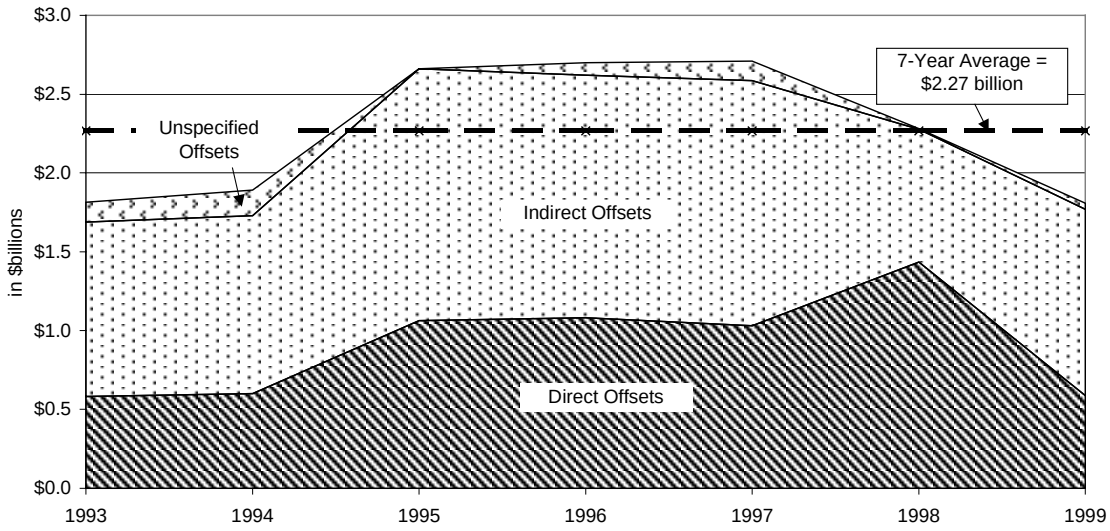


Chart 2-3: Offset Transactions, 1993-1999
(Source: U.S. Department of Commerce /BIS Offsets Database)

Unspecified offset transactions (i.e., when companies failed to identify a transaction as either a direct or indirect offset) accounted for only 3.4 percent of total offset transactions during the reporting period. Unspecified offset transactions were valued at $536 million, of which nearly half involved Israel ($243 million). Another $197 million of the unspecified offset transactions involved Australia, the Netherlands, and South Korea. The credit value of unspecified offset transactions was $674 million, or 126 percent of the actual value.

2.4 Concentrated Nature of Offset Activity

Based on the reported data, it appears that offset activity is highly concentrated – both in terms of U.S. companies and foreign purchasing countries involved. With respect to U.S. companies, a few high-technology U.S. defense companies dominate the market, and the number of large U.S. defense contractors has fallen with the extraordinary consolidation of the U.S. defense industry in recent years. These U.S. firms and their suppliers offer foreign government purchasers much in the way of know-how, potential technology transfer, and business opportunities for foreign industries. The defense systems offered by these U.S. companies are widely considered to be the best available and, as a result, are very expensive. Indeed, just five U.S. companies accounted for over 82 percent of the value of export contracts reported during the 1993-1999 reporting period. All of these export contracts included offset agreements.

Offset activity also is concentrated in terms of the foreign purchaser countries involved, although not to the same extent as the concentration of offset activity in the U.S. defense industry. Approximately 55 percent of all new offset agreements (by value) were signed with just five countries (Finland, the United Kingdom, Israel, Switzerland, and the Netherlands), and 78 percent of all new offset agreements were signed with just 10 countries. Not surprisingly, each of the ten countries purchased major aerospace defense systems.

Offset agreements, as might be expected, were also dominated by very large contracts. For example, the largest 10 percent of new offset agreements (i.e., the top 30) represented 67 percent of the total value of all new agreements entered into during the period, while the top 10 percent of export contracts were 72.5 percent of total export contracts. In addition, just 19 of 198 defense systems, again 10 percent, referred to in the export contracts accounted for two-thirds of the export contract values, and 64 percent of the new offset agreements values.

Chart 2-4 compares the value of the largest 30 offset agreements to the remaining 277 offset agreements. The largest 30 offset agreements totaled $14.9 billion, which accounted for approximately two-thirds of the value of all offset agreements during the reporting period. The

other 277 offset agreements reported totaled $7.4 billion, or less than half the value of the largest 30 offset agreements. Offsets as a percentage of the value of the export contracts were higher, on average, for the largest 30 agreements, 57 percent versus 52 percent for the remaining 277 agreements. The data seem to show that the largest export contracts often result in the largest offset percentages.

Offset transactions also are concentrated among a few U.S. companies. The top five companies in terms of export contracts (and their suppliers) accounted for 83 percent of the total transaction value, and the top nine for almost 93 percent. In terms of countries, the top five countries ranked by offset activity accounted for 58 percent of the actual transaction value and 52 percent of the credit value. The top ten countries accounted for 79 percent of the actual and 73 percent of the credit values.

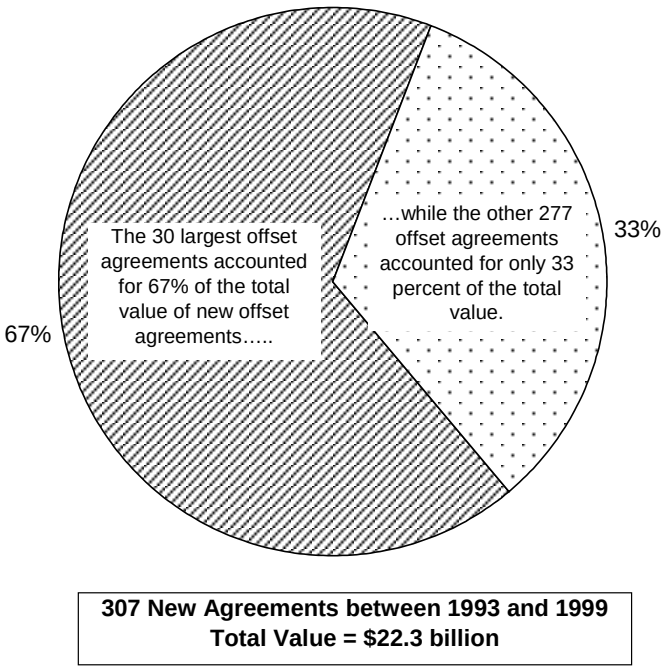


Chart 2-4: Concentration of Large New Offset Agreements, 1993-1999
(Source: U.S. Department of Commerce/BIS Offset Database)

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3. Impact of Offsets on the U.S. Defense Industrial Base

3.1 Defense Preparedness

Granting offsets to foreign buyers of U.S. defense systems has both positive and negative effects on U.S. defense preparedness. By exporting U.S. defense systems, U.S. prime contractors have been able, in many instances, to maintain production lines for systems that would otherwise close due to a lack of sufficient demand from the U.S. military. Maintaining these production lines enhances U.S. defense preparedness because the manufacturing resources and work force remain available should they be needed in a national emergency. This positive effect filters down the supply chain to subcontractors as well, enabling them to maintain their capabilities.

Another positive effect of using offsets to increase defense exports is that greater U.S. defense exports to our allies encourage interoperability between the armed forces. Recent U.S. military actions have shown the value of shared capabilities and logistics between the United States and its coalition partners. In an era of tightened defense budgets worldwide, interoperability allows the United States and its partners to leverage defense spending and increase the effectiveness of joint missions.

However, offsets also have negative effects on U.S. defense preparedness. Offsets that are required by foreign buyers of U.S. defense exports may displace U.S.-manufactured goods with foreign products. For example, U.S. prime contractors have utilized foreign manufacturers of engine parts in order to comply with offset agreements. This can create new and enhanced foreign competitors for U.S. subcontractors and increase the proliferation of weapons and technology to nations hostile to the United States. Over time, this might cause U.S. subcontractors to exit the business, and make the defense sector look less attractive to potential new U.S. suppliers. In a national emergency, the potential lack of subcontractor capabilities could limit U.S. defense actions.

3.2 Employment

Offsets also can affect employment levels in the defense sector. The data reported show that the export sales facilitated by offsets maintained 38,400 work-years annually, while the offset transactions displaced about 9,500 work-years annually. Similarly, the Presidential Commission on Offsets in International Trade, using a smaller sample of offset agreements and offset transactions generated by U.S. defense exports and a different methodology, found that offset transactions displaced 4,200 work-years annually.

BIS Analysis: Offset reports received by BIS show an accumulated total of $40.2 billion in defense export contracts from 1993 to 1999, which averages to about $5.7 billion per year. (Note: these are only export sales that have an offset agreement attached and that are reported.) Aerospace defense systems accounted for nearly 90 percent of the reported value of export contracts from 1993 to 1999, so it is reasonable to use data based on the aerospace industry in this analysis. According to the Annual Survey of Manufactures,[9] the value added per employee in the aerospace product and parts manufacturing industry was $149,688 in 1999. Dividing this figure into the $40.2 billion defense export sales total results in a total of 268,558 work-years that were maintained by defense exports associated with offset agreements over the seven-year period from 1993 to 1999, or approximately 38,400 work-years annually.

To take the calculations one step further, from a starting point of $22.3 billion in offset agreements during the 1993-1999 time period, $15.9 billion were executed in transaction data that was reported over the same time period. Of the $15.9 billion, $10 billion of the total offset transactions was comprised of subcontracting ($4.5 billion) and purchasing ($5.5 billion), both of which likely displace sales from U.S. firms. Averaged over seven years this yields $1.43 billion in displaced sales per year. Dividing $1.43 billion by $149,688 (the value added by each worker in the aerospace industry in 1999) results in the yearly loss of about 9,500 work-years.

[9] U.S. Census Bureau, February 2002.

The Presidential Offsets Commission's Findings: The Presidential Commission on Offsets in International Trade also has examined the impact of offsets.[10] The Commission's findings on the impact of offsets are as follows:

> **The Commission staff study found that defense offsets supplant a significant amount of work/jobs that would go to U.S. firms if export sales occurred without offsets.** To assess some of the economic effects of offsets, the Commission staff conducted a study of a representative sample of 50 defense offset transactions completed by major U.S. exporters over 1993-1998, representing 12 percent of the value of all defense offset transactions during this time period. The study found that direct offset transactions[11] during these six years resulted in the loss of $2.3 billion in work ($0.4 billion per year), or 25,300 work-years (4,200 per year), that would have gone to U.S. firms and their workers if the export sales had been made without offsets. Two-thirds of the lost work was borne by suppliers to the U.S. exporters.[12] Of the total estimated lost jobs, those in the aerospace industry amount to about 0.5 percent of total employment in the U.S. aerospace industry and 1.2 percent of employment in the U.S. *defense* aerospace industry – not an insignificant amount for one of the United States' largest industries.
>
> **However, industry estimates and other evidence suggest that offsets do facilitate exports…** Under some potential remedies for offsets, such as a unilateral decision by U.S. firms not to enter into offset agreements, the jobs lost from reduced defense export sales -- estimated by the staff study at 85,800 work-years annually for this potential remedy[13] -- would likely exceed the jobs gained from the reduction in defense offsets. These estimates underscore the need for the Commission to develop creative policies to reduce jobs lost through offsets in ways that do not inadvertently cause additional job losses. Possible approaches are discussed in the final section of the report.

In summary, BIS and the Commission agree that offsets have both a positive and negative effect on the U.S. defense industrial base, the U.S. economy, and, by extension, U.S. national security. Offsets can strengthen U.S. national security by: (i) increasing the capabilities of defense firms

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[10] To read the full Status Report of the Presidential Commission on Offsets in International Trade – January 18, 2001, see the Commission's website at www.offsets.brtrc.net.

[11] The estimated job loss also does not include losses resulting from *commercial* offsets.

[12] This result is based on information obtained from the U.S. exporters. The Commission staff did not survey U.S. suppliers themselves.

[13] Commission members Markusen and Buffenbarger note that this number is speculative and based on estimates provided by the aerospace companies surveyed. A full discussion of this issue is contained in Section VI(C) of the Commission's report.

in allied nations, thereby strengthening our joint defense preparedness and interoperability; and (ii) facilitating increased U.S. exports of defense articles, thereby helping to maintain the economic viability of U.S. defense firms and the defense articles they develop. However, offsets can harm national security by: (i) increasing the capabilities of foreign defense firms, which in turn may increase the proliferation of weapons and technology to nations hostile to the United States; and (ii) depriving capable U.S. defense firms and their workers of business in favor of foreign firms, thereby eroding the U.S. supplier base, allowing the skills of essential U.S. defense workers to atrophy, and increasing U.S. dependence on foreign suppliers. Further analysis of this issue is warranted.

4. Offset Activity in 1999

4.1 Offset Agreements, 1999

In 1999, nine U.S. defense contractors reported entering into 32 offset agreements with 10 different foreign countries. The offset agreements were valued at $1.45 billion, accounting for 72 percent of the total reported U.S. defense export contract values ($2.01 billion). In relation to the previous six years, both the value of total reported defense exports related to offset agreements and the offset agreement total were at their lowest levels in 1999. It is not unusual to see changes in the yearly offsets totals, as the number and value of defense contracts can vary substantially from year to year. In 1999, there were relatively few deals, and the average value for the deals was low. Another reason for the low levels was that Europe – which typically demands the highest level of offsets– had fewer agreements in 1999 than in previous years.

