Offsets in Defense Trade

Twenty-Fourth 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

July 2020

Table of Contents

Executive Summary

This is the twenty-fourth 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 to assess the impact of offsets in defense trade.[2] In 2018, U.S. defense contractors reported entering into 39 new offset agreements with 13 countries valued at $5.147 billion. The value of these agreements equaled 35.20 percent of the $14.622 billion in reported contracts for sales to foreign entities of defense articles and services with associated offset agreements. In 2018, U.S. firms also reported 423 offset transactions conducted to fulfill prior offset agreement obligations with 25 countries at an actual value of $4.317 billion, and an offset credit value of $4.397 billion.

This report notes that exports of defense articles and services can lower overhead costs for the U.S. Department of Defense (DoD); 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 U.S. 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] 15 CFR Part 701 (2018).

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) of 1950 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. U.S. defense contractors have informed U.S. Government agencies, including BIS, that offsets are usually necessary in order to make defense sales – sales which can help support the U.S. industrial base.

This is the twenty-fourth report to Congress on offsets in defense trade that BIS has prepared. This report reviews offset data for the 26-year period from 1993-2018.[9] BIS structured this

[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) and 81 Fed. Reg. 10,472 (March 1, 2016).
[8] Defense Production Act Amendments of 1992 (Pub. L. 102-558, Title I, Part C, § 123).
[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.

report similarly to reports published in 2008 through 2019; 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 June 6, 2019, 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.[10] Fourteen firms reported offset agreement and transaction data to BIS for calendar year 2018. 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 and State, and the Office of the United States Trade Representative. These agencies provided no alternative findings or recommendations.

[10] See 84 Fed. Reg. 26399 (June 6, 2019).

2 Defense Export Sales with Offset Agreements

In 2018, 10 U.S. firms reported entering into 39 offset agreements related to defense export sale contracts. These contracts, signed with 13 countries, were valued at $14.622 billion, which was well above recent years and the highest value of defense export contracts since 2012. The offset agreements were valued at $5.147 billion which equaled 35.20 percent of the value of the signed defense export sales contracts, which is well below the historic average of approximately 58.91 percent. During 2018, reported offset agreements ranged from a low of 11.72 percent of the defense export sales contract value to a high of 100 percent.

In 2018, approximately 85 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 requirements, or bank credit guarantees.

Table 2-1: Summary of Defense Export Sale Contract Values with Related Offset Agreements, 1993 – 2018

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	31	13
2004	$4,934	$4,331	87.78%	14	41	18
2005	$2,260	$1,464	64.79%	8	25	18
2006	$5,265	$3,655	69.42%	15	48	21
2007	$6,932	$5,469	78.89%	11	45	20
2008	$6,442	$3,835	59.53%	17	56	17
2009	$11,065	$6,847	61.89%	15	65	21
2010	$4,019	$2,451	60.98%	15	34	14
2011	$10,989	$5,665	51.56%	9	63	27
2012	$25,717	$10,425	40.54%	13	50	17
2013	$10,015	$5,182	51.75%	17	69	19
2014	$13,075	$7,709	58.96%	14	46	15
2015	$8,180	$3,183	38.90%	13	40	16
2016	$4,352	$1,491	34.26%	6	33	14
2017	$3,201	$2,091	65.32%	12	50	12
2018	$14,622	$5,147	35.20%	10	39	13
Total	**$203,599**	**$119,941**	**58.91%**	**64**	**1,179**	**51**

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

Chart 2-1: Summary of Defense Export Sale Contract Values with Related Offset Agreements (2009 - 2018)

