

Offsets in Defense Trade

Twenty-First Study

*Conducted Pursuant to Section 723 of the Defense
Production Act of 1950, as Amended*



**U.S. Department of Commerce
Bureau of Industry and Security**

DECEMBER 2016

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Executive Summary

This is the twenty-first annual report to Congress on the impact of offsets in defense trade prepared by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) pursuant to Section 723 of the Defense Production Act (DPA) of 1950, as amended.¹ Offsets in defense trade encompass a range of industrial compensation arrangements required by foreign governments as a condition of the purchase of defense articles and services from a non-domestic source.

BIS collects data annually from U.S. firms involved in defense exports with associated offset agreements in order to assess the impact of offsets in defense trade.² In 2015, U.S. defense contractors reported entering into 38 new offset agreements with 15 countries valued at \$3.1 billion. The value of these agreements equaled 38.89 percent of the \$8 billion in reported contracts for sales to foreign entities of defense articles and services with associated offset agreements. In 2015, U.S. firms also reported 651 offset transactions conducted to fulfill prior offset agreement obligations with 26 countries at an actual value of \$5.0 billion, and an offset credit value of \$5.3 billion.

This report notes that exports of defense articles and services can lower overhead costs for the Department of Defense; help sustain production facilities, workforce expertise, and the supplier base to support current and future U.S. defense requirements; promote interoperability of defense systems, subsystems and components between the United States and friends and allies; and contribute positively to U.S. international account balances. However, offset agreements and associated offset transactions can negate some of the potential economic and industrial base benefits accrued through defense exports if the offset activity displaces work that would otherwise have been conducted in the United States.

Items offered as part of an offset transaction may require an export license from the relevant U.S. Government agency. For items that require an export license, such as items controlled for Missile Technology reasons, exporters are advised to consult with the Departments of Commerce, Defense, and State to obtain export control policy guidance prior to offering such items as part of an offset transaction.

¹ Codified at 50 U.S.C. § 4568 (2015).

² Pursuant to 15 CFR Part 701 (2015).

1 Background

Offsets in defense trade encompass a range of industrial and commercial benefits provided to foreign governments as an inducement or condition to purchase military goods or services, including benefits such as co-production, licensed production, subcontracting, technology transfer, purchasing, and credit assistance. This mandatory compensation can be directly related to the purchased defense article or service or it can involve activities or goods unrelated to the defense sale.

In 1984, the U.S. Congress amended the Defense Production Act (DPA) to require the President to submit an annual report to Congress on the impact of offsets on the U.S. defense industrial base.³ The Office of Management and Budget was the first agency appointed as the interagency coordinator for preparing the report for Congress. In 1992, Congress amended the DPA and directed that the Secretary of Commerce function as the President's Executive Agent in preparing the annual report to Congress.⁴ Section 723 of the DPA authorizes the Secretary of Commerce to develop and administer the regulations necessary to collect offset data from U.S. firms.⁵ The Secretary of Commerce has delegated this authority to the Bureau of Industry and Security (BIS). BIS published its offset reporting regulation in 1994.⁶ BIS amended its offset regulation in 2009 and in 2016.⁷

The U.S. Government policy on offsets in defense trade states that the government considers offsets to be “economically inefficient and trade distorting,” and prohibits any agency of the U.S. Government from encouraging, entering directly into, or committing U.S. firms to any offset arrangement in connection with the sale of defense articles or services to foreign governments.⁸ U.S. defense contractors generally see offsets as a reality of the marketplace for companies competing for international defense sales. Several U.S. defense contractors have informed BIS that offsets are usually necessary in order to make defense sales – sales which can help support the U.S. industrial base.

³ See Pub. L. 98-265, April 17, 1984, 98 Stat. 149.

⁴ See Pub. L. 102-558, Oct. 28, 1992, 106 Stat. 4198; see also Part IV of Exec. Order No. 12919, 59 Fed. Reg. 29,525 (June 3, 1994) and Part VII of Exec. Order 13603, Fed. Reg. 16,651 (March 22, 2012).

⁵ Previously, the offset report was submitted pursuant to Sec. 309 of the Defense Production Act of 1950. However, as a result of the Defense Production Act Reauthorization of 2009, Pub. L. 111-67, which rewrote Title III of the Act and introduced a new Sec. 723 on offsets, the report is now submitted pursuant to Sec. 723. Section 723 is largely the same in content as the prior Sec. 309.

⁶ See 59 Fed. Reg. 61,796 (December 2, 1994) codified at 15 C.F.R. § 701.

⁷ See 74 Fed. Reg. 68,136 (December 23, 2009) codified at 15 C.F.R. § 701 and 81 Fed. Reg. 40, 10472 (March 1, 2016).

⁸ Defense Production Act Amendments of 1992 (Pub. L. 102-558, Title I, Part C, §123).

This is the twenty-first report to Congress on offsets in defense trade that BIS has prepared. This report reviews offset data for the 23-year period from 1993-2015.⁹ BIS structured this report similarly to reports published in 2008 through 2015; the chapters correspond with the sequence of events for defense sales involving offsets. In preparing this report, BIS has incorporated data from other U.S. Government sources, including the Department of Defense (DOD), the Bureau of the Census (Census), and the Bureau of Economic Analysis (BEA).

On March 1, 2016, BIS published an amendment to its offset regulation in the *Federal Register*. The amendment clarifies that companies are required to report offset activity not only for items controlled under the International Traffic in Arms Regulations (ITAR), but also for items controlled under the “600 series” of the EAR. The offset regulation had defined defense exports as being items subject to the ITAR, however, subsequent to the 2009 amendment to the offset regulation, the Export Control Reform initiative moved certain items formerly controlled under the ITAR to the EAR under the “600 series” and the amendment made it clear that companies are required to report offsets associated with the sale of these “600 series” items also.¹⁰ BIS has required reporting of offset agreements in connection with sales of items subject to the ITAR since the early 1990s.¹¹ Those reporting requirements will continue, unchanged by this rule.¹²

On April 8, 2016, BIS published a notice in the *Federal Register* to remind the public that U.S. firms are required to report annually on contracts for the sale to foreign governments or foreign firms of defense articles or defense services that are subject to offset agreements exceeding \$5,000,000 in value, and offset transactions completed in performance of existing offset commitments for which offset credit of \$250,000 or more has been claimed by the foreign representative.¹³ Twenty-two firms reported offset agreement and transaction data to BIS for calendar year 2015. The data elements collected each year from industry are listed in Section 701.4 of the BIS offset reporting regulation and were referenced in the *Federal Register* notice.

BIS prepared this report in consultation with the Departments of Defense, State and Labor, and the Office of the United States Trade Representative.

⁹ The initial offsets report, issued in 1996, covered the time period from 1993 to 1994; each subsequent offset report added an additional year to the reporting period, with the exception of the eighth report, which added two years.

¹⁰ See 81 *Fed. Reg.* 40, 10472 (March 1, 2016).

¹¹ See 81 *Fed. Reg.* 40, 10472 (March 1, 2016).

¹² See 81 *Fed. Reg.* 40, 10472 (March 1, 2016).

¹³ See 81 *Fed. Reg.* 40, 20618 (April 8, 2016).

2 Defense Export Sales with Offset Agreements

In 2015, 13 U.S. firms reported entering into 38 contracts that had related offset agreements for the sale of defense items and services. These contracts, signed with 15 countries, were valued at \$8.1 billion. The offset agreements were valued at \$3.1 billion which equaled 38.89 percent of the value of the signed defense export sales contracts, which is well below the historic average of approximately 61 percent and is the second lowest annual average offset percentage since BIS began collecting data in 1993. During 2015, reported offset agreements ranged from a low of 9.9 percent of the defense export sales contract value to a high of 100 percent.

In 2015, nearly 94.74 percent of the signed offset agreements reported by U.S. industry included penalties for non-performance of the offset obligation. Those penalties included liquidated damages, increases in the obligation amount or offset requirement, added fees based on unfilled offset commitments, or bank credit guarantees.

Table 2-1: Summary of Defense Export Sale Contract Values with Related Offset Agreements, 1993-2015

Year	Contract Value (\$ millions)	Offset Agreement Value (\$ millions)	Percent of Offset Agreement to Contract Value	U.S. Firms (Number)	Agreements (Number)	Countries (Number)/Multi- Country Arrangements
1993	\$13,935	\$4,784	34.33%	17	28	16
1994	\$4,792	\$2,049	42.75%	18	49	20
1995	\$7,632	\$6,204	81.30%	21	48	18
1996	\$3,120	\$2,432	77.94%	16	53	19
1997	\$5,925	\$3,826	64.56%	15	60	20
1998	\$3,079	\$1,786	57.99%	14	42	17
1999	\$5,657	\$3,457	61.11%	11	45	11
2000	\$6,576	\$5,705	86.75%	10	43	16
2001	\$7,116	\$5,550	77.99%	12	35	13
2002	\$7,406	\$6,095	82.29%	12	41	17
2003	\$7,293	\$9,110	124.92%	11	32	13
2004	\$4,928	\$4,330	87.87%	14	40	18
2005	\$2,260	\$1,464	64.79%	8	25	18
2006	\$5,265	\$3,655	69.42%	15	48	21
2007	\$6,736	\$5,438	80.73%	11	44	19
2008	\$6,435	\$3,846	59.77%	17	55	17
2009	\$11,033	\$6,841	62.01%	15	64	21
2010	\$4,012	\$2,444	60.91%	15	34	14
2011	\$10,882	\$5,595	51.41%	9	63	27
2012	\$25,661	\$10,387	40.48%	12	49	17
2013	\$9,959	\$5,166	51.87%	17	69	19
2014	\$12,936	\$7,602	58.76%	14	45	15
2015	\$8,059	\$3,135	38.89%	13	38	15
Total or Average	\$180,696	\$110,898	61.37%	55	1,050	50

Source: BIS Offset Database

Note: Due to rounding, totals may not add up exactly. Figures for certain previous years have been revised. The values shown have not been adjusted for inflation.