U.S. companies signed the most offset agreements with South Korea and Greece (five each), followed by Turkey and Israel (four each). The total value for defense items purchased in 1999 by each country is shown in Table 4-1

Table 4-1: 1999 Export and Offset Agreement Values by Country

Country	No. of New Offset Agreements	Export Value (in $ millions)	Offset Value (in $ millions)	Average Percent Offset
Taiwan	3	$ 364.2	$ 347.4	95%
Israel	4	$ 564.3	$ 340.8	60%
Greece	5	$ 294.6	$ 290.5	99%
Turkey	4	$ 158.8	$ 145.3	91%
South Korea	5	$ 230.8	$ 132.5	57%
Netherlands	3	$ 36.1	$ 36.0	100%
Australia	3	$ 229.8	$ 27.5	12%
Denmark, Spain, Sweden	5	$ 132.1	$ 132.6	100%
TOTAL	32	$2,010.7	$1,452.7	72%

Source: U.S. Department of Commerce/BIS Offsets Database

Taiwan led all countries in offset value, with three new offset agreements totaling $347.4 million. Israel was a close second with $340.8 million, and Greece followed with $290.5

million. In export contracts, Israel led the way with purchases of defense items from U.S. defense contractors totaling $564.2 million. Taiwan and Greece ranked second and third, respectively, with purchases of $364.2 million and $294.6 million, respectively. In terms of percentage of sales value accounted for by offsets, the Netherlands and Denmark/Spain/Sweden each had 100 percent, while Australia was the lowest with 12 percent. The average offset value required of the defense contractor was 72.2 percent of the value of the exported defense articles. U.S. firms reported that the average term to complete offset agreements entered into in 1999 was 75 months, a decrease from 1998's figure of 83 months and ten months below the average of 85 months for the period 1993-1999.

4.2 Offset Transactions, 1999

In 1999, 11 U.S. companies reported offset transactions with a total actual value of $1.81 billion. This figure was down 21 percent from the 1998 total of $2.28 billion, and was lower than the transaction value for any of the previous six years. With the decrease in defense sales and offset agreements, a similar drop in offset transactions would be expected in the future. The credit value[14] received for these transactions was $2.24 billion, or 124 percent of the actual value. There were 437 offset transactions reported in 1999, the lowest number reported for any single year from 1993 to 1998. As in previous years, the value of the offset transactions reported was concentrated largely among a few firms. The top three U.S. prime contractors accounted for 85 percent of the total transaction values reported.

Chart 4-1 shows the top 10 foreign countries that received offset transactions in 1999, in order of actual value of the transactions. The United Kingdom was the recipient of the largest amount of offset transactions (almost $500 million in 1999). Finland was second with $300 million of offset transactions. Together, the United Kingdom and Finland accounted for 45 percent of the

[14] The credit value is a value that some foreign governments provide as an incentive for certain kinds of offset transactions. This value varies greatly by country and by the kind of transaction (i.e., purchase, technology transfer, investment, etc.), but is normally more than the actual value. The percentage difference between the actual value and the credit value is the multiplier. For the entire database, the multiplier is 118.6 percent, which means the credit value is 18.6 percent more than the actual value. Generally, multipliers are provided only by developing countries.

1999 total value of offset transactions. Greece, Spain, the Netherlands, and France each received more than $100 million in offset transactions in 1999. All remaining countries received less than $100 million in offset transactions during 1999.

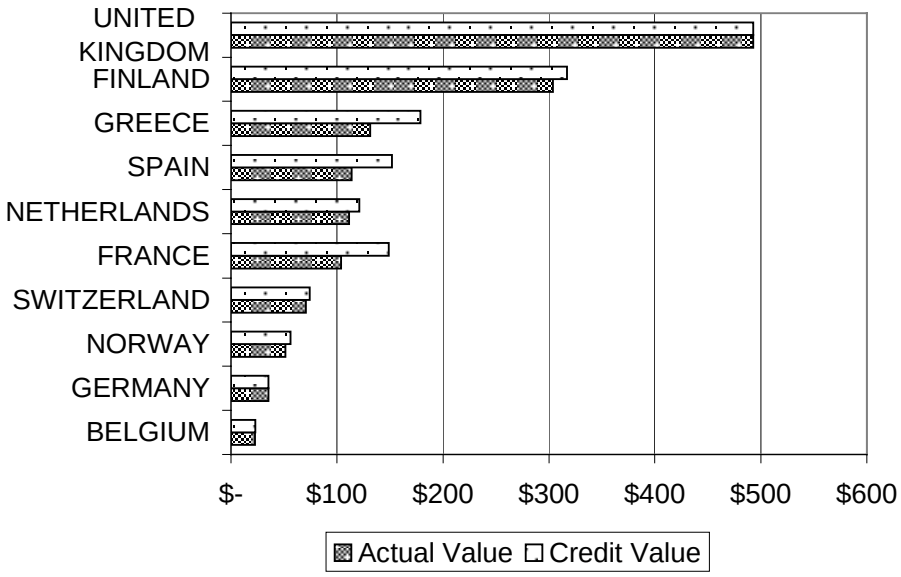

Chart 4-1: Top 10 Countries by Offset Transactions (in $ millions), 1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

4.3 1999 Offset Transactions by Region

European countries overwhelmingly dominated all recipients of offset transactions in 1999, with $1.5 billion of the $1.81 billion total, or 81 percent of the actual value of all offset transactions for the year. The credit value for these offset transactions of $1.7 billion, however, was a smaller percentage (74 percent) of the total credit value of all offset transactions. The observed practice for European countries over the past seven years has been to provide less credit for offset transactions than other regions, with the exception of Canada (the dominant offset player in North and South America). In 1999, European credits accounted for 114 percent of the actual offset transaction values.

Asia was a distant second to Europe in value of offset transactions. Asian offset transactions amounted to $191 million in 1999, accounting for only 11 percent of the total. However, U.S. companies received more than $347 million in offset credits in the Asian markets in 1999, or 182 percent of the actual offset transaction values. The higher rate of credits is typical for Asian countries such as Taiwan and South Korea. The difference between European and Asian credit percentages is explained by the regions' transaction preferences. A greater percentage of European offsets are based on actual purchase transactions, while Asia has a higher share of technology transfer and training transactions. The Middle East was next with $132 million in offset transactions. Offset credits of $192 million were 152 percent of actual transaction values. Offset transactions in North and South America amounted to only $25 million. No additional credit was granted by the purchasing nations.

4.4 1999 Offset Transactions by Type and Category

In 1999, defense contractors reported total direct offset transactions valued at $588 million, for which they received offset credits of $705 million. Indirect offset transactions were valued at $1.2 billion for which they received offset credits of $1.4 billion. The remaining value ($22 million) were unspecified and received offset credits of $103 million.

Offsets generally are categorized into nine types of transactions. (See Section 1.4 for details.) Table 4-2 shows the total values for each of the nine categories for offset transactions in 1999 reported to the Department of Commerce. Three categories – Purchase ($768 million), Subcontract ($405 million), and Technology Transfer ($296 million) – accounted for more than 80 percent of the total value of all offset transactions in 1999. Purchases alone accounted for 42 percent of the total 1999 offset transaction value. Also shown on Table 3-2 are credit values and the multipliers (i.e., credit value divided by actual value) for each category of offsets. The multipliers varied greatly by category, ranging from 100 percent for Credit Transfers and Co-production to nearly 6,000 percent (i.e., a 60 fold multiplier) for Training. (Note: The 1999 Training multiplier appears to be an anomaly arising from a very small actual value. Since 1993, the Training multiplier has averaged approximately 160.9 percent. The average multiplier for all categories of offset transactions in 1999 was 124 percent.)

Table 4-2: Offset Transactions by Category, 1999			
Offset Category	**Actual Value ($ millions)**	**Credit Value ($ millions)**	**Percent Credit**
Purchases	**$ 768.2**	**$ 782.1**	**102%**
Subcontracts	**$ 404.7**	**$ 434.3**	**107%**
Technology Transfer	**$ 295.9**	**$ 361.8**	**122%**
Other	**$ 249.3**	**$ 358.9**	**144%**
Co-production	**$ 40.5**	**$ 40.5**	**100%**
Investment	**$ 26.1**	**$ 191.7**	**736%**
Credit Transfer	**$ 20.0**	**$ 20.0**	**100%**
Licensed Production	**$ 3.7**	**$ 26.2**	**716%**
Training	**$ 0.5**	**$ 27.5**	**5978%**
TOTAL	**$1,808.8**	**$2,243.0**	**124%**

Source: U.S. Department of Commerce/BIS Offsets Database

The 1999 data show a significant change in allocation of offset transactions by category from the previous year. In 1999, Purchases accounted for 42 percent of the total offset transactions (by value), an increase of 13 percent from 1998. In 1999, defense companies reported 121 offset transactions requiring Subcontracts, which accounted for 28 percent of the value of all offset transactions that year. In 1998, by comparison, Subcontracts accounted for 53 percent of the value of all offset transactions. The change in allocation of offset transactions by category from one year to the next can be explained by individual countries' preferences for different categories of offset transactions. (See Appendix E for detailed information on offset requirements for many foreign countries.)

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5. Offset Agreements Activity, 1993-1999

5.1 Offset Agreements 1993-1999

As noted in earlier chapters, the value of U.S. defense export contracts that required offset agreements during the period 1993-1999 was $40.2 billion. Offset agreements negotiated between foreign governments and U.S. defense contractors had a total value of $22.3 billion. The value of offset agreements was 55 percent of the value of the export contracts. U.S. companies reported entering into 307 offset agreements during the time period from 1993 to 1999.

Chart 5-1 shows the percentage of the total value of offset agreements accounted for by the four regions (Europe, the Middle East, North and South America, and Asia).

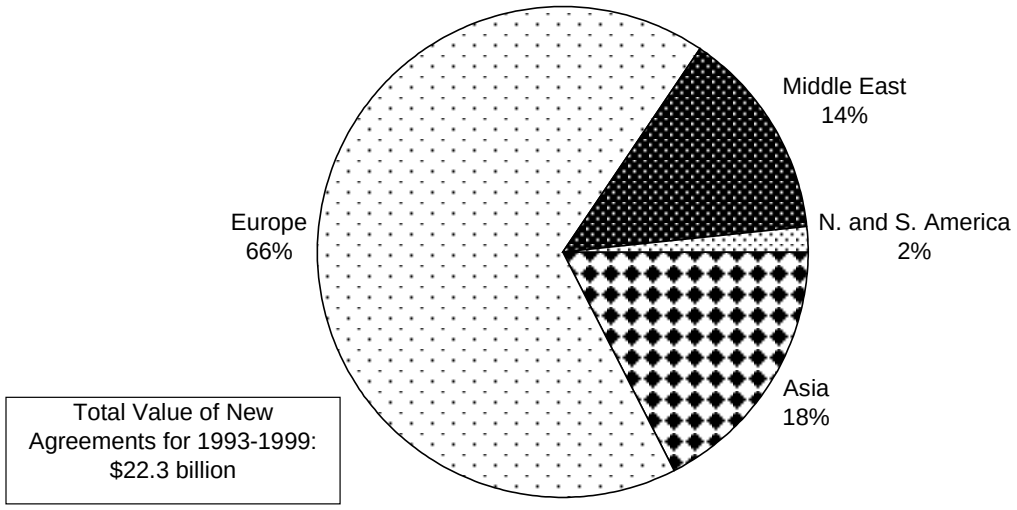

Chart 5-1: Offset Agreements by Region (by Value), 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

Europe has been the region requiring the largest amount of offsets, accounting for 67 percent of the value of new offset agreements from 1993 to 1999. Considering that Europe accounted for only 42 percent of the total reported U.S. defense-related export contracts, it is clear that European offsets (with an average value of 88 percent of the export value) have a high impact relative to the rest of the world. The rest of the world (non-European countries) received less than half as many offsets as Europe (by value), but 58 percent of the total U.S. defense-related export contracts. The situation is even more lopsided considering that European countries allow less credit than non-European countries for offset transactions. Table 5-1 shows offset activity for 1993-1999.

Table 5-1: Export Contract Values and Offset Agreements by Year for Europe and Non-European Areas, 1993-1999 (in $ millions)

Area	Year	# New Agmts	Export Value	Offset Value	% Offsets	Share of Agmts	Share of Exports
Europe	1993	14	$2,985.0	$2,338.1	78.33%	48.77%	21.41%
Non-Europe	1993	15	$10,960.0	$2,456.4	22.41%	51.23%	78.59%
World Total	1993	29	$13,945.0	$4,794.4	34.38%	-	-
Europe	1994	20	$1,508.2	$764.8	50.71%	37.33%	31.47%
Non-Europe	1994	29	$3,284.2	$1,283.9	39.09%	62.67%	68.53%
World Total	1994	49	$4,792.4	$2,048.7	42.75%	-	-
Europe	1995	26	$4,944.3	$5,159.2	104.35%	85.50%	66.80%
Non-Europe	1995	19	$2,457.7	$874.9	35.60%	14.50%	33.20%
World Total	1995	45	$7,402.0	$6,034.1	81.52%	-	-
Europe	1996	34	$1,924.2	$1,919.1	99.74%	84.52%	64.40%
Non-Europe	1996	16	$1,063.7	$351.5	33.05%	15.48%	35.60%
World Total	1996	50	$2,987.8	$2,270.7	76.00%	-	-
Europe	1997	29	$3,754.3	$3,058.6	81.47%	79.51%	64.24%
Non-Europe	1997	29	$2,090.2	$788.0	37.70%	20.49%	35.76%
World Total	1997	58	$5,844.5	$3,846.6	65.82%	-	-
Europe	1998	21	$1,390.3	$1,200.3	86.33%	65.00%	42.68%
Non-Europe	1998	23	$1,867.5	$646.4	34.61%	35.00%	57.32%
World Total	1998	44	$3,257.8	$1,846.6	56.68%	-	-
Europe	1999	13	$462.8	$459.2	99.21%	31.61%	23.02%
Non-Europe	1999	19	$1,547.8	$993.5	64.19%	68.39%	31.61%
World Total	1999	32	$2,010.6	$1,452.7	72.25%	-	-
Europe	Total	157	$16,969.2	$14,899.3	87.80%	66.83%	42.17%
Non-Europe	Total	150	$23,271.0	$7,394.6	31.78%	33.17%	57.83%
World Total	Total	307	$40,240.2	$22,293.9	55.40%	-	-

Source: U.S. Department of Commerce/BIS Offsets Database

On a regional basis, Europe remains the leader in new offset agreements with 157 signings valued at $14.9 billion from 1993 to 1999. Asia was a distant second with 84 new agreements signed for $3.9 billion. The Middle East had 49 new offset agreements worth $3.1 billion, and North and South America had 17 new offset agreements valued at $359 million.