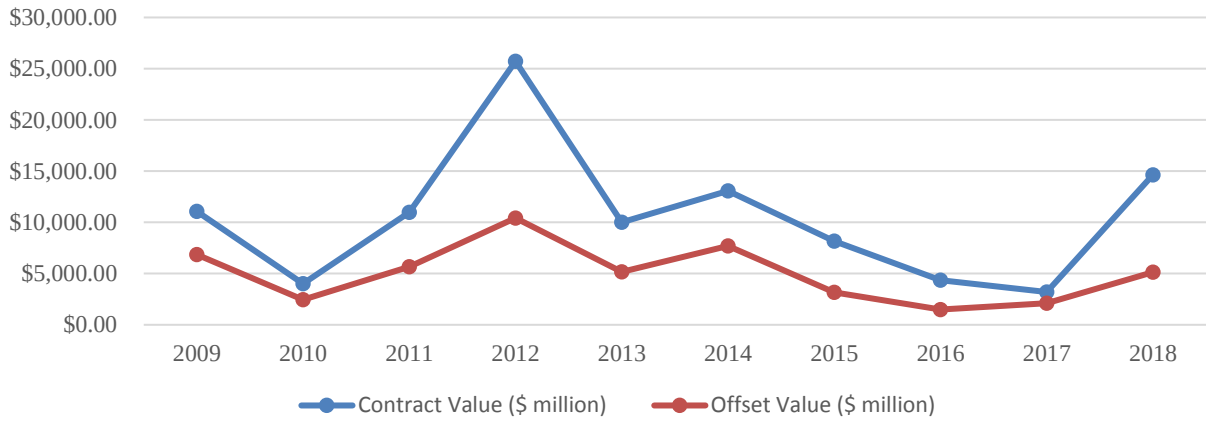
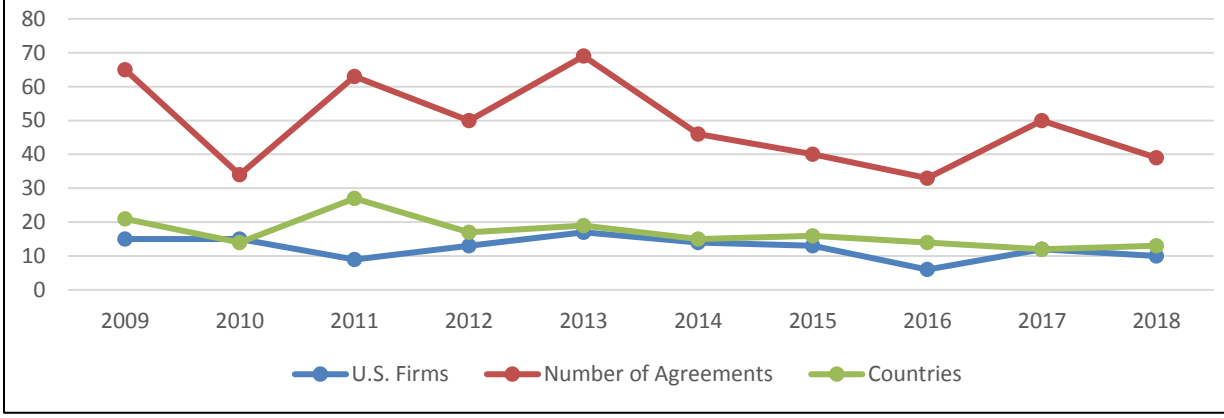


Chart 2-2: Summary of Defense Export Sales with Related Offset Agreements (2009 - 2018)



During 1993-2018, 64 U.S. firms reported entering into 1,179 offset agreements related to defense export sales contracts worth $203.599 billion with 51 countries and six multi-country arrangements. The associated offset agreements were valued at $119.94 billion.

3 Offset Transactions

In 2018, 12 U.S. firms reported concluding 422 offset transactions with 25 countries to fulfill offset agreement obligations. This is the second lowest number of offset transactions reported since BIS began collecting data in 1993. The offset transactions reported by U.S. firms had an actual value of $4.314 billion in 2018 and a credit value of $4.387 billion. In 2018, U.S. industry reported that 35 offset transactions (8.27 percent of all transactions completed during the 12-month period) had a multiplier greater than one applied and 27 transactions (6.38 percent of all transactions completed during the 12-month period) had a multiplier of less than one applied.[11]

Table 3-1: Summary of Offset Transactions, 1993 – 2018

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	$3,563	21	546	32
2014	$3,864	$4,289	17	672	29
2015	$5,049	$5,323	19	651	26
2016	$2,634	$3,064	20	508	26
2017	$4,577	$5,349	21	543	29
2018	$4,314	$4,387	12	422	25
Total	**$87,112**	**$101,627**	**68**	**16,173**	**47**

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

[11] 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.