During 1993-2015, 55 U.S. firms reported entering into 1,050 offset-related defense export sales contracts worth \$180.7 billion with 50 countries and three multi-country arrangements. The associated offset agreements were valued at \$110.9 billion.

3 Offset Transactions

In 2015, 19 U.S. firms reported concluding 651 offset transactions with 26 countries to fulfill offset agreement obligations. The offset transactions reported by U.S. firms had an actual value of \$5.0 billion in 2015 and a credit value of \$5.3 billion. In 2015, U.S. industry reported that 43 offset transactions (6.61 percent of all transactions completed during the 12 month period) had a multiplier greater than one applied and three transactions (0.46 percent of all transactions completed during the 12 month period) had a multiplier of less than one applied.¹⁴

Table 3-1: Summary of Offset Transactions¹⁵

Year	Actual Offset Transaction Value (\$ millions)	Credit Offset Transaction Value (\$ millions)	U.S. Firms (Number)	Transactions (Number)	Countries (Number)/Multi-Country Arrangements
1993	\$1,898	\$2,214	22	444	27
1994	\$1,935	\$2,206	21	566	26
1995	\$2,890	\$3,593	21	711	25
1996	\$2,876	\$3,098	22	634	26
1997	\$2,721	\$3,272	19	578	26
1998	\$2,312	\$2,623	20	582	29
1999	\$2,060	\$2,808	13	513	25
2000	\$2,190	\$2,749	16	626	24
2001	\$2,543	\$3,201	16	616	25
2002	\$2,620	\$3,148	18	734	26
2003	\$3,563	\$4,008	17	689	31
2004	\$4,935	\$5,366	16	710	33
2005	\$4,722	\$5,439	13	624	30
2006	\$4,706	\$4,906	16	661	28
2007	\$3,805	\$4,742	19	633	28
2008	\$3,291	\$4,768	22	671	30
2009	\$3,495	\$4,129	23	702	28
2010	\$3,608	\$4,477	25	707	28
2011	\$3,880	\$5,062	21	740	31
2012	\$3,438	\$3,843	22	690	30
2013	\$3,189	\$3,562	21	546	32
2014	\$3,864	\$4,289	17	672	29
2015	\$5,049	\$5,323	19	651	26
Total	\$75,588	\$88,827	62	14,700	47

Source: BIS Offset Database
Note: Due to rounding, totals may not add up exactly. Figures for certain previous years have been revised. The values shown have not been adjusted for inflation.

¹⁴ A multiplier is a factor applied to the actual value of certain offset transactions to calculate the credit value earned. Foreign purchasers use multipliers to provide firms with incentives to offer offsets that benefit targeted areas of economic growth. When a multiplier greater than one is applied to the value of a service or product offered as an offset, the defense firm receives a higher credit value toward fulfillment of an offset obligation than would be the case without application of a multiplier. Conversely, foreign purchasers apply multipliers less than one to discourage certain types of transactions.

¹⁵ 2000-2003 data revised.

U.S. firms are required to classify offset transactions by type (direct or indirect) and report to BIS offset transactions by category specifically describing the nature of the transaction. In the offset reporting regulation, BIS has categorized offset transactions as one of the following: co-production, technology transfer, subcontracting, credit assistance, training, licensed production, investment, purchases, and other.¹⁶ See Annex E for definitions of each offset transaction category.

In 2015, direct offsets (transactions directly related to the defense export sale with an associated offset agreement) accounted for 41.84 percent of the actual value of reported offset transactions. Indirect offsets (transactions not directly related to the defense export sale with an associated offset agreement) accounted for 52.44 percent of the actual value of reported offset transactions. During 1993-2015, direct offsets accounted for 39.50 percent of the actual value of the reported offset transactions, with indirect offsets accounting for 58.63 percent.¹⁷

The top three offset transaction categories reported by industry for 2015 were purchases, subcontracting, and “other”. These three categories represented 85.56 percent of all offset transactions reported for 2015 based on quantity, 78.01 percent of the transactions based on actual value, and 77.14 percent of the transactions based on credit value.

Based on the total number of transactions reported in 2015 that included a multiplier greater than one, the top four offset transaction categories were technology transfer, “other”, subcontracting, and purchases. Technology and “other” transfer accounted for 23.26 percent of these transactions, subcontracting accounted for 20.93 percent, and purchases accounted for 18.60 percent.

The top three offset transaction categories reported by industry for the 23-year reporting period (1993-2015) were: purchases, subcontracting, and technology transfer on the basis of quantity, actual value, and credit value. These three categories represented 81.08 percent of all transactions based on quantity, 76.50 percent of all transactions based on actual value, and 72.52 percent based on credit value. Purchasing alone accounted for 46.65 percent of all transactions based on quantity, 38.78 percent based on actual value, and 35.07 percent based on credit value. From 1993-2015, based on quantity, the top three offset transaction categories that included

¹⁶ With respect to the export of any item or technology from the United States, U.S. export control laws apply. Whether or not an export is associated with an offset agreement, U.S. exporters must comply with U.S. export control requirements, which include, among other things, licensing requirements. License applications are carefully reviewed by the appropriate U.S. Government agencies to ensure that the proposed export of an item (commodity, software or technology) or service is consistent with U.S. laws, regulations, and foreign policy and national security considerations. Where no license is required, U.S. exporters must comply with end-use and end-user restrictions.

¹⁷ The total does not equal 100 percent because a small number of reported offset transactions are not specified as direct or indirect.

multipliers greater than one were purchases, technology transfer, and subcontracting, respectively.

Annex C presents a summary of reported offset transactions by type, category, value, and with multipliers on an annual basis during the 23-year reporting period (1993-2015).

4 **Impact of Offsets on the U.S. Industrial Base**

Defense export sales can be an important component of U.S. defense contractors' revenues and further U.S. foreign policy and economic interests. Exports of major defense systems can also lower overhead and unit costs for the Department of Defense (DOD), and help sustain production facilities, workforce expertise, and the supplier base to support current and future U.S. defense requirements. Exports also promote interoperability of defense systems between the United States and friends and allies, and contribute positively to U.S. international trade account balances. However, offset agreements and associated offset transactions may lessen some of the potential economic and industrial base benefits accrued through defense exports if the offset activity associated with defense exports displaces work that otherwise would have been conducted in the United States and/or if competitors are established in foreign countries.¹⁸

Studies and discussions between industry and U.S. Government officials indicate that, at times, U.S. prime contractors develop long-term supplier relationships with foreign subcontractors based on short-term offset requirements. These new relationships, combined with the mandatory offset requirements related to offset agreements, may limit future business opportunities for U.S. subcontractors and suppliers, and may have negative consequences for the domestic industrial base. Other kinds of offsets, such as technology transfers, may increase research and development spending and capital investment in foreign countries for defense or non-defense industries, thereby may help to create or enhance current and future competitors to U.S. industry.

Export and Offset Activity Trends

According to Census, the value of U.S. merchandise exports totaled \$1.5 trillion in 2015. Based on end-use export data published by Census, defense-related merchandise exports totaled \$20.3 billion in 2015, or 1.35 percent of total U.S. merchandise exports.¹⁹ In 2015, U.S. industry reported entering into offset-related defense export sales contracts worth \$8.1 billion. However, the value of U.S. merchandise exports cannot be directly compared with the value of defense export sales contracts and offset agreements because export data reflect actual shipments made during the calendar year and there is usually a lag of several years between the conclusion of a

¹⁸ See GAO report on offset activities, "Defense Trade: U.S. Contractors Employ Diverse Activities to Meet Offset Obligations," December 1998 (GAO/NSIAD-99-35), pp 4-5.

¹⁹ The value of defense exports includes the exports categorized under the following export end-use codes: (50000) Military aircraft, complete; (50010) Aircraft launching gear, parachutes, etc.; (50020) Engines and turbines for military aircraft; (50030) Military trucks, armored vehicles, etc.; (50040) Military ships and boats; (50050) Tanks, artillery, missiles, rockets, guns, and ammunition; (50060) Military apparel and footwear; and (50070) Parts for military-type goods. The end-use data series does not include exports of defense services. See www.census.gov/foreign-trade/statistics.

contract for a defense sale and the beginning of shipments. See Table 4-1 for defense-related merchandise exports and offset activity trends from 2003–2015.