European nations, among the most developed and technologically advanced, were highest in terms of the value of the offsets required as a percentage of the value of the export contracts in 1995 (104 percent) and 1996 (100 percent); offset percentages were lower for the region in 1997 (81 percent) and 1998 (87 percent), but in 1999, the value of the offsets required as a percentage of the value of the defense-related exports once again hovered around 100 percent. For non-European nations, the offset percentage rose unevenly over the period, reaching 64 percent in 1999. On average, the value of the offsets as a percentage of the reported defense-related export contracts was 32 percent for the seven-year period. European nations accounted for 67 percent of the value of world offsets, yet only 42 percent of the export contracts reported.

We compared the running averages of offset percentages required by European and non-European nations. For Europe, the running average was relatively stable in the last five years of the period, varying between 87.5 and 89.6 percent of export contracts. Change in the running average relative to 1993 leveled out at just over 9 percentage points for each of the last three years. In contrast, the running average for non-European nations rose consistently over the period, ending at 32 percent in 1999, up 9.4 percentage points from 1993. While the non-European nations had higher export contract totals, Europe dominated the offset totals because of the large offset percentages required and less offset credit allowed.

The data do not reveal a correlation between the value of the exports and the percentage of the offset, leading to the conclusion that other factors must influence the amount of the offset obligations. The Department of Commerce does not receive data from U.S. defense contractors that would reveal the factors that influence the amount of the offset obligation. According to the Presidential Commission on Offsets in International Trade, the general view in the industry is that offsets are a product of the political process in foreign countries, as well as the desire to use

defense purchases to bring employment, technology, and production skills to industry located in the foreign countries.[15]

[15] See Status Report of the Presidential Commission on Offsets in International Trade, February 14, 2001, available for download at http://www.offsets.brtrc.net/.

6. Offset Transaction Activity, 1993-1999

As noted in previous chapters, offset transactions are the means by which U.S. companies fulfill obligations to foreign countries outlined in offset agreements. Transactions related to a particular offset agreement can be spread over many years and take many forms. This section of the report presents data on offset transactions carried out between 1993 and 1999. (Note: The offset transactions may be related to offset agreements signed prior to 1993.)

6.1 Offset Transactions, 1993-1999

During the seven-year period from 1993 to 1999, 41 U.S. companies reported 3,869 offset transactions valued at $15.9 billion, for which they received $18.2 billion in offset credit. Overall, the credit value received represented 118.6 percent of the actual value of the offset transactions. The offset transactions were completed in 33 different countries, plus three groups of countries, namely NATO, the European Participating Group (Belgium, Netherlands, and Norway), and Sweden and Norway in a sharing agreement. Table 6-1 shows the top 15 recipient countries by total actual value of offset transactions. For the seven-year period, the actual value of transactions executed in Finland was $3.1 billion, which led all countries. Finland led its nearest competitor, the United Kingdom, by $300 million in actual value of offset transactions and by $500 million in credit value of offset transactions. Israel, Switzerland, and the Netherlands followed – each received more than $1 billion in offset transactions from 1993 to 1999. South Korea was sixth in the value of offset transactions received with $824 million. These top six recipient countries accounted for 63.5 percent of the value of all transactions received (and 58.5 percent of offset credit value received) for the seven-year period from 1993 to 1999.

Table 6-1: Top 15 Recipient Countries by Actual Value of Offset Transactions, 1993-1999			
Country	**Actual Value ($ millions)**	**Credit Value ($ millions)**	**Credit % of Actual**
Finland	$3,145	$3,372	107.2%
United Kingdom	$2,819	$2,839	100.7%
Israel	$1,206	$1,263	104.7%
Switzerland	$1,068	$1,076	100.8%
Netherlands	$1,017	$1,305	128.3%
South Korea	$ 824	$1,157	140.5%
Spain	$ 705	$ 917	130.0%
Turkey	$ 615	$ 666	108.4%
Germany	$ 551	$ 551	100.0%
Italy	$ 529	$ 529	100.0%
Greece	$ 489	$ 782	159.8%
Australia	$ 475	$ 501	105.5%
Canada	$ 428	$ 432	101.0%
Taiwan	$ 383	$ 972	253.7%
France	$ 310	$ 552	178.2%
TOTAL	$14,564	$16,916	116.2%
% of Value of All Offset Transactions	91.8%	89.9%	

(Source: U.S. Department of Commerce/BIS Offsets Database)

6.2 Trends in Offset Transactions for the Top Six Recipient Countries

Chart 6-1 depicts the actual value of offset transactions from 1993 to 1999 for the six countries with the largest actual value of offset transactions for that time period. The chart shows the wide variations seen in offset transactions from year to year, depending on the timing of major purchases of defense systems. The countries with the largest values of offset transactions received (Finland and the United Kingdom) also exhibit the largest variations in offset transaction value from year to year. This reflects to a degree the delivery patterns of major defense systems to these countries. The United Kingdom, in particular, has a high ratio of direct offsets – mostly subcontracts for parts and subsystems that become part of the weapon system. In the case of Finland, which has a high proportion of indirect offsets, the fulfillment of offset obligations appears to be

contingent on the flow of money to the prime contractor upon delivery of the weapon system.

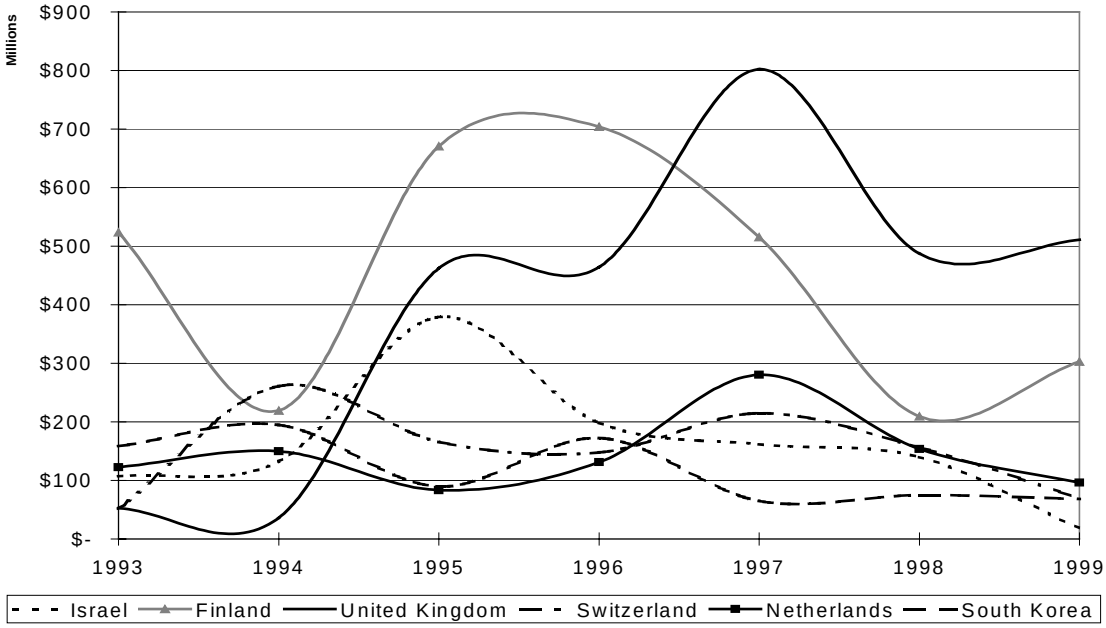

Chart 6-1: Trends in Actual Offset Transaction Values for Top Six Recipient Countries, 1993-1999
(Source U.S. Department of Commerce/BIS Offsets Database)

6.3 Offset Transactions Largest Recipients, 1993-1999[16]

Within each country that receives offsets, there are entities who are actually involved in and benefit from the transactions. For example, in the case of subcontracting, the company in the purchasing country that actually carries out the subcontracting work benefits from the arrangement. These entities may be either industry or government organizations. Table 6-2 shows the offset recipient entities (whether government or private) that received more than $100 million in offset transactions between 1993 and 1999. There are 18 recipient entities that meet this criterion, out of a total of 1,273 entities reported as receiving offset transactions. As a group, these 18 entities received

[16] The Department of Commerce has attempted to distribute the data provided by defense contractors so that subsidiaries are counted with parent corporations within the same country, but not if the subsidiary is located in a country other than the country of the parent company. This is not always possible where the identity of the parent corporation is not readily apparent or known to the Department of Commerce.

offsets that accounted for 26 percent of the actual value of all offset transactions from 1993 to 1999, and 24 percent of the credit value. Although these recipients accounted for a high percentage of the value of all offset transactions, they accounted for only a small amount (11 percent) of the total number of transactions.

Table 6-2: Offset Recipient Entities with Greater than $100 Million In Offset Transactions, 1993-1999

Individual Recipient	Country	Actual Value	Credit Value	% Credit
Valmet	Finland	$486	$546	112.2%
Industrial Coop. Authority	Israel	$478	$512	107.1%
Elmer	Italy	$370	$370	100.0%
Israeli Aircraft Industries	Israel	$321	$342	106.4%
GEC Marconi	United Kingdom	$269	$287	106.9%
Finnyards	Finland	$265	$265	100.0%
Fokker	Netherlands	$262	$280	106.7%
Samsung	South Korea	$243	$238	98.3%
Kvaerner Masa-Yards	Finland	$208	$208	100.0%
Sitra	Finland	$202	$202	100.0%
GKN Westland Aerospace Ltd.	United Kingdom	$190	$190	100.0%
Turkish Air Force	Turkey	$173	$173	100.0%
Reflectone	United Kingdom	$147	$147	100.0%
Hellenic Navy	Greece	$140	$238	170.2%
Smiths Industries	United Kingdom	$132	$132	100.0%
SSM	Turkey	$119	$137	115.1%
Ministry Of Defense	South Korea	$118	$125	106.1%
Dowty Aerospace	United Kingdom	$109	$109	100.0%
TOTAL		$4,231	$4,500	106.4%
Percent Of World Total		26.7%	23.9%	

Source: U.S. Department of Commerce/BIS Offsets Database

6.4 Offset Transactions by Category, 1993-1999

Chart 6-2 shows the data on categories of offsets from 1993 to 1999. Over the seven-year period, the largest categories of offset transactions (by value) were Purchases (34.6 percent), Subcontracts (28.5 percent), and Technology Transfer (12 percent). These three categories are shown individually in Chart 6-2, while the other offset transaction categories (Co-Production, Licensed Production, Credit Transfer, Investment, Training,

and Other) are grouped in a single bar ("All Other") for each year. Purchases generally outpaced subcontracts by value in each year, with the exception of 1998.[17] The annual values of the Subcontract and Purchase categories have fluctuated as indicated on the chart but have not dropped below $200 million in any year for which transaction data has been reported. As a group, Purchases, Subcontracts, and Technology Transfer accounted for approximately 75 percent of offset transactions (by value) during the seven-year period from 1993 to 1999.

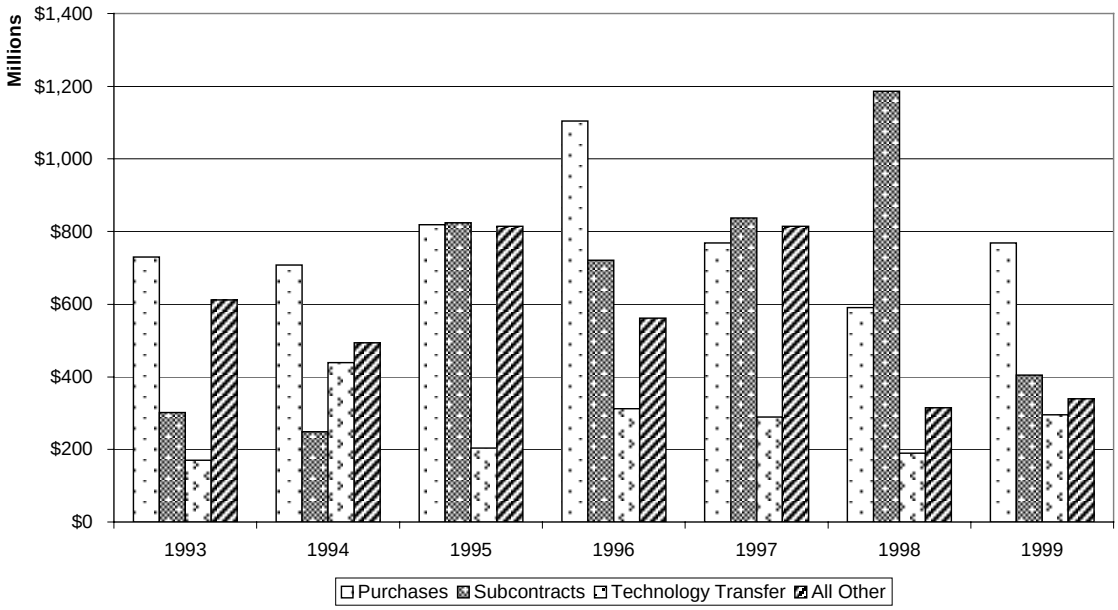

Chart 6-2: Offset Transactions by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

6.5 Offset Transactions by Type (Indirect vs. Direct), 1993-1999

Chart 6-3 depicts the data on offset transactions by type (indirect vs. direct) from 1993 to 1999. As shown in the chart, the value of indirect offset transactions has exceeded the value of direct offset transactions in each year since 1993, except for 1998. As mentioned above, the prevalence of direct offset transactions in 1998 is considered an anomaly because the data for 1998 were influenced by a few large transactions with

[17] 1998 is considered an anomaly because the data on offset transactions were heavily influenced by a few very large transactions.

nations that prefer direct offsets; these nations most likely are interested in building their defense industrial base through subcontracting and other direct offset transactions. The 1999 data show that indirect offsets continue to be preferred by foreign governments over direct offsets. Nations that prefer indirect offsets typically are not trying to build or maintain a defense industrial base and instead use offset transactions for other purposes, such as economic or infrastructure development. In fact, the value of indirect offsets in 1999 is nearly twice the value of direct offsets. This is the largest variance between indirect and direct offset transactions that has been recorded since the Department of Commerce began gathering data on offsets.