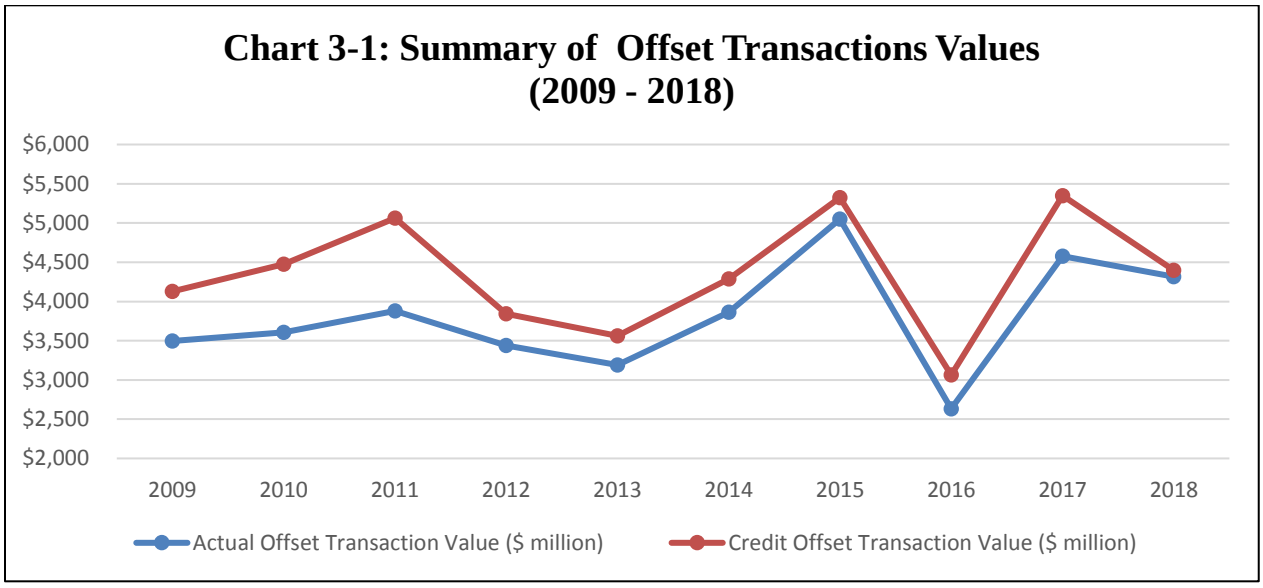


Chart 3-1: Summary of Offset Transactions Values
(2009 - 2018)
$6,000
$5,500
$5,000
$4,500
$4,000
$3,500
$3,000
$2,500
$2,000
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Actual Offset Transaction Value ($ million)
Credit Offset Transaction Value ($ million)