Table 4-1: U.S. Merchandise Exports and Reported Offset Activity						
Year	Total Merchandise Exports	Defense-Related Merchandise Exports	Defense-Related Exports as a Percentage of Total Merchandise Exports	Value of Reported Defense Export Sale Contracts with Related Offset Agreements	Value of Reported Offset Agreements	Value of Reported Offset Transactions
	(\$ millions)	(\$ millions)		(\$ millions)	(\$ millions)	(\$ millions)
2003	\$724,771	\$11,565	1.60%	\$7,293	\$9,110	\$3,563
2004	\$814,875	\$11,884	1.46%	\$4,928	\$4,330	\$4,935
2005	\$901,082	\$12,835	1.42%	\$2,260	\$1,464	\$4,722
2006	\$1,025,968	\$16,629	1.62%	\$5,265	\$3,655	\$4,706
2007	\$1,148,199	\$16,894	1.47%	\$6,736	\$5,438	\$3,805
2008	\$1,287,442	\$16,594	1.29%	\$6,435	\$3,672	\$3,291
2009	\$1,056,043	\$14,796	1.40%	\$11,033	\$6,731	\$3,495
2010	\$1,278,495	\$15,304	1.20%	\$4,012	\$2,783	\$3,608
2011	\$1,482,508	\$14,911	1.01%	\$10,882	\$5,586	\$3,880
2012	\$1,545,821	\$17,231	1.11%	\$25,661	\$10,108	\$3,438
2013	\$1,578,517	\$17,617	1.12%	\$9,959	\$4,986	\$3,189
2014	\$1,621,172	\$20,612	1.27%	\$12,936	\$7,773	\$3,864
2015	\$1,502,572	\$20,326	1.35%	\$8,059	\$3,135	\$5,049

Sources: BIS Offset Database and the U.S. Census Bureau, End-Use Export Data and U.S. Trade in Goods – Balance of Payments Basis vs. Census Basis. Reported offset-related data for certain previous years have been revised. The values shown have not been adjusted for inflation.

Economic Impact of Offsets on U.S. Industrial Activity and Employment

BIS amended its offset reporting regulation in 2009 to require that companies assign the appropriate North American Industry Classification System (NAICS) code(s) to each offset-related defense export sales contract and to each offset transaction reported. Prior to 2009, BIS required industry to classify offset transactions and defense export sales by broad industry descriptions. The change to NAICS classification reporting has allowed BIS to gather more accurate information on defense export sales with related offset agreements and offset transactions. This enhances BIS’s ability to assess the economic impact of offsets on the U.S. industrial base by allowing BIS to better utilize other data published by statistical agencies of the U.S. Government.

Reported Defense Export Sales by Industry Sector

Industry sectors, as defined in the NAICS, include both manufacturing and non-manufacturing (including services) sectors. During 2013-2015, 97.85 percent of the reported defense export sales contracts with offset agreements were manufacturing-related based on the total value of reported contracts. That percentage drops to 93.42 percent when based on the total number of reported export sales contracts. The top six manufacturing-based sectors reported by industry during 2013-2015 were aircraft manufacturing (NAICS 336411); guided missile and space vehicle manufacturing (NAICS 336414); other aircraft parts and auxiliary equipment manufacturing (NAICS 336413); search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing (NAICS 334511); other guided missile and space vehicle parts and auxiliary equipment manufacturing (NAICS 336419); and aircraft engine and engine parts manufacturing (NAICS 336412). These six categories represented 64.47 percent of all defense export sales contracts reported during 2013-2015 based on quantity and 91.55 percent of the defense export sales contracts based on value. See Table 4-2.

Industry Sector	Value of Reported Defense Export Sales Contracts	Percent of Total Value of Defense Export Sales Contracts	Number of Defense Export Sales Contracts	Percent of the Total Number of Defense Export Sales Contracts
Total Manufacturing	\$30,288,822,420	97.85%	142	93.42%
Aircraft Manufacturing	\$16,552,769,347	53.47%	36	23.68%
Guided Missile and Space Vehicle Manufacturing	\$3,064,269,134	9.90%	19	12.50%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$3,703,896,408	11.97%	9	5.92%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$1,881,550,000	6.08%	16	10.53%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	\$1,739,300,000	5.62%	11	7.24%
Aircraft Engine and Engine Parts Manufacturing	\$1,396,125,694	4.51%	7	4.61%
Other Manufacturing	\$1,950,911,837	6.30%	44	28.95%
Total Services and Other Non-Manufacturing	\$665,579,491	2.15%	10	6.58%
Grand Total	\$30,954,401,911	100%	152	100%

Source: BIS Offset Database

Reported Offset Transactions by Industry Sector

During 2013-2015, 78.21 percent of reported offset transactions were manufacturing-related based on the total value of reported offset transactions and 76.35 percent based on the total number of reported offset transactions. The top six sectors reported by industry during 2013-2015 were aircraft manufacturing (NAICS 336411); other aircraft parts and auxiliary equipment manufacturing (NAICS 336413); aircraft engine and engine parts manufacturing (NAICS 336412); search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing (NAICS 334511); guided missile and space vehicle manufacturing (NAICS 336414); and military armored vehicle, tank, and tank component (NAICS 336992). These six categories represented 51.04 percent of all offset transactions reported for 2013-2015 based on quantity and 66.72 percent of offset transactions based on value. See Table 4-3.

Industry Sector	Total Value	Percent of the Total Value	Number of Transactions	Percent of the Total Number of Transactions
Total Manufacturing	\$9,465,689,917	78.21%	1,427	76.35%
Aircraft Manufacturing	\$3,378,978,237	27.92%	283	15.14%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$2,554,366,225	21.11%	399	21.35%
Aircraft Engine and Engine Parts Manufacturing	\$778,679,063	6.43%	91	4.87%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$565,084,087	4.67%	108	5.78%
Guided Missile and Space Vehicle Manufacturing	\$429,546,728	3.55%	49	2.62%
Military Armored Vehicle, Tank, and Tank Component	\$367,866,273	3.04%	24	1.28%
Other Manufacturing	\$1,391,169,304	11.50%	473	25.31%
Total Services and Other Non-Manufacturing	\$2,636,588,680	21.79%	442	23.65%
Other Support Activities for Air Transportation	\$955,949,806	7.90%	50	2.68%
Engineering Services	\$439,128,058	3.63%	115	6.15%
Custom Computer Programming Services	\$297,252,263	2.46%	87	4.65%
All Others	\$944,258,553	7.80%	190	10.17%
Grand Total	\$12,102,278,597	100%	1,869	100%
Source: BIS Offset Database Due to rounding, totals may not add up exactly				

BIS compared defense export sales contracts and offset transactions reported for 2013-2015 with data published by the Census on total 2012-2014 U.S. shipments of selected manufacturing

industry sectors to provide context for the volume of offset activity relative to the U.S. economy.²⁰ Industry reported defense export sales contracts with 22 NAICS codes and offset transactions with 116 NAICS codes. The comparison of 2013-2015 offset-related data with 2012-2014 U.S. shipment data highlights that, while the reported defense export sales contracts accounted for a significant percentage compared to U.S. shipment data in certain manufacturing industry sectors, reported offset transactions data did not account for a significant percentage in other manufacturing industry sectors. See Table 4-4.

²⁰ 2015 shipment data from the U.S. Bureau of the Census was not published in time for inclusion in this report. Therefore, Census data for the 2012-2014 period was used for comparison.

Table 4-4: 2013-2015 Reported Manufacturing Defense Export Sales and Reported Manufacturing Offset Transactions and 2012-2014 U.S. Shipments by Industry Sector

Reported Manufacturing Defense Export Sales Contracts			
Industry Sector	Value of Reported 2013-2015 Defense Export Sales Contracts	Total Value of 2012-2014 U.S. Shipments	Percent of Defense Export Sales Contracts to Total U.S. Shipments
Aircraft Manufacturing	\$16,552,769,347	\$344,039,305,000	4.81%
Guided Missile and Space Vehicle Manufacturing	\$3,064,269,134	\$62,855,215,000	4.88%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$3,703,896,408	\$116,916,908,000	3.17%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$1,881,550,000	\$128,574,289,000	1.46%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	\$1,739,300,000	\$8,270,557,000	21.03%
Aircraft Engine and Engine Parts Manufacturing	\$1,396,125,694	\$109,422,505,000	1.28%
Other Manufacturing *	\$1,950,911,837	\$402,081,056,000	0.49%
Total Manufacturing	\$30,288,822,420	\$1,172,159,835,000	2.58%
Reported Manufacturing Offset Transactions			
Industry Sector	Value of Reported 2013-2015 Offset Transactions	Total Value of 2012-2014 U.S. Shipments	Percent of Transactions to Total U.S. Shipments
Aircraft Manufacturing	\$3,378,978,237	\$344,039,305,000	0.98%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$2,554,366,225	\$116,916,908,000	2.18%
Aircraft Engine and Engine Parts Manufacturing	\$778,679,063	\$109,422,505,000	0.71%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$565,084,087	\$128,574,289,000	0.44%
Guided Missile and Space Vehicle Manufacturing	\$429,546,728	\$62,855,215,000	0.68%
Military Armored Vehicle, Tank, and Tank Component	\$367,866,273	\$12,069,058,000	3.05%
Other Manufacturing *	\$1,391,169,304	\$4,879,174,985,000	0.03%
Total Manufacturing	\$9,465,689,917	\$5,653,052,265,000	0.17%
Source: BIS Offset Database and U.S. Census 2014 Annual Survey of Manufactures (includes data through 2014)			
* The "Other Manufacturing" category in the Defense Export Sales Contracts table includes 10 NAICS codes reported by U.S. defense contractors and the "Other Manufacturing" category in the Offset Transactions table includes 59 NAICS codes reported by U.S. defense contractors. The U.S. shipment data corresponds to those reported NAICS codes.			
Note: 2015 shipment data from the U.S. Bureau of the Census was not published in time for inclusion in this report.			