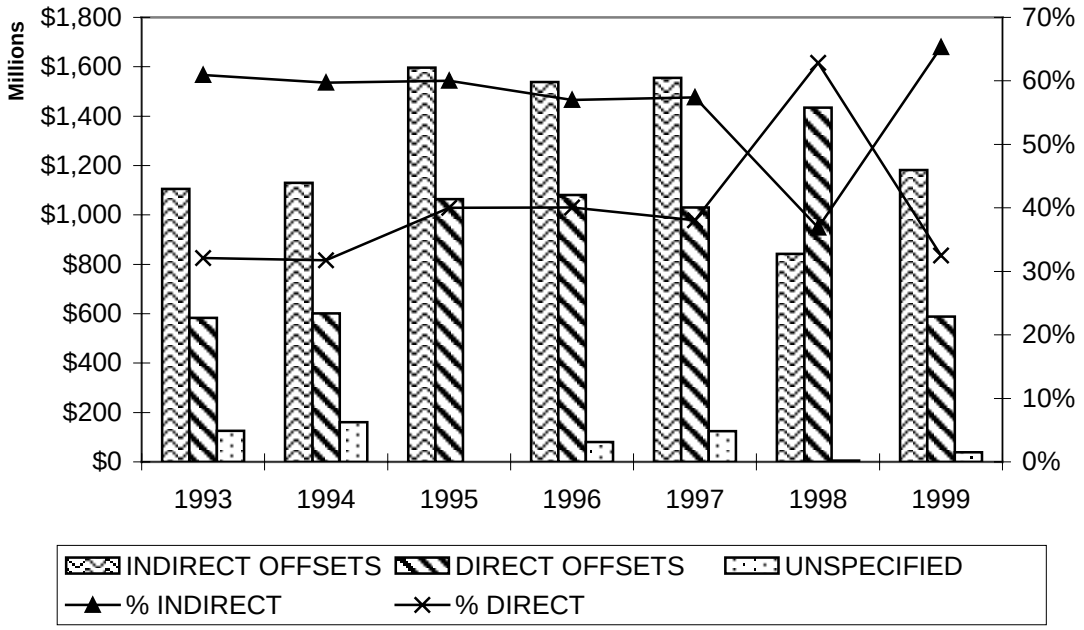

Chart 6-3: Offset Transactions by Type (Direct, Indirect, and Unspecified), 1993-1999
(Source: U.S. Department of Commerce/BIS Offset Database)

6.6 Offset Transactions by Category and Type, 1993-1999

The nine different categories of offset transactions (Subcontracts, Purchases, Technology Transfer, and the like) can generally be characterized as either direct or indirect. Table 6-3 breaks down the total actual value for each category of offset transaction into amounts for direct offset transactions, indirect offset transactions, or unspecified.

Co-Production, Licensed Production, Subcontracts, and Training all were primarily direct offset transactions during the seven-year period from 1993 to 1999. Credit Transfer, investment, the "Other" category, Purchases, and Technology Transfer were all primarily indirect offset transactions.

Table 6-3: Offset Transactions by Category and Type, 1993-1999

Offset Category	Offset Type	Actual Value (in $ millions)	Credit Value (in $ millions)
Co-production	Direct	$407	$411
	Unspecified	$1	$1
Credit Transfer	Direct	$4	$66
	Indirect	$1,052	$1,144
Investment	Direct	$4	$4
	Indirect	$285	$855
	Unspecified	$77	$111
Licensed Production	Direct	$91	$109
	Indirect	$4	$26
	Unspecified	$24	$31
Other	Direct	$189	$270
	Indirect	$1,224	$1,483
	Unspecified	$2	$82
Purchase	Indirect	$5,181	$5,574
	Unspecified	$308	$312
Subcontract	Direct	$4,494	$4,788
	Unspecified	$31	$32
Technology Transfer	Direct	$797	$1,131
	Indirect	$1,015	$1,353
	Unspecified	$90	$92
Training	Direct	$398	$602
	Indirect	$188	$331
	Unspecified	$2	$13

Source: U.S. Department of Commerce/BIS Offsets Database

6.7 Offset Transactions by Industry

As explained in more detail above, offsets have both positive and negative effects on the U.S. industrial base. Offsets help U.S. defense contractors win foreign contracts, which has positive economic repercussions throughout the industry, such as increased revenues, subcontract activity, and employment. To some extent, however, the benefits of these

export sales are counterbalanced by required offset transactions that can transfer production and jobs out of the United States to the purchasing country.

In order to measure the effect of offsets on particular sectors of the U.S. industrial base, each of the nearly 4,000 offset transactions during 1993-1999 was categorized based on the description of the transaction provided by reporting companies. The Department of Commerce used the Standard Industrial Classification (SIC) Code system to identify industries for this process.[18]

Table 6-4 shows the breakdown of all offset transactions for the time period from 1993 to 1999 by SIC industry group affected.[19] During that time period, offset transactions were carried out in 44 different economic sectors. The transactions were heavily concentrated in only a few groups, however. Offset transactions in the top 11 sectors accounted for 95 percent of the value of all offset transactions over the period.

Table 6-5 shows the top 11 SIC sectors involved in offset transactions. Group 37 (Transportation Equipment) had the largest amount of offset transactions, with a total of $7.8 billion, accounting for 49 percent of total offset transaction value during the reporting period. This group includes companies involved in the production of aircraft, aircraft engines, and engine parts. Group 36 (Electronic and Electrical Equipment) was a distant second over the seven-year period with $2 billion in total offset transactions, or 13 percent of the value of total offset transactions. Group 35 (Industrial Machinery) was third with $1.2 billion, or approximately eight percent of the value of transactions.

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[18] Developed in the 1930s, the SIC codes break the U.S. economy into more than 1,100 industries, including nearly 500 manufacturing industries. Publicly available data on these industries is collected by the Bureau of the Census. The Department of Labor and other agencies also publish data in the SIC format. Assigning SIC codes was a challenge because the transaction reports provided by U.S. industry generally are too broad in their description to identify the specific industry that might be impacted. Because of the difficulty in definitively classifying some of the transactions reported, this analysis has relied on the less-specific two-digit codes that represent major industry groups within the system.

[19] Offset transactions classified at the 4-digit SIC level can be found in Appendix D.

Table 6-4: Offset Transactions by Major Economic Sector, 1993-1999									
		# of Offset Transactions				Value of Transactions ($ Millions)			
SIC	Economic Sector	Total	Direct	Indirect	Both	Total	Direct	Indirect	Both
07	Agriculture	6		6		$42.0		$42.0	
13	Crude Oil & Natural Gas	4		4		$14.7		$14.7	
14	Mining	1		1		$2.7		$2.7	
15	Building Construction	13	5	8		$35.2	$11.6	$23.7	
16	Heavy Construction	4	1	3		$3.5	$1.2	$2.3	
17	Construction - Specialty Trades	1		1		$3.9		$3.9	
20	Food And Kindred Products	28		28		$15.5		$15.5	
22	Textile Mill Products	3		3		$6.4		$6.4	
23	Apparel & Other Finished Products	10		10		$3.8		$3.8	
26	Paper Mills & Allied Products	8		8		$21.1		$21.1	
27	Printing & Publishing	8	5	3		$29.1	$23.9	$5.2	
28	Chemicals & Allied Products	37	3	34		$101.8	$10.1	$91.7	
30	Rubber & Misc Plastics Products	6		6		$4.9		$4.9	
32	Cut Stone & Stone Products	8		8		$12.0		$12.0	
33	Primary Metal Industries	63	2	61		$111.7	$5.4	$106.3	
34	Fabricated Metal Products	127	32	93	2	$517.9	$110.2	$304.6	$103.1
35	Industrial Machinery, Exc. Electrical	494	30	464		$1,245.1	$123.2	$1,122.0	
36	Electronic/Electrical Equipment	542	147	391	4	$2,018.8	$696.1	$1,310.0	$12.7
37	Transportation Equipment	1,748	891	821	36	$7,814.5	$4,135.6	$3,296.1	$382.8
38	Measuring & Analyzing Instruments	107	63	44		$653.3	$555.0	$98.4	
39	Misc. Manufacturing Industries, Nec	4	1	3		$5.1	$0.0	$5.1	
42	Motor Freight & Warehousing	1		1		$1.5		$1.5	
44	Water Transportation	2		2		$40.2		$40.2	
45	Transportation By Air	4	1	3		$11.4	$0.3	$11.0	
47	Transportation Services	9	2	7		$3.6	$0.0	$3.6	
48	Communications	10	1	9		$55.2	$1.1	$54.1	
49	Electric, Gas, & Sanitary Services	3		3		$1.1		$1.1	
50	Wholesale Trade - Durables	59	15	43	1	$239.7	$120.7	$116.8	$2.2
51	Wholesale Trade - Non-Durables	10		10		$3.1		$3.1	
55	Auto Dealers & Gas Service Stations	14		14		$11.2		$11.2	
57	Home Furniture & Furnishings	1		1		$1.3		$1.3	
61	Non-Depository Credit Institutions	42	9	33		$565.1	$18.5	$546.6	
62	Security Brokers Exchanges	2		2		$10.0		$10.0	
67	Holding & Other Investment Offices	40	3	36	1	$311.0	$2.7	$288.4	$19.8
73	Business Services	201	54	143	4	$824.0	$196.3	$613.7	$14.0
76	Miscellaneous Repair Shops	11	3	8		$8.5	$2.4	$6.1	
80	Health Services	1		1		$0.0		$0.0	
81	Legal Services	1		1		$0.1		$0.1	
82	Educational Services	35	11	24		$253.5	$149.3	$104.2	
87	Technical Services & Consultants	153	31	120	2	$636.0	$138.3	$496.4	$1.3
89	Misc. Services	15	9	6		$65.7	$47.6	$18.2	
95	Admin, Environ. Quality & Housing .	1		1		$0.6		$0.6	
97	Defense, National Security	1	1			$32.3	$32.3		
99	Undetermined	31	1	30		$129.2	$0.5	$128.7	
	All Sectors	3,869	1,321	2,468	50	$15,867.2	$6,382.1	$8,820.4	$536.0

Source: U.S. Department of Commerce/BIS Offsets Database

Table 6-5: Total Offset Transactions for Top 11 Major Economic Sectors, 1993-1999					
SIC Group Number	**SIC Group Description**	**Actual Value ($ millions)**	**% of Total Actual Value**	**Credit Value ($ millions)**	**% of Total Credit Value**
37	Transportation Equipment	$7,814.5	49.2%	$9,026.8	48.0%
36	Electronic/Electrical Equipment	$2,018.8	12.7%	$2,425.6	12.9%
35	Industrial Machinery, Except Electrical	$1,245.1	7.8%	$1,496.6	8.0%
73	Business Services	$ 824.0	5.2%	$1,005.6	5.3%
38	Measuring & Analyzing Instruments	$ 653.3	4.1%	$ 812.9	4.3%
87	Technical Services & Consultants	$ 636.0	4.0%	$ 742.2	3.9%
61	Non-Depository Credit Institutions	$ 565.1	3.6%	$ 697.9	3.7%
34	Fabricated Metal Products	$ 517.9	3.3%	$ 560.1	3.0%
67	Holding & Other Investment Offices	$ 311.0	2.0%	$ 561.9	3.0%
82	Educational Services	$ 253.5	1.6%	$ 256.8	1.4%
50	Wholesale Trade - Durables	$ 239.7	1.5%	$ 268.0	1.4%
	TOTAL	$15,078.8	95.0%	$17,854.4	94.9%

Source: U.S. Department of Commerce/BIS Offsets Database

Chart 6-4 and Table 6-6 show the distribution of offset transactions by type within each of the top 11 SIC groups. More than 50 percent of the offset transactions involving Group 37 (Transportation Equipment), Group 38 (Measuring & Analyzing Instruments), Group 82 (Educational Services), and Group 50 (Wholesale Trade – Durables) were direct, while the offset transactions in the remaining groups primarily were indirect offset transactions. Especially notable for indirect transactions were Group 61 (Non-Depository Credit Institutions), Group 67 (Holding & Other Investment Offices), and Group 35 (Industrial Machinery, Except Electrical). Indirect offsets accounted for more than 90 percent (by value) of all offset transactions in these sectors.

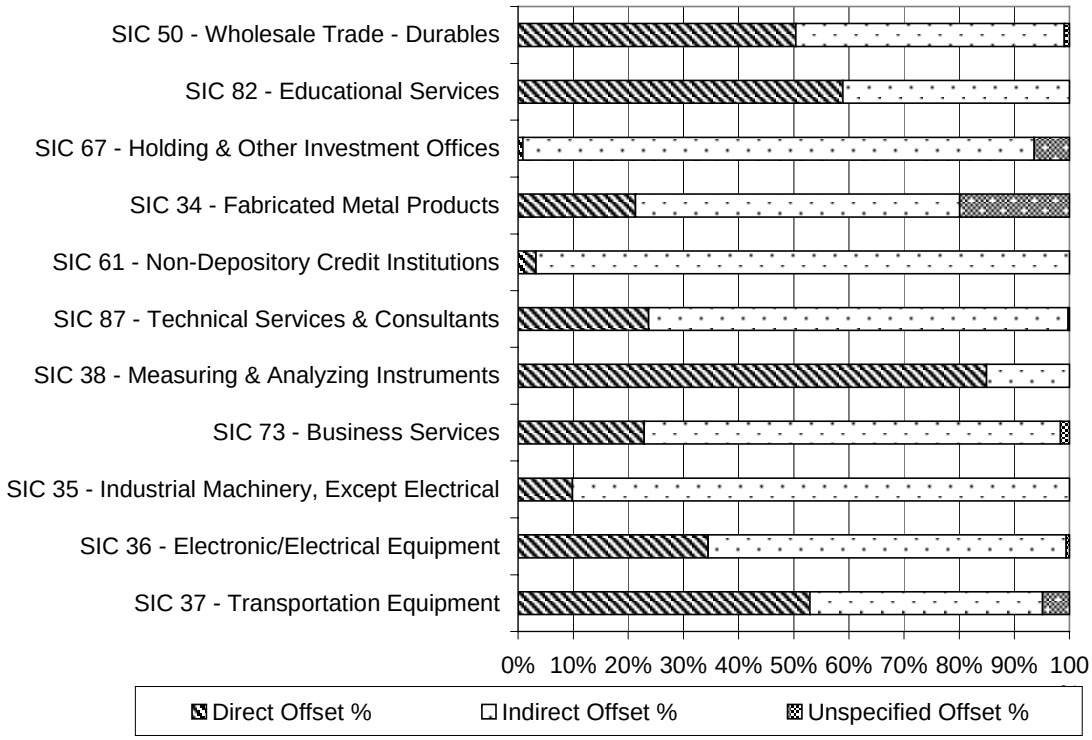

Chart 6-4: Offset Transactions by Type for Top 11 Major Economic Sectors, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

Table 6-6: Offset Transactions by Type for Top 11 Major Economic Sectors, 1993-1999								
		($ Millions)						
SIC Group	Industry	Total	Direct	Indirect	Undefined	Direct	Indirect	Undefined
37	Transportation Equipment	$7,819.3	$4,136.9	$3,299.6	$382.8	52.9%	42.2%	4.9%
36	Electronic/Electrical Equipment	$2,018.0	$ 695.7	$1,309.7	$ 12.7	34.5%	64.9%	0.6%
35	Industrial Machinery, Except Electrical	$1,241.5	$ 122.3	$1,119.2	-	9.8%	90.2%	-
73	Business Services	$ 858.2	$ 196.3	$ 647.9	$ 14.0	22.9%	75.5%	1.6%
38	Measuring & Analyzing Instruments	$ 653.3	$ 555.0	$ 98.4	-	84.9%	15.1%	-
87	Technical Services & Consultants	$ 584.2	$ 138.3	$ 444.6	$ 1.3	23.7%	76.1%	0.2%
61	Non-Depository Credit Institutions	$ 565.1	$ 18.5	$ 546.6	-	3.3%	96.7%	-
34	Fabricated Metal Products	$ 517.9	$ 110.2	$ 304.6	$103.1	21.3%	58.8%	19.9%
67	Holding & Other Investment Offices	$ 311.0	$ 2.8	$ 288.3	$ 19.9	0.9%	92.7%	6.4%
82	Educational Services	$ 253.5	$ 149.3	$ 104.2	-	58.9%	41.1%	-
50	Wholesale Trade - Durables	$ 239.7	$ 120.7	$ 116.8	$ 2.2	50.3%	48.7%	0.9%

(Source: U.S. Department of Commerce/BIS Offsets Database)

7. Aerospace Offset Activity, 1993-1999

Sales of U.S. aerospace goods (airplanes, helicopters, missiles and missile launchers, and the like) overwhelmingly dominate defense offset activity. Accordingly, the effects of direct offsets on the U.S. industrial base appear to be concentrated in the aerospace infrastructure, particularly aerospace subcontractors. While exports of aerospace systems are generally considered positive for both U.S. exporters and our allies, offsets are known to reduce the benefits of exporting and to increase the cost of the weapon system to the purchasing country. Nonetheless, offsets do contain economic benefits. They facilitate defense sales for U.S. prime contractors that might not otherwise occur. By demanding offsets, foreign governments are essentially redirecting scarce national defense expenditures back into their own country, and thereby receive an economic and political benefit.

Of 307 new offset agreements recorded between 1993 and 1999, 221 were related to aerospace export contracts. Additionally, aerospace export contracts totaled nearly $35.9 billion during the seven-year period, accounting for 89 percent of the total value of export contracts reported. The value of the aerospace export contracts is highly concentrated in just a few large procurements. The ten largest aerospace export contracts accounted for 53 percent of the value of all 221 export contracts reported. In fact, the five largest aerospace export contracts accounted for 42 percent of the total.

Because aerospace export contracts are so large and involve very complex equipment and technology, they often involve many U.S. subcontractors that supply components to the prime contractor to construct the item for export. Offset transactions related to aerospace export contracts, however, can have an adverse impact on American subcontractors by depriving them of business and by creating additional competitors in foreign countries receiving offsets. While some U.S. subcontractors gain work from export contracts that would not exist without offsets, other U.S. subcontractors lose work to foreign companies as a result of direct offset transactions. From 1993-1999, direct aerospace-related offset transactions totaled $6 billion. To the extent that U.S. prime contractors would otherwise

have relied on U.S. subcontractors, this dollar value is equivalent to the potential loss of business to U.S. subcontractors due to offsets. The work subcontracted to overseas suppliers during 1993-1999 fell primarily in the areas of aircraft and engine parts and components.

Offset agreements related to aerospace export sales reached $19.9 billion during the seven-year period from 1993 to 1999, and accounted for 55 percent of the total value of the export contracts. Offset agreements related to aerospace export contracts accounted for 89 percent of the value of all offset agreements from 1993 to 1999.

Table 7-1 compares aerospace offset activity with total offset activity for each of the four primary regions. With the exception of North and South America, the value of offset agreements as a percentage of total export contracts for aerospace contracts was roughly equal to the percentages for all defense export contracts. Less than half of offset agreements (by value) in North and South America were aerospace-related ($165 million in aerospace offset agreements vs. $359 in total offset agreements). Each of the other regions showed very substantial percentages of aerospace offsets in their overall offset activity.

Table 7-1: Export Sales and Offset Agreements for Aerospace-Related and All Export Contracts 1993-1999 (in $ millions)

	Aerospace Offset Activity			All Offset Activity		
	Export Contracts	Offset Agreements	Offset Agreements As % Of Export Contracts	Export Contracts	Offset Agreements	Offset Agreements As % Of Export Contracts
Asia	$13,822	$ 3,391	25%	$15,508	$ 3,904	25%
Europe	$15,628	$13,588	87%	$16,969	$14,899	88%
Middle East	$ 6,270	$ 2,738	44%	$ 7,385	$ 3,131	42%
N. and S. America	$ 141	$ 165	117%	$ 378	$ 359	95%
TOTAL	$35,860	$19,881	55%	$40,240	$22,290	55%

Source: U.S. Department of Commerce/BIS Offsets Database

Chart 7-1 and Chart 7-2 highlight the differences in aerospace offset percentages demanded by various foreign purchasing countries by region. Chart 7-1 shows the

breakdown of total aerospace export sales reported by region. Chart 7-2 shows the percent allocation of the values of aerospace offset agreements for each of the four regions. Europe accounted for 44 percent of all aerospace export contracts from 1993 to 1999, but accounted for 68 percent of the value of all new offset agreements, showing that Europe demands higher offset percentages for aerospace contracts than do other regions. Aerospace export contracts with Asia accounted for almost 39 percent of all aerospace export contracts reported, but offset agreements with Asia comprised only 17 percent of the value of all offset agreements.

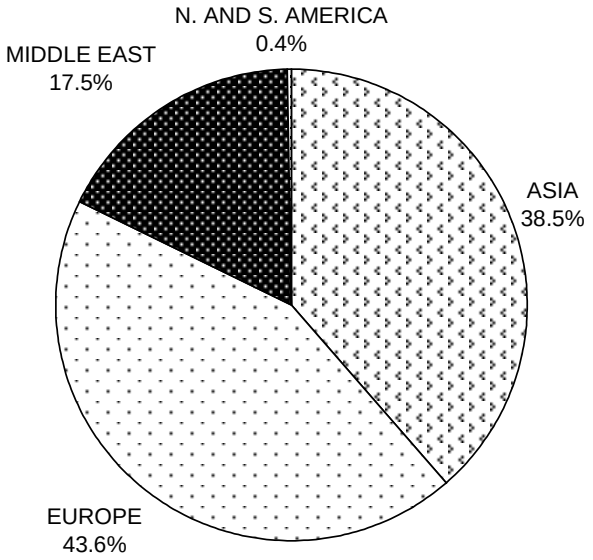

Chart 7-1: Aerospace Export Sales by Region, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

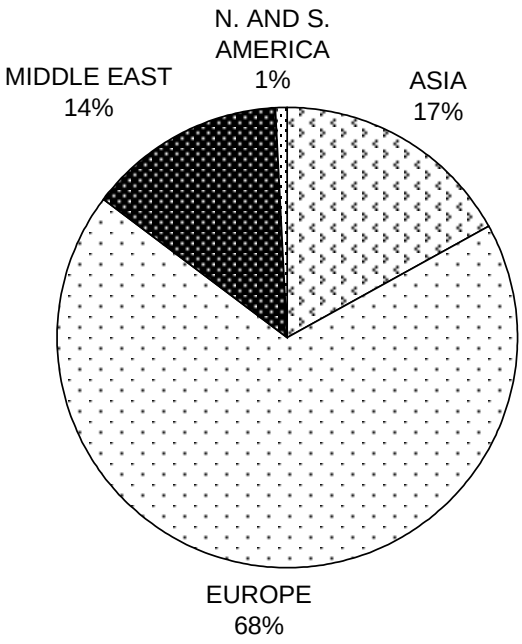

Chart 7-2: Aerospace Offset Agreements by Region, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

7.1 Aerospace Offset Transactions, 1993-1999

Of the $15.9 billion in offset transactions reported for 1993 to 1999, $9.5 billion (or almost 60 percent) were related to aerospace export contracts. This is not surprising given the high percentage of defense export contracts that involve aerospace items. In fact, the percentage of aerospace-related offset transactions may be even higher, but not all of the indirect offset transactions related to aerospace items can be identified. This is because industry definitions of indirect offset transactions usually are not sufficiently specific to clearly identify an offset transaction as being related to an aerospace or non-aerospace contract. From 1993 to 1999, there were 2,081 aerospace-related offset transactions; all but 64 were associated with exports of aerospace equipment.

Table 7-2 shows the relative breakdown of aerospace-related offset transactions by type and by category. Nearly $6 billion (63 percent) of the aerospace-related offset transactions were direct offsets. Subcontracts were the largest category of direct offset transactions (by value), with $4.3 billion in aerospace-related subcontracts from 1993 to

1999. Technology Transfer was the next largest category of direct offsets, with more than $642.5 million in aerospace-related offset transactions from 1993 to 1999. Only $3 billion (32 percent) of aerospace-related offset transactions were indirect offsets, although this number may be understated. The largest category of indirect offsets was Purchases, with over $2 billion in transactions from 1993 to 1999, accounting for 87 percent of total indirect offset transactions related to aerospace exports. Technology Transfer was the next largest category of indirect offset transactions at almost $530 million from 1993 to 1999.

Approximately $500 million – or five percent of the total value of all aerospace-related offset transactions – was for transactions that were not specified as either direct or indirect. The largest category of unspecified transactions was Purchases, with $300 million.

Table 7-2: Aerospace-Related Offset Transactions by Type and Category, 1993-1999 (in $ millions)

Transaction Category	Direct	Indirect	Unspecified
Co-Production	$ 396.4	$ 20.9	-
Credit Transfer	$ 4.0	$ 47.5	-
Investment	$ 3.9	-	$ 53.9
Licensed Production	$ 83.9	-	$ 24.0
Other	$ 139.8	$ 328.7	$ 0.4
Purchases	-	$2,030.9	$308.1
Subcontracts	$4,310.0	-	$ 11.1
Technology Transfer	$ 642.5	$ 529.6	$ 90.2
Training	$ 395.8	$ 65.5	$ 1.9
TOTAL	$5,976.3	$3,023.1	$489.6

Source: U.S. Department of Commerce/BIS Offsets Database

Table 7-3 compares the actual values and credit values of aerospace-related offset transactions to the values for all offset transactions for each of the four regions. Somewhat surprisingly, most regions – with the exception of North and South America – seem to attach less extra value (in percentage terms) to aerospace transactions than to all

transactions. There is barely one percentage point difference in Europe, and only 3 percentage points difference in the Middle East.

Table 7-3: Actual Value and Credit Value of Aerospace Offset Transactions and All Offset Transactions By Region, 1993-1999 (in $ millions)

	Aerospace Offset Transactions			All Offset Transactions		
	Actual Value	**Credit Value**	**Credit Value as % of Actual**	**Actual Value**	**Credit Value**	**Credit Value as % of Actual**
Asia	$ 1,792.9	$ 2,637.3	147%	$ 2,038	$ 3,144	154%
Europe	$ 11,057.5	$ 12,348.6	112%	$11,497	$13,019	113%
Middle East	$ 1,810.3	$ 2067.1	114%	$ 1,905	$ 2,225	117%
N. and S. America	$ 285.1	$ 317.9	112%	$ 428	$ 434	101%
TOTAL	$14, 945.8	$17,370.9	116%	$15,867	$18,822	119%

Source: U.S. Department of Commerce/BIS Offsets Database

8. Other U.S. Government Offset Activities

8.1 Interagency Offsets Steering Committee

The Department of Commerce, through its Bureau of Industry and Security, participates in a Department of Defense-led Interagency Offsets Steering Committee (the Committee), which includes representatives from the Departments of Defense, State, and Labor, and the Office of the U.S. Trade Representative. During 2001, the Committee met with representatives from U.S. prime contractors and an industry group representing small- and medium-sized U.S. defense firms in order to get a better perspective on the impact of offsets on U.S. firms. The input received by the Committee indicated that prime contractors generally support offsets, while smaller companies generally oppose them. The Committee also provided advice, offset data, and support to the Executive Director of the Presidential Commission on Offsets, which was a starting point for the Presidential Commission in its analysis of offsets.

In prior years, the Committee pursued consultations with foreign countries on both a multilateral and bilateral basis, in an attempt to reduce the impact of offsets in defense trade. The Committee took specific steps to address the issue with the United States' European allies, our largest defense trade partners who tend to demand the highest levels of offsets. The Committee met with representatives of the British, Canadian, Dutch, French, and Spanish governments, both to gain their perspective on offsets and to discuss the cost to governments of requiring and administering offset programs and the impact on small- and medium-sized businesses. The Committee did not engage in any bilateral or multilateral consultations during 2001.