Offset-Related Impact Analysis

Given the variety of the reported defense export sales contracts and the number of reported offset transactions, it is not possible to determine precisely the impact of the defense export sales contracts, offset agreements, and offset transactions on industrial activity and employment. However, utilizing the Bureau of Economic Analysis' (BEA) *Benchmark Input-Output Accounts of the United States* (I/O accounts),²¹ and Census' *Annual Survey of Manufactures* data,²² BIS has developed a method to approximate the value added shipment and employment impact of offset activities across the United States' economic sectors.

During 2013-2015, industry reported defense export sales contracts involving offsets valued at \$30.3 billion in manufacturing industry sectors for which Census publishes annual employment and value-added data by NAICS code. Based on the I/O accounts, the value of "inputs" from all other industry sectors associated with the \$30.3 billion in defense export sales contracts was \$37.4 billion as shown in Table 4-5.²³ BIS estimates, using Census' *Annual Survey of Manufactures* data, this \$37.4 billion in inputs would create or sustain 146,541 employment opportunities.²⁴ As shown in Table 4-5, the I/O accounts also demonstrate how these defense export sales contracts have a positive multiplier effect not only on selected U.S. manufacturing industry sectors but on hundreds of other U.S. economic sectors that supply inputs related to the export sales contracts. This analysis assumes that all the work associated with the defense export sales contracts is conducted in the United States.

However, offset transactions generally have a negative impact on U.S. inputs because they are primarily conducted outside the United States and represent activity that is not provided by the U.S. economy. For the purpose of this analysis, BIS has also assumed that all the work associated with offset transactions would have been conducted in the United States if there were no offset agreement in place. This is not necessarily an accurate assumption. BIS estimates, using Census' *Annual Survey of Manufactures* data and reported offset transaction data supplied

²¹ The I/O accounts show the dollar value of inputs from all industries required to produce a dollar's worth of an industry's output. The I/O accounts provide an extensive accounting of the production of goods and services by each industry, which includes the goods and services purchased by each industry, the income earned in each industry, and the distribution of sales for all goods and services to industries and final uses.

²² With the availability of 2015 offset data, BIS analysis under the revised method of measuring offset-related impact is based on three years of data, which will compensate somewhat for annual fluctuations. The basis for estimating the impact of offset activity on industrial activity and employment utilizes the NAICS codes data reported by Census and the I/O accounts.

²³ The multiplier effect in the I/O model occurs because the total inputs supplied to an industry sector consist of direct inputs (the product and services directly used in generating the output) supplied to that industry sector plus the indirect inputs (additional economic activities) created by the supplying industry sectors.

²⁴ BIS analysis utilizes the *Manufacturing: Industry Series: Product or Service Statistics for the United States: 2010 through 2012*, United States Census Bureau.

by U.S. prime defense contractors, the \$8.7 billion in reported offset transactions during 2013-2015 for which Census publishes annual employment and value-added data by NAICS code (valued at \$11.3 billion with the I/O multiplier applied), could have created or sustained 46,464 employment opportunities if the work associated with those transactions were performed in the United States. As shown in Table 4-5, the I/O accounts provides an approximation of the multiplier effect across all U.S. economic sectors had these transactions been performed in the United States.

Table 4-5 also shows the net impact in inputs across all sectors of the U.S. economy resulting from offset-related defense export sales contracts. BIS derived this information by subtracting the reported offset transaction-related data from the reported defense export sales contracts-related data. In 15 manufacturing industry sectors shown in Table 4-5, the data indicate a negative impact on U.S. employment opportunities. However, the results indicate an overall net gain on U.S. manufacturing opportunities arising from export sales contracts with associated offset agreements, resulting in a positive \$26.1 billion in added “input” opportunities for the U.S. industrial base, and a net gain of 100,007 in employment opportunities created or sustained during the 2013-2015 period. As a caveat, as noted above, certain NAICS categories associated with offset-related export contracts and transactions are not included in the I/O data provided by BEA. Therefore, the net employment impact analysis may be slightly understated for both reported export sales contracts and reported offset transactions.

Table 4-5: Employment Opportunities Created or Sustained in Manufacturing Industry Sectors, 2013-2015

Positive Economic Activities as Defined by Export Sales Contracts Benefiting U. S. Prime Contractors			
Export Sales Contracts in Manufacturing Industry Sectors	Total Inputs	Value-added Output / Employee ²⁵	Employment Opportunities Created or Sustained
Aircraft Manufacturing	\$18,514,012,636	\$365,527	50,650
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$4,944,615,404	\$190,307	25,982
Guided Missile and Space Vehicle Manufacturing ²⁶	\$4,031,452,674	\$217,342	18,549
Aircraft Engine and Engine Parts Manufacturing	\$2,593,134,964	\$266,134	9,744
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$2,335,204,311	\$253,407	9,215
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing ²⁷	\$2,288,279,955	\$125,209	18,276
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	\$870,769,516	\$216,794	4,017
Ammunition (except Small Arms) Manufacturing	\$799,929,759	\$190,094	4,208
Optical Instrument and Lens Manufacturing	\$392,626,665	\$163,707	2,398
Other Commercial and Service Industry Machinery Manufacturing	\$207,312,788	\$175,412	1,182
Motor Vehicle Transmission and Power Train Parts Manufacturing	\$119,653,525	\$191,827	624
Small Arms Manufacturing	\$86,224,630	\$234,475	368
Other electronic component manufacturing	\$84,008,628	\$135,242	621
Military Armored Vehicle, Tank, and Tank Component Manufacturing	\$83,663,739	\$210,467	398
Ship Building and Repairing	\$50,111,547	\$161,945	309
Total	\$37,401,000,742		146,541

²⁵ This is an estimate. Value-added data from the Census' Annual Survey of Manufacturers (ASM) was not available for 2015. Consequently, 2012-2014 ASM data was used.

²⁶ Value-added Output/Employee data for 2013 and 2014 is an estimate.

²⁷ Value-added Output/Employee data for 2013 and 2014 is an estimate.

**Table 4-5: Employment Opportunities Created or Sustained in Manufacturing Industry Sectors, 2013-2015
(Continued)**

Negative Economic Activities as Defined by Offset Transactions			
Offset Transactions Related to Manufacturing Industry Sectors	Total Inputs	Value-added Output / Employee ²⁸	Employment Opportunities Created or Sustained
Aircraft Manufacturing	\$3,779,334,108	\$365,527	10,339
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$3,410,019,394	\$190,307	17,919
Guided Missile and Space Vehicle Manufacturing ²⁹	\$565,125,722	\$217,342	2,600
Aircraft Engine and Engine Parts Manufacturing	\$ 1,446,302,372	\$266,134	5,434
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$ 701,329,647	\$253,407	2,768
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing ³⁰	\$7,556,827	\$125,209	60
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	\$615,754,635	\$216,794	2,840
Ammunition (except Small Arms) Manufacturing	\$447,252	\$190,094	2
Optical Instrument and Lens Manufacturing	\$77,377,902	\$163,707	473
Other Commercial and Service Industry Machinery Manufacturing	\$88,545,771	\$175,412	505
Motor Vehicle Transmission and Power Train Parts Manufacturing	\$19,124,870	\$191,827	100
Small Arms Manufacturing	\$55,151,917	\$234,475	235
Other electronic component manufacturing	\$154,229,619	\$135,242	1,140
Military Armored Vehicle, Tank, and Tank Component Manufacturing	\$376,738,177	\$210,467	1,790
Ship Building and Repairing	\$41,717,645	\$161,945	258
Total	\$11,338,755,857		46,464

²⁸ This is an estimate. Value-added data from the Census' Annual Survey of Manufacturers (ASM) was not available for 2015. Consequently, 2012-2014 ASM data was used.

²⁹ Value-added Output/Employee data for 2013 and 2014 is an estimate.