8.2 Presidential Offsets Commission

In its *Fifth Annual Report to Congress on Offsets in Defense Trade*, the Department of Commerce reported on the advent of the National Commission of the Use of Offsets in Defense Trade (the Commission) created pursuant to the requirements of the Defense Offsets Disclosure Act of 1999.[20] A parallel President's Council on Offsets in Commercial Trade (the President's Council) was created by Executive Order No. 13,177 on December 4, 2000. The Commission's purpose, as set forth in the statute and in the executive order, is to review and report to the Congress and to the President on the extent and nature of offsets in international trade, and the impact of offsets on the U.S. economy and U.S. national security. The Commission is further required to develop proposals to reduce any detrimental effects of offsets that it finds. Eleven commissioners were selected from industry, labor, academia, and government; each served in parallel on the Commission and the President's Council.

The Commission and President's Council published an interim report on their activities in January, 2001. The report discusses potential findings and recommendations of the Commission, based on:

- the initial meeting convened by the Commission on December 4, 2000;
- the views of Commission members and staff expressed in the meeting and in subsequent communications;
- previous academic and governmental studies of offsets; and
- the results of the Commission staff's study of a representative sample of 50 defense offset transactions.

The interim report also discusses issues that warrant further Commission study in its future deliberations, including some items specifically cited in the statute and executive order.

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[20] Pub. L. 106-113, Div. B, S1000(a)(7)[Div. B, Title XII, Subtitle D (§§ 1241 to 1247)], Nov. 29, 1999, 113 Stat. 15.

The Commission made the following findings of fact and conclusions:

- The Commission reported that the principal types of defense offset transactions are the counter-purchase of goods from companies in the foreign country receiving the offset; subcontracts for items used in the defense system being exported granted to companies in the foreign country receiving the offset; and the direct transfer or licensing of technology to firms in the foreign country receiving the offset.

- The value of defense offset agreements relative to total defense exports has remained stable over time. However, anecdotal evidence suggests that total offset demands may have grown qualitatively, as the countries receiving offsets increasingly require specific results rather than "best efforts" from the U.S. exporters, and seek greater levels of technology transfer.

- From 1993 to 1998, 89 percent of defense offsets (by value) were associated with the export of aerospace goods or services by a U.S. firm, and most defense offsets were related to exports to developed nations.

- According to recent North Atlantic Treaty Organization (NATO) and General Accounting Office (GAO) studies cited by the Commission in its interim report, the principal reasons foreign countries seek offsets include: (i) the desire to bring jobs, technology, and production experience to their domestic firms; (ii) in order to create and/or maintain a domestic defense technology and industrial base; and (iii) to reduce dependence on foreign suppliers.

- In addition to these economic motives, an important political motivation for demanding offsets that is consistently articulated by European defense ministry officials is to "keep the Parliament contented which, in turn, requires that public opinion be willing to support the expenditure of public funds to buy weapons and

equipment from abroad . . . [O]ffsets are presented to show a longer term gain to the national economy, national defence and the Alliance …"

The Commission staff study of a representative sample of 50 defense offset transactions found that defense offsets supplanted a significant amount of employment that would have gone to U.S. firms if the export sales had occurred without offset agreements attached. The Commission staff determined that direct offset transactions from 1993 to 1998 resulted in the loss of $2.3 billion in work ($0.4 billion per year) – or 25,300 work-years (4200 per year) – that would have gone to U.S. firms and their workers if the export sales had been made without offsets.

With respect to some potential remedies to ameliorate the negative effects of offsets – such as a unilateral decision by U.S. firms not to enter into offset agreements – the Commission reported that the jobs lost from the reduced defense export sales that would occur in the absence of offsets likely would exceed the jobs gained from the reduction in defense offsets. This finding underscores the need for the Commission to develop creative policies to reduce jobs lost through offsets in ways that do not inadvertently cause additional job losses connected with a loss of defense exports.

The Commission study found that, in a number of cases, offsets transfer technology to foreign firms, which improves the international competitiveness of those foreign firms. The technology flow also appears to be virtually one-way – only 4 percent of offset transactions resulted in the transfer of technology from foreign firms back to the United States. Thirty-two percent of the offset transactions studied resulted in the transfer of U.S. technology to foreign firms, and 65 percent of the technologies transferred were "moderately" or "very" important in reducing the foreign firm's costs or increasing its quality. Twenty-nine percent of the U.S. technologies transferred were "moderately" or "very" important in enabling the foreign firm to compete in world markets.

The Commission also reported that the members intend to initiate further study on the following issues: (i) the effect of offsets on suppliers to U.S. exporters; (ii) the economic

effects of indirect offsets; and (iii) the extent and impact of offsets on industries other than the aerospace industry. However, because of the change in administration and the resignation of a large number of Commission members, it was decided that the interim report would serve as the final report of the Commission.

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9. Country Preferences, 1993-1999

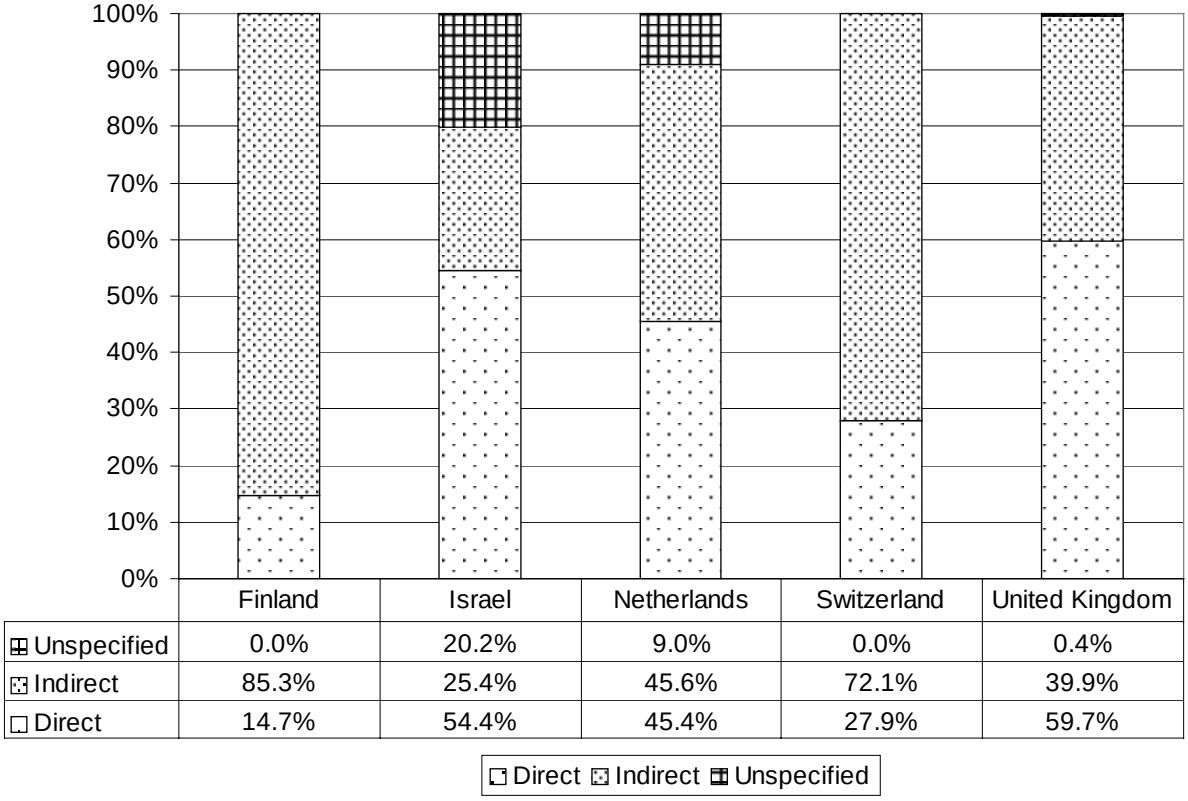
The offsets data submitted to the Department of Commerce was reviewed to determine whether particular countries prefer particular types and categories of offsets. The patterns for five countries – Finland, the Netherlands, Israel, Switzerland, and the United Kingdom – are illustrated in the charts that follow. These five countries were selected because they were the recipients of the most offset transactions (by value) between 1993 and 1999. The offset transactions received by these five countries accounted for 58 percent of the actual value, and 52 percent of the credit value of all offset transactions from 1993 to 1999. (Note: Some offset transactions included in these figures were associated with offset agreements entered into before the reporting period.)

Table 9-1: Offset Activity of Top Five Countries, 1993-1999 (in $ millions)

	New Offset Agreements			Offset Transactions		
Country	**Export Value**	**Agreements Value**	**Offset Percent**	**Actual Value**	**Credit Value**	**Credit Percent**
Finland	$19	$19	100.0%	$3,145	$3,372	107.2%
United Kingdom	$5,058	$4,983	98.5%	$2,819	$2,839	100.7%
Israel	$1,510	$809	53.6%	$1,206	$1,263	104.7%
Switzerland	$2,399	$1,868	77.9%	$1,068	$1,076	100.7%
Netherlands	$1,545	$1,920	124.3%	$1,017	$1,305	128.3%
TOTAL	$10,531	$9,600	91.2%	$9,255	$9,855	106.5%
% Of All Countries	26.2%	43.1%	-	58.3%	52.4%	-
All Countries	$40,240	$22,290	55.4%	$15,870	$18,820	118.6%

Source: U.S. Department of Commerce/BIS Offsets Database

Chart 9-1 shows total offset transactions for each country by type of transaction (direct vs. indirect). Finland and Switzerland had very high proportions of indirect offsets (85 percent and 72 percent, respectively) during the reporting period. A high percentage of indirect offsets is characteristic of countries where non-defense industries are a mainstay of the economy. The data on Israel and the United Kingdom showed a definite preference of these two countries for direct offsets, with 54 percent and 60 percent, respectively, of these countries' offset transactions accounted for by direct offsets. One



	Finland	Israel	Netherlands	Switzerland	United Kingdom
Unspecified	0.0%	20.2%	9.0%	0.0%	0.4%
Indirect	85.3%	25.4%	45.6%	72.1%	39.9%
Direct	14.7%	54.4%	45.4%	27.9%	59.7%

Chart 9-1: Offset Transactions by Type for Five Countries
(Source: U.S. Department of Commerce/BIS Offsets Database)

reason for favoring direct offsets would be to support and promote a stronger national defense industry.

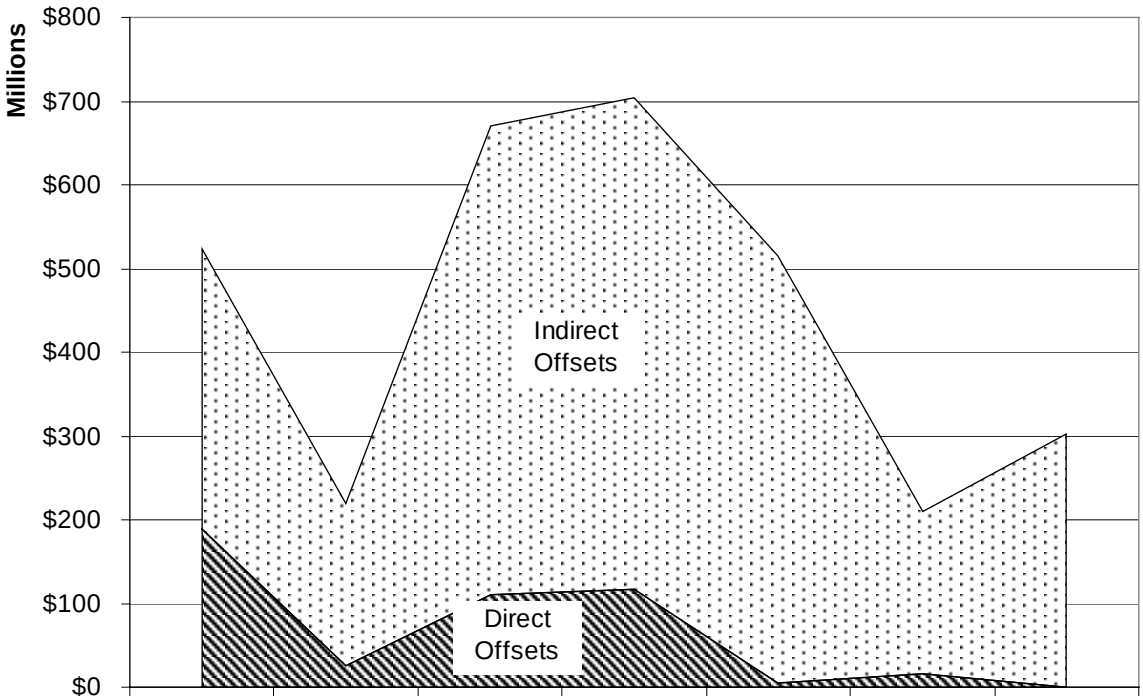
9.1 Finland

Minimum Offset Required: 100 percent plus marketing consulting

Finland's regulations on "industrial participation" (i.e., offsets) specify two main objectives for the practice: (i) to give the Finnish defense industry a full opportunity to participate in the manufacturing of parts, the assembly of the purchased equipment, and the use of supplied technology; and (ii) to attempt to benefit the internationalization and exports of small- and medium-sized industry, developing international technological cooperation between Finnish and foreign firms, and furthering new exports of high-technology products.[21]

The policy statement summarized above, however, seems to contradict Finland's actual experience. As shown in Chart 9-2, the data show that Finland had a definite preference for indirect offsets between 1993 and 1999. Indirect offsets – and offset transactions overall – peaked in 1996. A possible explanation for the preference for indirect offsets is the small size of the Finnish defense sector. A small defense sector can only benefit a limited amount from direct offsets. The surge of indirect offsets in the mid-1990s coincided with deliveries of U.S. defense items that were sold to Finland in the early 1990s. The initial high level of direct offsets in 1993 involved pilot training, aircraft maintenance, and technology transfers.