³⁰ Value-added Output/Employee data for 2013 and 2014 is an estimate.

Table 4-5: Employment Opportunities Created or Sustained in Manufacturing Industry Sectors, 2013-2015 (Continued)			
Net Impact of Economic Impact from Export Sales Contracts and Offset Transactions			
Industry Sector	Total Inputs	Value-added Output / Employee³¹	Net Employment Opportunities Created or Sustained
Aircraft Manufacturing	\$14,734,678,528	\$365,527	40,311
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$1,534,596,010	\$190,307	8,064
Guided Missile and Space Vehicle Manufacturing ³²	\$3,466,326,953	\$217,342	15,949
Aircraft Engine and Engine Parts Manufacturing	\$1,146,832,592	\$266,134	4,309
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	\$1,633,874,664	\$253,407	6,448
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing ³³	\$2,280,723,128	\$125,209	18,215
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	\$255,014,881	\$216,794	1,176
Ammunition (except Small Arms) Manufacturing	\$799,482,507	\$190,094	4,206
Optical Instrument and Lens Manufacturing	\$315,248,764	\$163,707	1,926
Other Commercial and Service Industry Machinery Manufacturing	\$118,767,018	\$175,412	677
Motor Vehicle Transmission and Power Train Parts Manufacturing	\$100,528,654	\$191,827	524
Small Arms Manufacturing	\$31,072,713	\$234,475	133
Other electronic component manufacturing	-\$70,220,990	\$135,242	(519)
Military Armored Vehicle, Tank, and Tank Component Manufacturing	-\$293,074,439	\$210,467	(1,392)
Ship Building and Repairing	\$8,393,901	\$161,945	52
Total	\$26,062,244,885		100,079

BIS Offset Database and BEA's *Benchmark Input-Output Accounts of the United States* Note: Due to rounding, totals may not add up exactly.

Research and Development and Offset-Related Technology Transfer Trends

Comparing reported offset transactions involving technology transfer to total research and development (R&D) expenditures in the United States provides, for purposes of context, a measure of the magnitude of this type of offset activity. In Table 4-6, 2015 data is utilized to illustrate the relationship between the offset-related technology transfer and total U.S. research

³¹ This is an estimate. Value-added data from the Census' Annual Survey of Manufacturers (ASM) was not available for 2015. Consequently, 2012-2014 ASM data was used.

³² Value-added Output/Employee data for 2013 and 2014 is an estimate.

³³ Value-added Output/Employee data for 2013 and 2014 is an estimate.

and development expenditures. As shown in Table 4-6, in 2015, the value of reported offset transactions that involved technology transfers was \$554 million, equivalent to 0.11 percent of total R&D spending in the United States.³⁴

Table 4-6: Trends in U.S. R&D Spending and Reported Offset Transactions Involving Technology Transfer, 2004-2015

Year	Reported Technology Transfer Offset Transactions	Total Private and Federal R&D Expenditures	Technology Transfer Transactions as a Percentage of R&D Spending
2004	\$669,457,809	\$302,503,000,000	0.22%
2005	\$1,479,648,075	\$324,993,000,000	0.46%
2006	\$717,679,906	\$352,567,000,000	0.20%
2007	\$709,925,212	\$379,454,000,000	0.19%
2008	\$958,313,688	\$406,952,000,000	0.24%
2009	\$986,715,904	\$405,343,000,000	0.24%
2010	\$874,836,815	\$409,037,000,000	0.21%
2011	\$672,618,738	\$428,675,000,000	0.16%
2012	\$612,402,005	\$436,151,000,000	0.14%
2013	\$873,225,615	\$456,584,000,000	0.19%
2014	\$374,540,811	\$477,708,000,000	0.08%
2015	\$553,653,292	\$499,299,000,000	0.11%

Sources: BIS Offset Database and the National Science Foundation, *National Center for Science and Engineering Statistics: 2015. National Patterns of R&D Resources: 2008-2015* Data Update, September 2016.

Note: Some 2014 R&D expenditure data are preliminary and may later be revised. The data for 2015 are estimates and will later be revised. The values shown are in current \$millions.

BIS does not collect data from industry on the specific technologies transferred as a result of offset agreements and offset transactions. However, anecdotal information obtained from industry suggests that “cutting edge” or nascent technologies under development in the United States are less likely to be transferred to foreign companies in fulfillment of offset obligations than are mature technologies. Regardless, any transfer of export-controlled technology must be approved through the U.S. Government’s export licensing processes. The existence of an offset agreement does not allow companies to circumvent the established licensing processes managed by the Departments of Commerce and State, in consultation with DOD.

³⁴ This figure does not mean that U.S. industry lost 0.11 percent of its R&D spending in 2015. Rather, the number indicates that the actual value of offset transactions involving technology transfer was equivalent to 0.11 percent of domestic R&D spending.

Domestic Defense Productive Capability

DOD has stated that the industrial base on which it draws must be reliable, cost-effective, and sufficient to meet strategic objectives. DOD's ultimate objective is to have reliable, cost-effective, and sufficient industrial capabilities to develop, produce, and support the defense material necessary to support national defense.³⁵

DOD is willing to use reliable foreign suppliers when such use offers comparative advantages in performance, cost, schedule, or coalition operations. DOD has negotiated bilateral Reciprocal Defense Procurement Memoranda of Understanding (RDP MOUs) with 25 countries. The RDP MOUs include procurement principles and procedures that provide transparency and access for each country's industry to the other country's defense market. The RDP MOU relationship facilitates defense cooperation and promotes rationalization, standardization, and interoperability of defense equipment. Based on these RDP MOUs, the Secretary of Defense or Deputy Secretary of Defense has made blanket public interest exceptions to the Buy American Act (41 U.S.C. 10a-d) for 22 of the 25 RDP MOU partners. As a result of these blanket exceptions, these 22 countries' products are evaluated on the same basis as domestic products in competitive DOD procurements.

Despite the capabilities that may accrue to foreign firms resulting from offset agreements signed with U.S. industry, purchases from foreign firms do not represent a significant share of DOD's total purchases. According to DOD data on its purchases from foreign entities, its procurement actions during Fiscal Year 2015 totaled approximately \$273 billion, of which \$11.3 billion or 4.1 percent was expended on purchases from foreign entities. Defense equipment constituted approximately 13 percent of the purchases from foreign entities. Fuel, services, construction, and subsistence accounted for 79 percent, with the remaining eight percent covering a variety of other categories.³⁶

See Annex D for an overview of DOD's Fiscal Year 2015 purchases from foreign entities by claimant programs.

³⁵ See Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics), Office of Manufacturing and Industrial Base Policy, *Annual Industrial Capabilities Report to Congress*, October 2013.

³⁶ See Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics), *Report to Congress – Department of Defense Fiscal Year 2015 Purchases from Foreign Entities*, June 2016.

5 Utilization of Annual Report

The data contained in this report is considered and utilized by BIS and other representatives of the United States during bilateral and multilateral discussions with foreign governments to limit the adverse effects of offsets. For instance, BIS discussed offsets with representatives from the European Defense Agency (EDA) and the European Commission (EC) during the year. In 2015, U.S. firms reported entering into three new offset agreements with members of the EDA valued at \$35.5 million. EDA members accounted for 7.89 percent of the new offset agreements reported by U.S. firms in 2015 based on quantity and 0.45 percent based on value. In 2015, U.S. firms reported 177 offset transactions with EDA members with an actual value of \$683.1 million, and an offset credit value of \$805.3 million. The EDA members accounted for 27.19 percent of all offset transactions reported by U.S. firms in 2015 based on quantity and for 13.53 percent of the overall offset transaction value.

Annex A (Not For Public Release)

Annex B (Not For Public Release)

Annex C – Overview of Offset Transactions by Category, 1993-2015

Table C-1: Offset Transactions by Type							
Year	Total	Direct	Indirect	Unspecified	Direct	Indirect	Unspecified
	Actual Value (\$ millions)				% Distribution		
1993	\$1,898	\$637	\$1,197	\$64	33.55%	63.09%	3.36%
1994	\$1,935	\$628	\$1,202	\$104	32.47%	62.14%	5.39%
1995	\$2,890	\$1,109	\$1,757	\$25	38.36%	60.78%	0.86%
1996	\$2,876	\$1,249	\$1,626	\$1	43.42%	56.53%	0.05%
1997	\$2,721	\$1,042	\$1,658	\$21	38.29%	60.93%	0.79%
1998	\$2,312	\$1,470	\$842	\$0	63.56%	36.43%	0.01%
1999	\$2,060	\$700	\$1,349	\$11	33.97%	65.47%	0.55%
2000	\$2,190	\$767	\$1,412	\$11	35.04%	64.48%	0.49%
2001	\$2,543	\$928	\$1,615	\$0	36.49%	63.51%	0.00%
2002	\$2,620	\$958	\$1,660	\$1	36.58%	63.37%	0.05%
2003	\$3,563	\$1,110	\$2,447	\$6	31.17%	68.68%	0.16%
2004	\$4,935	\$2,536	\$2,398	\$1	51.39%	48.60%	0.01%
2005	\$4,722	\$1,798	\$2,924	\$0	38.07%	61.93%	0.00%
2006	\$4,706	\$1,689	\$2,999	\$18	35.89%	63.72%	0.39%
2007	\$3,805	\$1,890	\$1,906	\$9	49.68%	50.09%	0.23%
2008	\$3,291	\$1,571	\$1,719	\$1	47.74%	52.24%	0.02%
2009	\$3,495	\$1,299	\$2,191	\$5	37.17%	62.68%	0.15%
2010	\$3,608	\$1,194	\$2,277	\$137	33.10%	63.11%	3.80%
2011	\$3,880	\$1,907	\$1,899	\$74	49.14%	48.95%	1.91%
2012	\$3,438	\$1,188	\$1,635	\$615	34.56%	47.56%	17.88%
2013	\$3,189	\$1,088	\$2,086	\$15	34.13%	65.41%	0.46%
2014	\$3,864	\$990	\$2,867	\$7	25.63%	74.20%	0.17%
2015	\$5,049	\$2,113	\$2,648	\$289	41.84%	52.44%	5.72%
Total	\$75,588	\$29,860	\$44,313	\$1,415	39.5%	58.63%	1.87%
	Credit Value (\$ millions)				% Distribution		
1993	\$2,214	\$737	\$1,408	\$69	33.31%	63.59%	3.10%
1994	\$2,206	\$802	\$1,295	\$109	36.38%	58.69%	4.93%
1995	\$3,593	\$1,303	\$2,251	\$39	36.26%	62.65%	1.09%
1996	\$3,098	\$1,182	\$1,880	\$36	38.15%	60.68%	1.16%
1997	\$3,272	\$1,183	\$2,039	\$50	36.17%	62.31%	1.52%
1998	\$2,623	\$1,629	\$991	\$3	62.11%	37.79%	0.10%
1999	\$2,808	\$1,134	\$1,604	\$70	40.38%	57.12%	2.50%
2000	\$2,749	\$1,049	\$1,689	\$11	38.16%	61.45%	0.39%
2001	\$3,201	\$1,219	\$1,982	\$0	38.08%	61.92%	0.00%
2002	\$3,148	\$1,128	\$2,019	\$1	35.83%	64.13%	0.04%
2003	\$4,008	\$1,213	\$2,783	\$12	30.26%	69.44%	0.30%
2004	\$5,366	\$2,665	\$2,700	\$1	49.66%	50.33%	0.01%
2005	\$5,439	\$1,871	\$3,568	\$0	34.40%	65.60%	0.00%
2006	\$4,906	\$1,635	\$3,258	\$14	33.32%	66.40%	0.28%
2007	\$4,742	\$2,499	\$2,226	\$17	52.70%	46.95%	0.35%
2008	\$4,768	\$2,756	\$2,009	\$3	57.79%	42.14%	0.07%
2009	\$4,129	\$1,645	\$2,478	\$5	39.84%	60.03%	0.13%
2010	\$4,477	\$1,799	\$2,639	\$39	40.18%	58.94%	0.87%
2011	\$5,062	\$2,789	\$2,198	\$74	55.11%	43.43%	1.46%
2012	\$3,843	\$1,301	\$1,674	\$868	33.85%	43.57%	22.58%
2013	\$3,563	\$1,329	\$2,219	\$15	37.29%	62.29%	0.42%
2014	\$4,289	\$1,143	\$3,133	\$13	26.65%	73.04%	0.31%
2015	\$5,323	\$2,221	\$2,809	\$293	41.73%	52.76%	5.50%
Total	\$88,826	\$36,232	\$50,853	\$1,434	40.79%	57.25%	1.796%

Source: BIS Offset Database
Note: Due to rounding, totals may not add up exactly. Figures for certain previous years have been revised. The values shown have not been adjusted for inflation.

Year	Number of Transactions				Transactions with Multipliers Greater than 1	
	Total	Direct	Indirect	Unspecified	Number of Transactions	Percent of Total Transactions
1993	444	160	280	4	66	14.86%
1994	566	178	383	5	83	14.66%
1995	711	204	505	2	110	15.47%
1996	634	228	404	2	64	10.09%
1997	578	202	372	4	61	10.55%
1998	582	241	340	1	87	14.95%
1999	513	212	296	5	87	16.96%
2000	626	215	409	2	82	13.10%
2001	616	223	393	0	113	18.34%
2002	734	200	533	1	83	11.31%
2003	689	179	506	4	64	9.29%
2004	710	375	334	1	74	10.42%
2005	624	210	414	0	52	8.33%
2006	661	288	371	2	33	4.99%
2007	633	294	337	2	88	13.90%
2008	671	226	443	2	73	10.88%
2009	702	261	440	1	112	15.95%
2010	707	210	496	1	114	16.12%
2011	740	256	467	17	77	10.41%
2012	690	213	402	75	73	10.58%
2013	546	191	354	1	45	8.24%
2014	672	180	488	4	75	11.16%
2015	651	205	444	2	43	6.61%
Total	14,700	5,151	9,411	138	1,759	11.97%

Source: BIS Offset Database
Note: Because of rounding, totals may not add up exactly. Figures for certain previous years have been revised.

Table C-3: Number of Offset Transactions by Category and Type and with Multipliers, 1993-2015

Transaction Category	Total	Direct	Indirect	Unspecified	Multipliers Greater than 1
Purchasing	6,858	135	6,716	7	510
Subcontracting	3,407	2,999	405	3	303
Technology Transfer	1,654	779	853	22	370
Co-production	578	565	9	4	27
Training	432	192	231	9	148
Investment	337	44	287	6	106
Licensed Production	289	187	100	2	26
Credit Assistance	168	14	154	0	26
Other	977	236	656	85	243
Total	14,700	5,151	9,411	138	1,759

Source: BIS Offset Database

Table C-4: Offset Transactions by Category, Type, and Value, 1993-2015

Transaction Category	Actual Values (\$ millions)				Percent by Column Total			
	Total	Dir.	Ind.	Unsp.	Total	Dir.	Ind.	Unsp.
Co-production	\$3,787.24	\$3,734.39	\$11.10	\$41.76	5.01%	12.51%	0.03%	2.95%
Credit Assistance	\$2,081.39	\$220.86	\$1,860.53	-	2.75%	0.74%	4.20%	-
Investment	\$2,241.41	\$471.72	\$1,679.02	\$90.67	2.97%	1.58%	3.79%	6.41%
Licensed Production	\$2,248.93	\$1,234.50	\$990.40	\$24.03	2.98%	4.13%	2.23%	1.70%
Other	\$5,492.26	\$1,148.10	\$3,445.45	\$898.71	7.27%	3.84%	7.78%	63.53%
Purchase	\$29,316.21	\$1,509.00	\$27,771.57	\$35.64	38.78%	5.05%	62.67%	2.52%
Subcontracting	\$14,970.86	\$14,034.13	\$923.40	\$13.33	19.81%	47.00%	2.08%	0.94%
Technology Transfer	\$13,536.82	\$6,815.27	\$6,415.93	\$305.62	17.91%	22.82%	14.48%	21.60%
Training	\$1,912.59	\$691.76	\$1,215.96	\$4.87	2.53%	2.32%	2.74%	0.34%
Total	\$75,587.71	\$29,859.72	\$44,313.35	\$1,414.63	100.00%	100.00%	100.00%	100.00%
Transaction Category	Credit Values (\$ millions)				Percent by Column Total			
	Total	Dir.	Ind.	Unsp.	Total	Dir.	Ind.	Unsp.
Co-production	\$4,263.21	\$4,210.35	\$11.10	\$41.76	4.80%	11.62%	0.02%	2.40%
Credit Assistance	\$2,340.68	\$290.11	\$2,050.57	-	2.64%	0.80%	4.03%	-
Investment	\$3,810.16	\$849.17	\$2,819.61	\$141.37	4.29%	2.34%	5.54%	8.12%
Licensed Production	\$2,780.80	\$1,566.40	\$1,183.17	\$31.23	3.13%	4.32%	2.33%	1.79%
Other	\$8,047.28	\$2,402.97	\$4,427.47	\$1,216.84	9.06%	6.63%	8.71%	69.90%
Purchase	\$31,150.21	\$1,537.88	\$29,570.04	\$42.29	35.07%	4.24%	58.15%	2.43%
Subcontracting	\$16,966.45	\$15,907.03	\$1,046.09	\$13.33	19.10%	43.90%	2.06%	0.77%
Technology Transfer	\$16,304.90	\$7,974.27	\$8,094.64	\$235.99	18.36%	22.01%	15.92%	13.56%
Training	\$3,163.23	\$1,494.33	\$1,650.79	\$18.10	3.56%	4.12%	3.25%	1.04%
Total	88,826.922	\$36,232.52	\$50,853.49	\$1,740.91	100.00%	100.00%	100.00%	100.00%

Source: BIS Offset Database

Note: Due to rounding, totals may not add up precisely. The values shown have not been adjusted for inflation.