[21] See Finnish Ministry of Trade & Industry Website at http://www.vn.fi/ktm/eng/2/2_6.htm (9/10/01)



	1993	1994	1995	1996	1997	1998	1999
Indirect Offsets	$334,280,000	$194,281,000	$559,404,000	$587,130,000	$510,349,290	$193,415,176	$302,719,438
Direct Offsets	$189,214,000	$25,169,000	$111,138,000	$116,658,000	$4,929,094	$15,904,160	$265,170

Chart 9-2: Offset Transactions by Type for Finland, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

Chart 9-3 shows the categories of offsets related to defense sales to Finland. Purchases made up nearly one-quarter of the value of all offset transactions with Finland, and all purchases were indirect offsets. The largest included required purchases of industrial machinery and equipment, chemicals, and ships. Technology Transfers accounted for 20 percent of the value of all offset transactions. These transactions were virtually all indirect, although there were a few direct offset transactions that were among the top ten in value for all technology transfers to Finland. Indirect technology transfers involved materials, manufacturing processes, shipbuilding, and software/process development. Offset transactions that were categorized as "Other" made up another 20 percent of the value of all transactions, and all such transactions were entirely indirect. Transactions identified as "Other" included marketing and financial assistance, as well as management consulting. Financial credit transfers (entirely indirect offsets) accounted for 20 percent of the total value of all offset transactions.

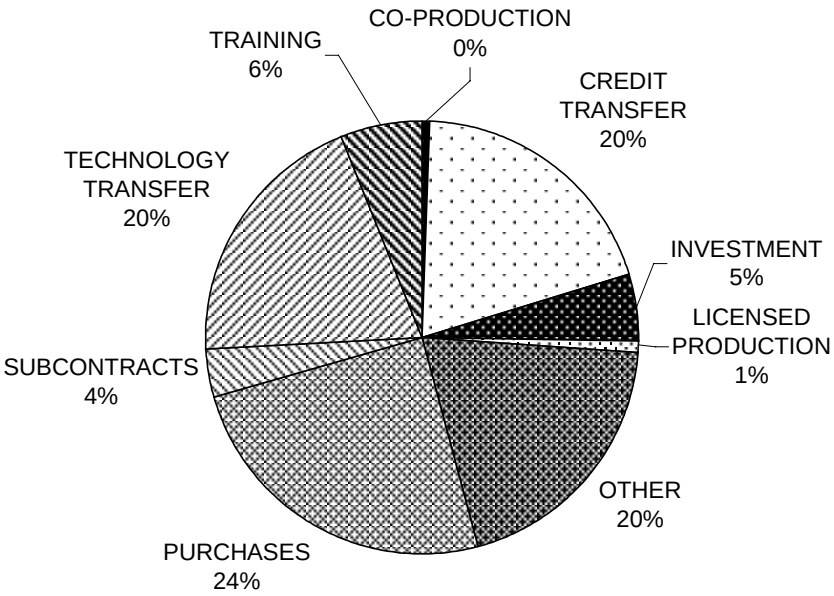


Chart 9-3: Offset Transactions with Finland by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

9.2 The Netherlands

Minimum Offset Required: 100 percent

The policy of the Government of the Netherlands is to use offsets for the benefit of the entire economy and to bolster the technological strength of the economy.

> The main objective of the offset policy of the Netherlands' Government is to contribute to the industrial base of the Netherlands through technological advancement, thereby broadening its technological capabilities, improving its level of quality, expanding its markets and enhancing employment within the Netherlands. In stimulating activities of Netherlands trade and industry and research and development institutes, offset can bear both a civil and a military character… Whenever the Netherlands Ministry of Defence procures defence systems and equipment abroad, the general objective is to involve Netherlands industry in production or development.[22]

From Chart 9-4, it is difficult to discern any real trends in terms of Dutch demands for particular types of offsets. Direct offsets accounted for the highest percentage of total offset transactions (by value) in 1994, 1995 and 1998, while indirect offsets led during the other years in the period. Total offset transactions were at their highest between 1997 and 1998.

Chart 9-5 shows the categories of offset transactions received by the Netherlands between 1993 and 1999. Subcontracts was the most popular category of offsets received, accounting for 34 percent of all offset transactions by value, all of which were direct offsets. Purchases (primarily indirect offsets) accounted for one-quarter of all offset transactions (by value). Purchases included industrial and aircraft parts and services. Fifteen percent of offset transactions with the Netherlands are categorized as "Other." Transactions in the "Other" category varied widely and included software licenses, leases, and internships.

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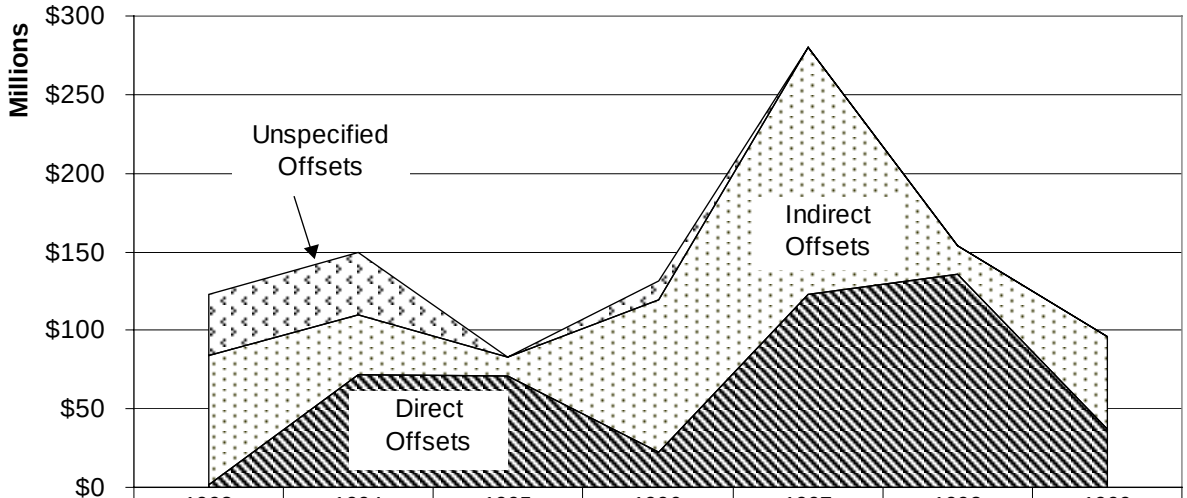
[22] See "Industrial Participation and Offset in Netherlands" at www.minez.nl/cmp/pdf/whowho.pdf (02/2003)



	1993	1994	1995	1996	1997	1998	1999
Unspecified	$39,100,000	$40,260,000	$0	$12,100,000	$0	$0	$0
Indirect	$81,816,173	$37,974,959	$12,306,697	$96,611,513	$157,620,739	$18,145,285	$59,413,562
Direct	$1,651,000	$71,579,699	$70,999,941	$22,412,231	$122,645,550	$135,676,392	$36,893,708

Chart 9-4: Offset Transactions by Type for the Netherlands, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

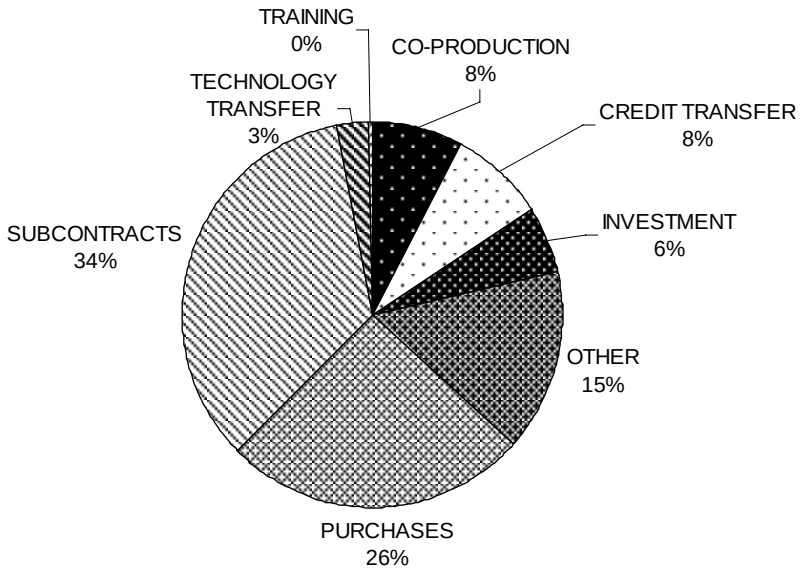


Chart 9-5: Offset Transactions with the Netherlands by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

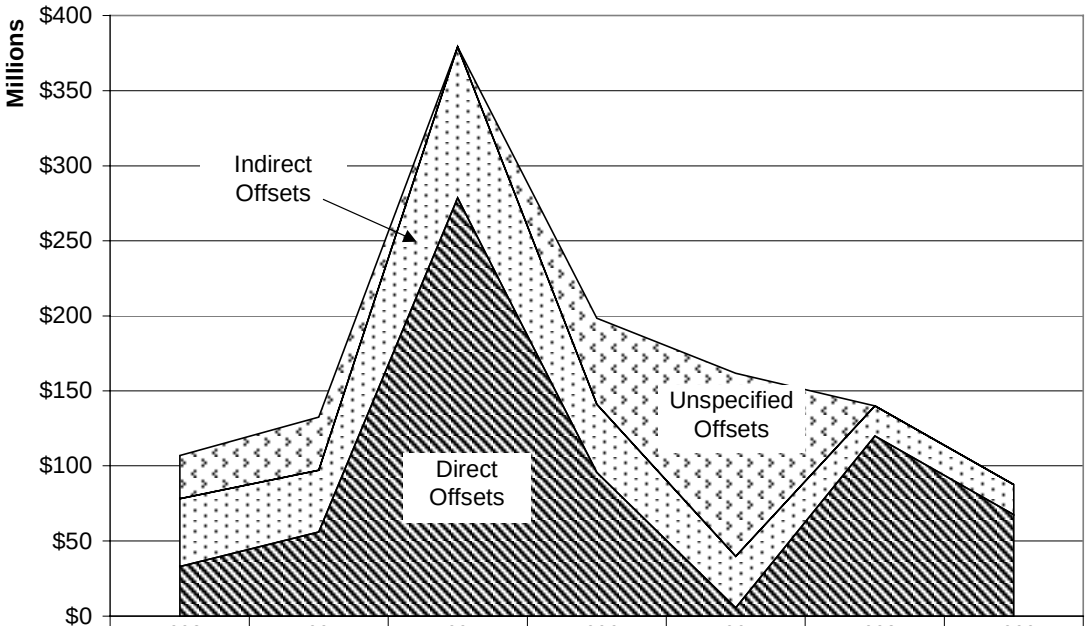
9.3 Israel

Minimum Offsets Required: 35 percent

The United States maintains an unusual defense trade relationship with Israel. Israel is one of a group of countries that buys a significant portion of its weapon systems from the United States through the Foreign Military Sales (FMS) program. The FMS program is a government-to-government mechanism for selling U.S. defense systems, whereby the U.S. Government acts on behalf of the U.S. defense contractor. Israel also receives grant funds from the U.S. Government that are used for the bulk of its defense spending for defense articles. Occasionally, the purchasing government in an FMS requires offsets. The U.S. Government does not involve itself in offset negotiations, so the purchasing country negotiates directly with the U.S. manufacturer on the offsets issue.

As shown in Chart 9-6, total offset transactions with Israel peaked in 1995, at more than $350 million. The surge in offset transactions in 1995 was linked to a multi-billion dollar purchase by Israel of U.S. defense equipment. Direct offsets dominated indirect and unspecified offsets every year except 1993 and 1997. In 1993, indirect offsets were the greatest in value; in 1997, unspecified offsets were the highest.

Chart 9-7 shows the breakdown of all offset transactions with Israel from 1993 to 1999 by category. Between 1993 and 1999, subcontracts dominated Israeli offset transactions, accounting for 52 percent of all offset transactions (by value) with Israel. Subcontracts from 1993 were all direct offsets. The next largest category of offset transaction was purchases, accounting for 35 percent of the total value of offset transactions for the seven-year period. These purchases were all either indirect offset transactions or unspecified. Many of these purchases were of parts and components needed for the production of aircraft, although some purchases included data systems, chemicals, publications, and electronic parts and components.



	1993	1994	1995	1996	1997	1998	1999
Unspecified	$28,600,000	$35,430,000	$0	$57,430,000	$122,129,000	$0	$0
Indirect	$45,336,000	$41,016,000	$100,527,400	$45,361,585	$34,124,313	$20,042,516	$19,992,622
Direct	$32,966,113	$56,123,000	$278,623,000	$95,569,336	$5,597,422	$119,999,800	$67,487,000

Chart 9-6: Offset Transactions by Type for Israel, 1993-1999

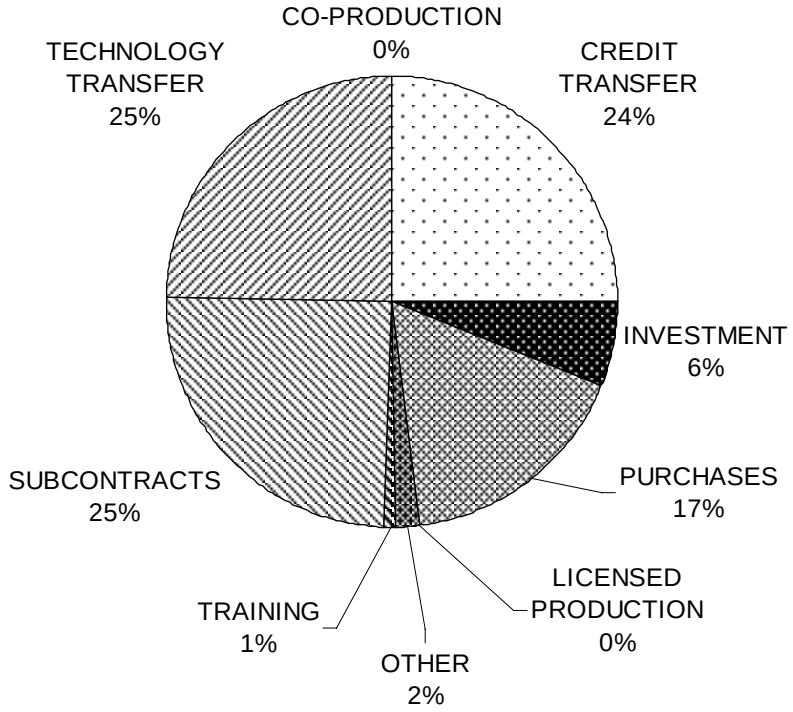


Chart 9-7: Offset Transactions with Israel by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