Table C-5: Offset Transactions by Category (\$ thousands)

Year	Co-Production			Credit Assistance			Investment			Licensed Production			All Others		
	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number
1993	\$35,550	\$35,550	6	\$340,492	\$366,794	12	\$41,499	\$41,500	13	\$37,851	\$41,451	8	\$50,967	\$68,168	17
1994	\$111,895	\$112,185	10	\$3,494	\$21,639	3	\$93,265	\$98,474	17	\$45,424	\$67,629	15	\$148,742	\$163,370	36
1995	\$86,898	\$86,898	11	\$374,248	\$468,930	20	\$117,152	\$363,556	9	\$5,110	\$4,965	2	\$197,760	\$295,647	51
1996	\$16,952	\$22,052	3	\$244,270	\$258,970	15	\$10,656	\$10,656	2	\$26,425	\$26,425	1	\$113,266	\$257,647	42
1997	\$28,339	\$28,339	22	\$168,410	\$168,410	20	\$85,126	\$271,538	6	\$0	\$0	0	\$454,159	\$487,010	64
1998	\$94,332	\$98,283	30	\$43,920	\$43,920	4	\$0	\$0	0	\$0	\$0	0	\$144,550	\$157,246	54
1999	\$47,803	\$47,803	19	\$16,888	\$16,888	3	\$28,475	\$219,079	9	\$460	\$23,000	2	\$303,704	\$713,077	65
2000	\$27,691	\$27,691	15	\$9,952	\$9,952	2	\$52,343	\$69,621	7	\$9,816	\$9,816	1	\$302,950	\$388,093	50
2001	\$16,575	\$80,300	2	\$4,726	\$8,027	3	\$59,933	\$72,945	7	\$25,000	\$25,000	1	\$48,656	\$82,960	14
2002	\$0	\$0	0	\$29,453	\$29,453	1	\$24,484	\$85,234	12	\$0	\$0	0	\$135,848	\$149,847	28
2003	\$260,250	\$266,465	18	\$51,610	\$51,610	6	\$172,683	\$226,215	13	\$1,500	\$0	1	\$145,262	\$297,232	34
2004	\$1,395,766	\$1,268,666	105	\$141,234	\$170,453	20	\$162,077	\$393,819	15	\$13,679	\$13,679	3	\$211,266	\$273,924	33
2005	\$309,409	\$322,204	74	\$61,028	\$76,828	10	\$185,819	\$192,387	19	\$123,836	\$268,326	5	\$95,146	\$152,360	34
2006	\$383,587	\$432,089	93	\$442,028	\$453,521	28	\$118,733	\$124,593	17	\$62,000	\$64,000	3	\$174,010	\$136,966	29
2007	\$398,250	\$496,255	83	\$76,997	\$84,164	8	\$106,953	\$158,986	21	\$2,972	\$2,972	1	\$662,926	\$1,046,377	64
2008	\$243,888	\$519,084	51	\$41,641	\$54,171	5	\$116,063	\$168,033	22	\$10,393	\$10,393	2	\$226,486	\$626,110	44
2009	\$107,080	\$107,080	13	\$6,377	\$6,377	3	\$111,923	\$160,883	17	\$207,742	\$214,696	43	\$118,210	\$242,668	31
2010	\$148,300	\$237,583	2	\$8,745	\$19,700	2	\$185,338	\$306,236	25	\$380,277	\$398,213	45	\$116,107	\$222,297	38
2011	\$13,943	\$13,943	3	\$0	\$0	0	\$112,643	\$272,628	35	\$307,095	\$535,101	56	\$165,737	\$179,051	27
2012	\$58,304	\$58,304	12	\$15,872	\$30,872	3	\$43,226	\$43,226	7	\$308,339	\$308,339	34	\$754,223	\$1,015,158	80
2013	\$1,999	\$1,365	5	\$0	\$0	0	\$77,457	\$83,457	13	\$259,362	\$347,618	31	\$115,434	\$126,582	17
2014	\$432	\$432	1	\$0	\$0	0	\$201,418	\$307,478	30	\$259,362	\$259,362	26	\$180,795	\$236,431	42
2015	\$0	\$0	0	\$0	\$0	0	\$134,147	\$139,613	21	\$159,817	\$159,817	9	\$626,059	\$729,059	83

Source: BIS Offset Database

Note: Figures for certain previous years have been revised. The values shown have not been adjusted for inflation.

Table C-5: Offset Transactions by Category (\$ thousands) (continued)

Year	Purchase			Subcontracting			Technology Transfer			Training		
	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number	Actual Value	Credit Value	Total Number
1993	\$703,850	\$865,524	226	\$336,368	\$405,101	109	\$300,307	\$320,504	32	\$50,994	\$69,027	21
1994	\$694,506	\$735,909	288	\$267,518	\$319,081	95	\$462,569	\$495,849	68	\$107,448	\$191,956	34
1995	\$863,425	\$932,133	367	\$830,419	\$887,985	147	\$334,328	\$395,024	71	\$81,146	\$157,453	33
1996	\$1,090,104	\$1,116,434	298	\$721,298	\$733,511	175	\$476,657	\$426,849	60	\$176,196	\$245,478	38
1997	\$837,071	\$894,517	245	\$848,489	\$868,412	141	\$289,527	\$492,451	67	\$9,460	\$61,636	13
1998	\$582,198	\$595,910	253	\$1,215,476	\$1,244,506	164	\$196,765	\$413,335	63	\$34,929	\$70,007	14
1999	\$869,591	\$883,930	203	\$452,464	\$476,331	140	\$336,018	\$396,856	69	\$4,330	\$31,370	3
2000	\$840,845	\$915,622	299	\$583,874	\$774,278	149	\$293,377	\$430,962	76	\$68,887	\$123,299	27
2001	\$1,132,958	\$1,250,367	331	\$707,069	\$863,615	154	\$529,343	\$788,885	89	\$18,427	\$28,710	15
2002	\$1,289,790	\$1,537,001	452	\$826,348	\$929,994	163	\$287,465	\$383,076	66	\$26,344	\$33,004	12
2003	\$1,790,932	\$1,835,692	422	\$506,058	\$602,288	101	\$547,446	\$563,306	75	\$87,170	\$165,247	19
2004	\$1,351,878	\$1,463,620	213	\$848,650	\$849,886	207	\$669,458	\$782,957	85	\$140,524	\$148,739	29
2005	\$1,975,390	\$2,393,048	286	\$485,233	\$508,445	91	\$1,479,648	\$1,504,264	100	\$6,473	\$21,167	5
2006	\$2,029,212	\$2,280,352	252	\$690,033	\$690,033	150	\$717,680	\$637,598	75	\$88,558	\$87,265	14
2007	\$916,823	\$963,306	219	\$879,561	\$921,161	169	\$709,925	\$905,483	56	\$50,120	\$162,998	12
2008	\$940,543	\$956,295	327	\$680,119	\$863,793	121	\$958,314	\$1,462,126	86	\$73,283	\$108,226	13
2009	\$1,469,915	\$1,501,925	333	\$472,836	\$698,370	140	\$986,716	\$1,120,309	109	\$14,571	\$76,325	13
2010	\$1,236,751	\$1,307,767	380	\$605,563	\$825,264	124	\$874,837	\$1,076,516	76	\$52,207	\$83,329	15
2011	\$1,539,704	\$1,512,310	382	\$979,598	\$1,198,649	136	\$672,619	\$866,470	80	\$88,878	\$483,351	21
2012	\$978,762	\$956,765	228	\$466,270	\$563,589	231	\$612,402	\$665,508	68	\$200,111	\$201,488	27
2013	\$945,761	\$929,233	215	\$754,136	\$797,242	154	\$873,226	\$1,050,304	88	\$159,208	\$218,132	23
2014	\$2,362,465	\$2,426,634	327	\$374,217	\$455,199	184	\$374,541	\$476,202	50	\$110,628	\$127,708	12
2015	\$2,873,731	\$2,887,585	312	\$439,261	\$489,719	162	\$553,623	\$650,066	45	\$262,695	\$267,317	19

Source: BIS Offset Database

Note: Figures for certain previous years have been revised. The values shown have not been adjusted for inflation.

Annex D – Department of Defense’s Purchases from Foreign Entities, Fiscal Year 2015

DOD Claimant Program	Foreign Purchases (Dollars)
Services	\$3,168,681,412
Petroleum	\$3,094,882,967
Construction	\$1,909,153,767
All Others Not Identifiable to Any Other Procurement	\$797,379,750
Subsistence	\$724,423,727
Airframes and Spares	\$285,752,601
Non-Combat Vehicles	\$277,124,140
Other Aircraft Equipment	\$252,959,557
Ships	\$234,358,795
Electronics and Communication Equipment	\$153,825,440
Weapons	\$79,117,278
Combat Vehicles	\$69,222,549
Ammunition	\$64,108,595
Medical and Dental Supplies and Equipment	\$53,560,582
Aircraft Engines and Spares	\$49,350,404
Textiles, Clothing and Equipage	\$32,200,358
Missile and Space Systems	\$28,893,810
Construction Equipment	\$8,510,438
Other Fuels and Lubricants	\$5,314,757
Material Handling Equipment	\$3,378,215
Building Supplies	\$3,288,082
Production Equipment	\$1,013,623
Separately Procured Containers and Handling Equipment	\$224,720
Photographic Equipment and Supplies	\$212,683
Transportation Equipment (Railway)	\$7,707
Total	\$11,296,945,955
Source: Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics), <i>Report to Congress – Department of Defense Fiscal Year 2015 Purchases from Foreign Entities</i> , June 2016.	

Annex E – Glossary and Offset Example

Actual Value of Offset Transactions: The U.S. dollar value of the offset transaction without taking into account multipliers or intangible factors.

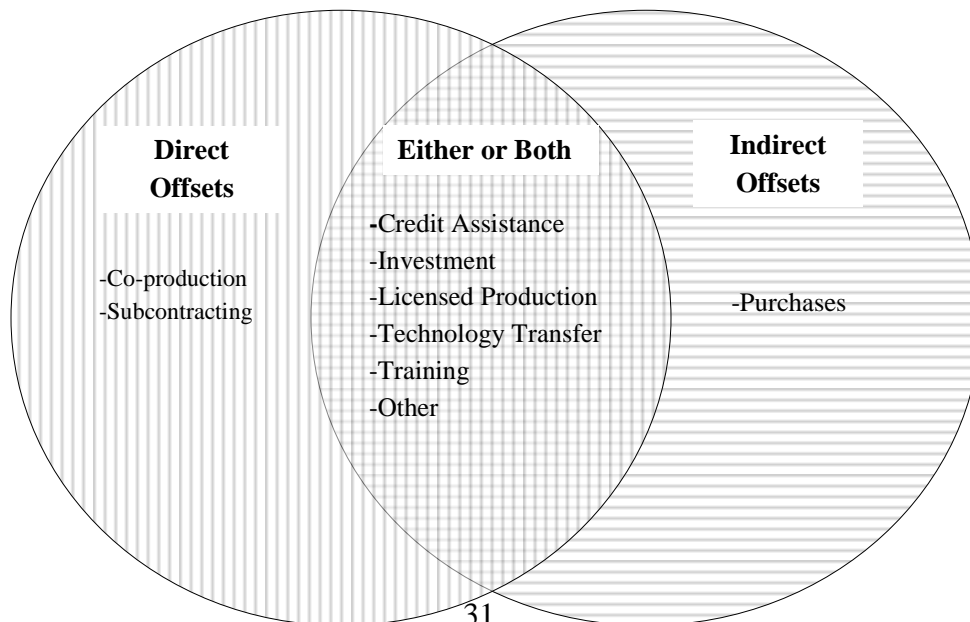
Co-production: Transactions that are based upon government-to-government agreements authorizing the transfer of technology to permit foreign companies to manufacture all or part of U.S.-origin defense articles. Such transactions are based upon an agreement specifically referenced in Foreign Military Sales (FMS) Letters of Offer and Acceptance (LOA) and a government-to-government Memorandum of Understanding (MOU). Co-production is always classified as a direct offset.

Credit Assistance: Credit assistance includes direct loans, brokered loans, loan guarantees, assistance in achieving favorable payment terms, credit extensions, and lower interest rates. Credit assistance specifically excludes the use of “banked” offset credits (credits that exceed the requirement of the offset agreement and are permitted, by the terms of the agreement, to be applied to future offset obligations). Credit assistance is nearly always classified as an indirect offset transaction but can also be direct.

Credit Value of Offset Transactions: The U.S. dollar value credited for the offset transaction by application of a multiplier, any intangible factors, or other methods. The credit value may be greater than, equal to, or less than the actual value of the offset.

Direct Offsets: An offset transaction directly related to the article(s) or service(s) exported or to be exported pursuant to the military export sales agreement. The diagram below illustrates how each category may be classified as direct and/or indirect offsets.

Indirect Offsets: An offset transaction unrelated to the article(s) or service(s) exported or to be exported pursuant to the military export sales agreement. The diagram below illustrates how each category may be classified as direct and/or indirect offsets.



Investment: Investment arising from an offset agreement, often taking the form of capital dedicated to the establishment of a foreign entity unrelated to the defense sale or to expanding the U.S. firm's subsidiary or joint venture in the foreign country. Investment can be either a direct or indirect offset.

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. Licensed production is not pursuant to a co-production government-to-government MOU. In addition, licensed production almost always involves a part or component for a defense system, rather than a complete defense system. Licensed production transactions can be either direct or indirect offsets.

Multiplier: A factor applied to the actual value of certain offset transactions to calculate the credit value earned. Foreign purchasers use multipliers to provide firms with incentives to offer offsets that benefit targeted areas of economic growth. When a "positive" multiplier is applied to the price of a service or product offered as an offset, the defense firm receives a higher credit value toward fulfillment of an offset obligation than would be the case without application of a multiplier. Conversely, foreign purchasers apply "negative" multipliers to discourage certain types of transactions not thought to be in the best economic interest of the receiving entity.

Example: A foreign government interested in a specific technology may offer a multiplier of "six" for offset transactions providing access to that technology. A U.S. defense company with a 120 percent offset obligation from a \$1 million sale of defense systems ordinarily would be required to provide technology transfer through an offset equaling \$1.2 million. With a multiplier of six, however, the U.S. company could offer only \$200,000 (actual value) in technology transfer and earn \$1.2 million in credit value, fulfilling its entire offset obligation under the agreement.

Offset Agreement: Any offset as defined under "offsets" that the U.S. firm agrees to in order to conclude a military export sales contract. This includes all offsets, whether they are "best effort" agreements or are subject to penalty clauses.

Offset Transaction: Any activity for which the U.S. firm claims credit for full or partial fulfillment of the offset agreement. Activities to implement offset agreements are categorized as co-production, technology transfer, subcontracting, credit assistance, training, licensed production, investment, purchases, and other.

Offsets: Compensation practices required as a condition of purchase in either government-to-government or commercial sales of: (1) Defense articles and/or defense services as defined by the Arms Export Control Act (22 U.S.C. § 2778) and the International Traffic in Arms Regulations (22 C.F.R. §§ 120-130); or (2) Items controlled under an Export Control Classification Number (ECCN) that has the numeral "6" as its third character in the Commerce Control List found in Supplement No. 1 to part 774 of this chapter other than semisubmersible and submersible vessels specially designed for cargo transport and parts, components, accessories and attachments specially designed therefor controlled under ECCN 8A620.b; test,

inspection and production equipment controlled in ECCN 8B620.b, software controlled in ECCN 8D620.b and technology controlled in ECCN 8E620.b.

Other: An offset transaction other than co-production, credit assistance, licensed production, investment, purchases, subcontracting, technology transfer, or training.

Purchases: Purchases involve the procurement of off-the-shelf items from the offset recipient. Purchases are indirect offset transactions.

Subcontracting: In the offset context, subcontracting is the overseas production of a part or component of a U.S.-origin defense article. The subcontract does not necessarily involve license of technical information. Instead, it is usually a direct commercial arrangement between the defense prime contractor and a foreign producer.

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.

Training: Generally includes training related to the production or maintenance of the exported defense item. Training, which can be either direct or indirect offset, may be required in unrelated areas, such as computer training, foreign language skills, or engineering capabilities.

OFFSET EXAMPLE

This example is for illustrative purposes only and in no way represents an actual offset agreement. Nation A purchased ten KS-340 jet fighters from a U.S. defense firm, Company B for a total of \$500 million with a related 100 percent offset agreement. In other words, the offset agreement obligated Company B to fulfill offsets equal to the value of the contract, or \$500 million. The government of Nation A decided what would be required of Company B in order to fulfill its offset obligation, which would include both direct and indirect offsets. The government also assigned the credit value for each category.

Direct Offsets (i.e., related to the production of the export item, the KS-340 jet fighter)

Technology Transfer: The technology transfer requirement was assigned 36 percent of the total offset obligation. Company B agreed to transfer all the necessary technology and know-how to firms in Nation A in order to repair and maintain the jet fighters. The government of Nation A deemed this capability to be vital to national security and, therefore, gave a multiplier of six. As a result, the transfer of technology actually worth \$30 million was given a credit value of \$180 million.

Licensed Production: Firms from Nation A manufactured some components of the KS-340 jet fighters, totaling \$240 million, which accounted for 48 percent of the offset obligation. There was no multiplier associated with this activity.

Indirect Offsets (i.e., not related to the production of the export item, the KS-340 jet fighter)

Purchase: Company B purchased marble statues from manufacturers from Nation A for eventual resale. These purchases accounted for nine percent of the offset obligation, or \$45 million. There was no multiplier associated with this activity.

Technology Transfer: Company B provided submarine technology to firms from Nation A, which accounted for seven percent of the offset obligation, or \$35 million. There was no multiplier associated with this activity.