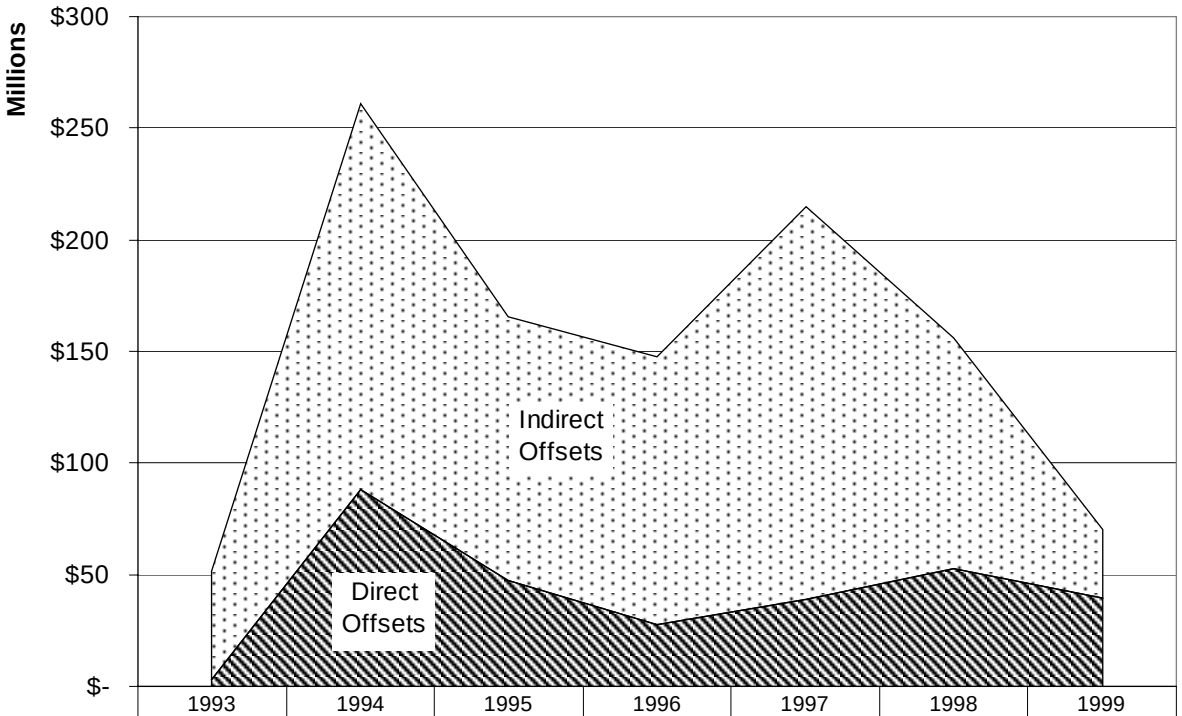
9.4 Switzerland

Minimum Offsets Required: 100 percent

The offset policy of Switzerland states that, in cases where it is impossible to purchase weapon systems from Swiss firms, the government will seek "industry participation" (i.e., offset) agreements. Both direct and indirect forms are considered, although opportunities for direct offsets are examined first. The policy acknowledges the increased costs and potential time constraints associated with direct offsets. Indirect offsets are used to open new markets for Swiss goods.

As indicated in

Chart 9-8, total offset transactions with Switzerland reached their highest point in 1994



	1993	1994	1995	1996	1997	1998	1999
Indirect	$48,725,000	$172,958,000	$118,305,000	$120,193,152	$175,864,317	$103,753,693	$30,115,061
Direct	$3,054,000	$88,117,000	$47,469,000	$27,692,000	$38,999,760	$52,511,446	$39,872,057

and then surged again in 1997. Despite stated preferences for direct offsets, the data show that Switzerland strongly favored indirect offsets in each year from 1993 to

Chart 9-8: Offset Transactions by Type for Switzerland, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

1998. In 1999, for the first time, Switzerland received more direct offsets than indirect offsets.

Chart 9-9 shows the breakdown of offsets received by Switzerland by category. The data reflects a strong Swiss preference for Purchases, which accounted for 62 percent of the value of all offset transactions received by Switzerland. The purchase transactions were entirely indirect and included required purchases of machinery, machined parts, and chemicals, among other items. Co-production was the second largest category of offsets, accounting for 11 percent of the total value of all offset transactions received by Switzerland. All Co-production arrangements were direct offsets. Technology Transfer, accounting for 10 percent of all offset transactions, was third. Sixty-nine percent of technology transfers (by value) were direct offsets, and the remainder were indirect offsets.

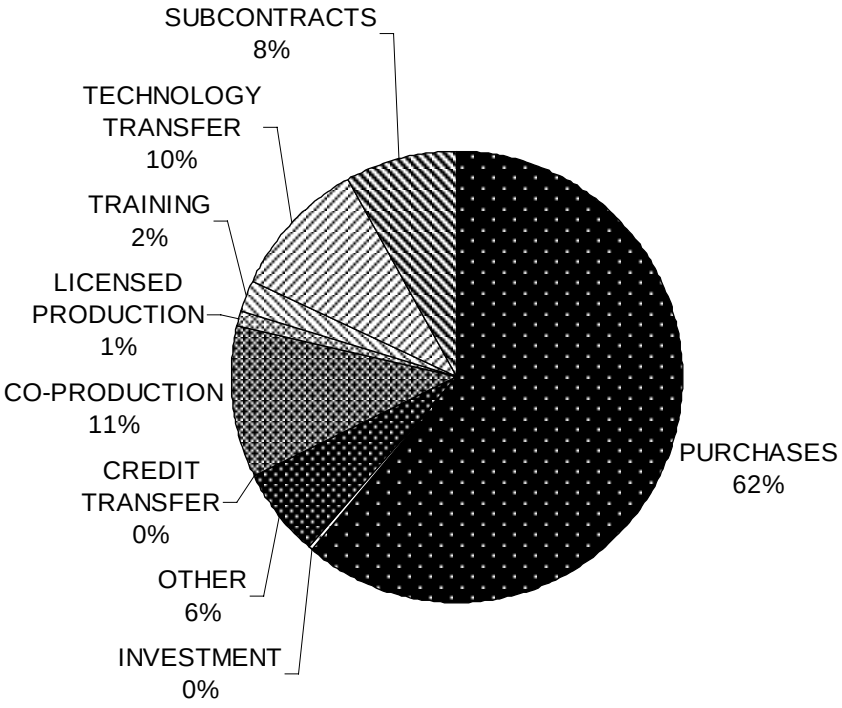


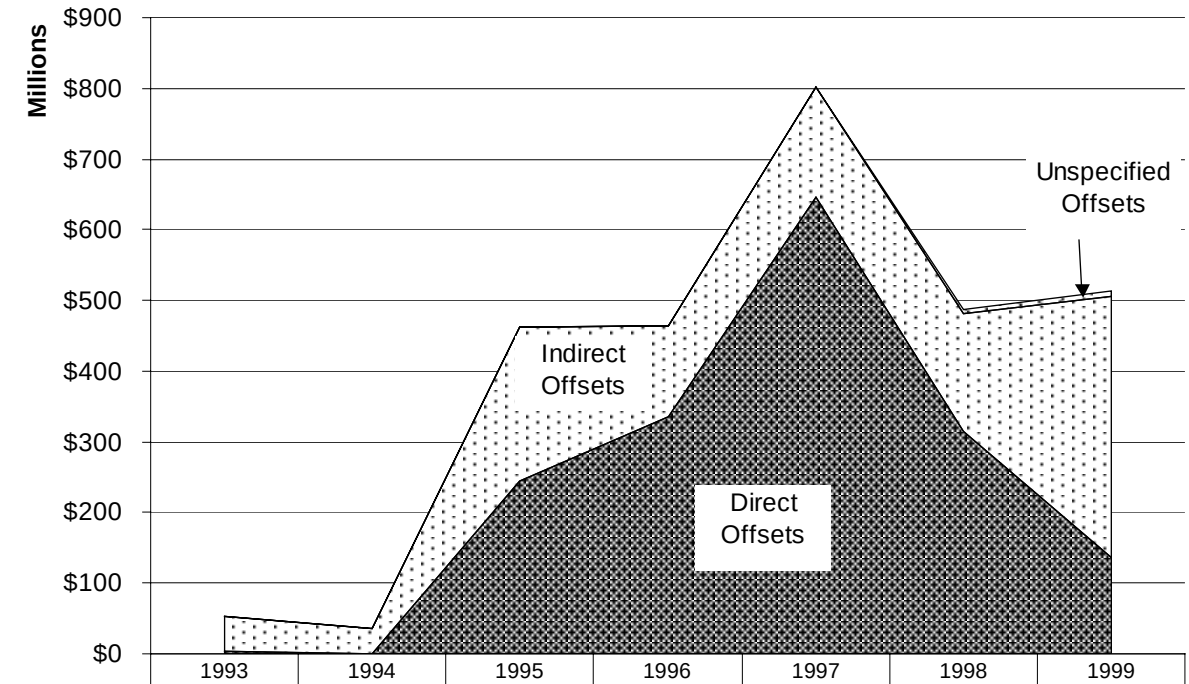
Chart 9-9: Offset Transactions with Switzerland by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

9.5 The United Kingdom

Minimum Offset Required: 100 percent

The United Kingdom generally has sought direct offset transactions rather than indirect offset transactions in order to improve its own defense industry and enhance its ability to compete with the U.S. defense industry in the international market.

Chart 9-10 shows data for the types of offsets received by the United Kingdom between 1993 and 1999. From 1995 to 1998, the United Kingdom received more direct offset transactions than indirect offset transactions (by measured value).



	1993	1994	1995	1996	1997	1998	1999
Unspecified	$0	$0	$0	$0	$0	$5,228,102	$7,360,020
Indirect	$48,336,781	$36,202,264	$217,576,900	$128,585,772	$155,825,807	$167,199,123	$370,596,761
Direct	$4,373,800	$0	$244,656,889	$335,568,054	$646,196,289	$314,918,565	$136,021,566

Chart 9-10: Offset Transactions by Type for the United Kingdom, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

Chart 9-11 shows the breakdown of offset transactions with the United Kingdom by category of offset. The large percentage of subcontracts is in line with the United Kingdom's stated preference for direct offsets.

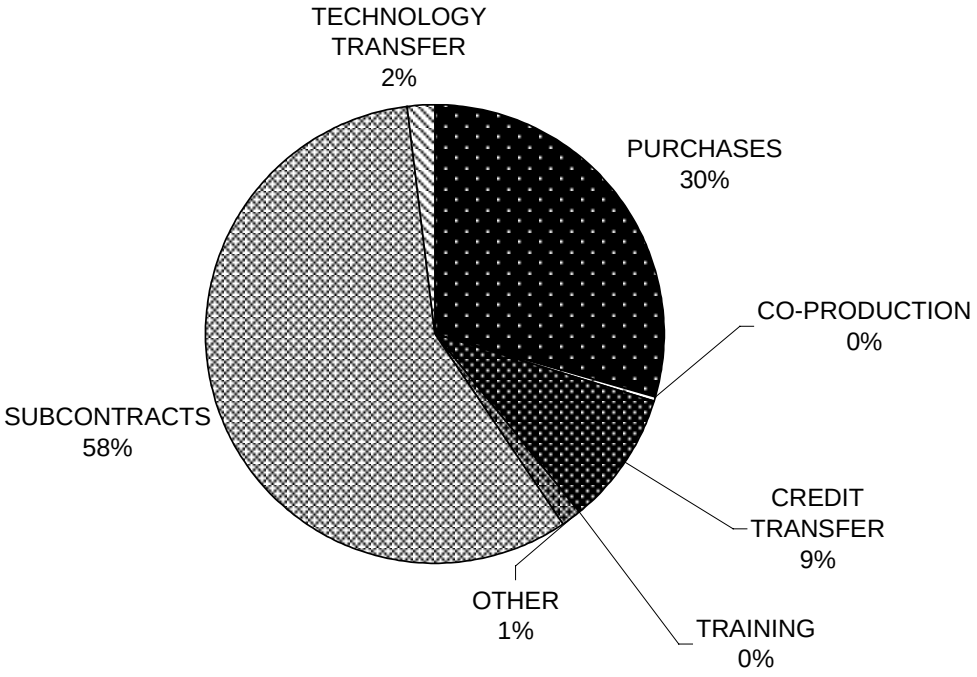


Chart 9-11: Offset Transactions with the United Kingdom by Category, 1993-1999
(Source: U.S. Department of Commerce/BIS Offsets Database)

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Conclusions

Since the Department of Commerce's first offset report in 1996, there have been many changes in the world defense market. Governments worldwide have decreased defense spending, which, in turn, has increased the international competition among those firms remaining in the defense sector. Because of intense competition for a shrinking number of export sales, offsets have become more important in determining the outcome of weapon sales competitions. Europe – the largest market for U.S. defense exports – leads the world in the level of offsets required, with average offset levels approaching and sometimes exceeding 100 percent of the value of the export contract. From the U.S. perspective, Europe is clearly the central focus of this trend, dominating both offset agreements and offset transactions with U.S. companies. Because 90 percent of offset agreements are aerospace-related, concerns about effects of offsets on U.S. prime contractors and the U.S. aerospace infrastructure have increased. Most recently, the press and prime contractors have reported examples of European governments offering extra incentives and guarantees on top of their firms' offset packages – something that the U.S. government has not done and will not do, under the current offset policy. This raises the issue of defense offsets to an entirely new and anti-competitive level.

Offsets in defense trade have a mixed impact on employment in the United States. Based on the data received, BIS calculates that export sales facilitated by offsets maintained 38,400 work-years annually for the period 1993 through 1999, while the offset transactions displaced approximately 9,500 work-years annually.

In the coming year, using authorities granted under the Defense Production Act of 1950, as amended, the Department of Commerce is committed to working with U.S. industry, the Department of Defense, and foreign governments to analyze the impact of offsets on all parties and to seek ways to mitigate their effect on competition. Our goal is to support the U.S. defense industry and to ensure a robust and vibrant industrial base.