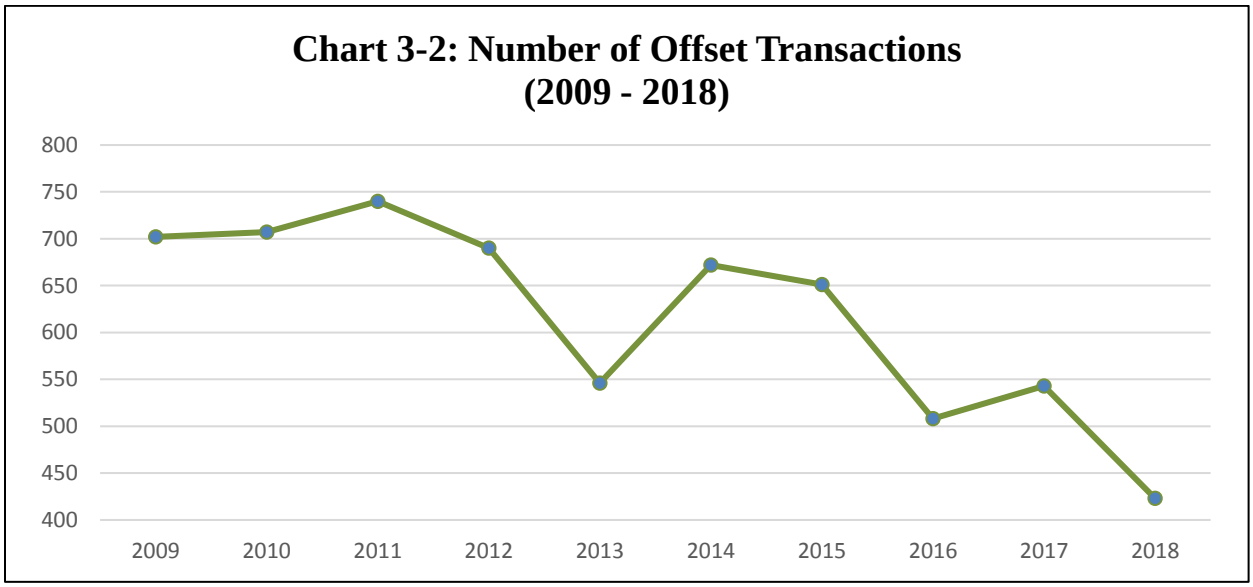
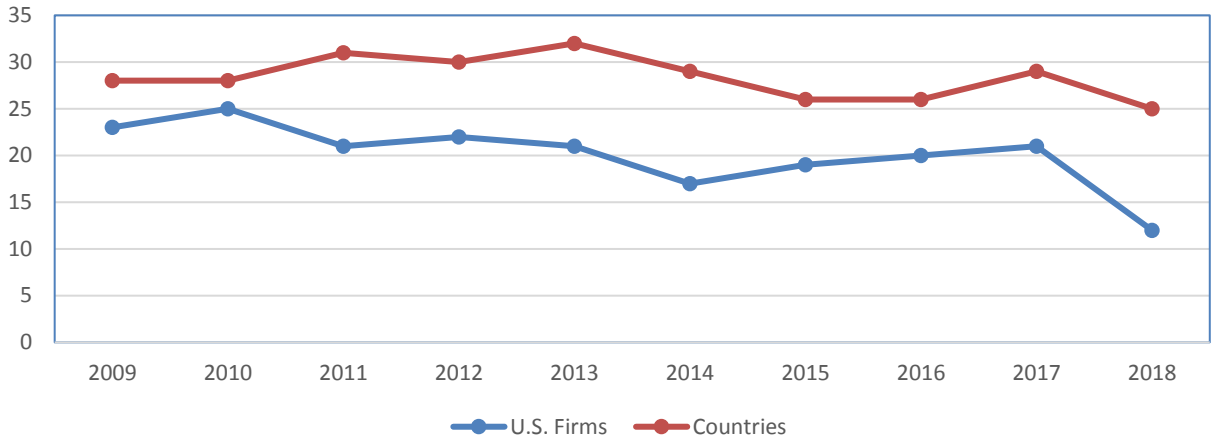


Chart 3-2: Number of Offset Transactions
(2009 - 2018)
800
750
700
650
600
550
500
450
400
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

Chart 3-3: Number of Firms Reporting Offset Transactions and Number of Countries Reported (2009 - 2018)



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.[12] See Annex H for definitions of each offset transaction category.

In 2018, direct offsets (transactions directly related to the defense export sale with an associated offset agreement) accounted for 53.85 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 46.31 percent of the actual value of reported offset transactions. During 1993-2018, direct offsets accounted for 39.25 percent of the actual value of the reported offset transactions, with indirect offsets accounting for 59.12 percent.[13]

By comparison, in 2018, direct offsets accounted for 31.51 percent of the number reported offset transactions and indirect offsets accounted for 68.00 percent. From 1993-2018, direct offsets made up an average of 35.27 percent of the number of reported offset transactions, and indirect offsets accounting for 63.85 percent of such transactions. The 2018 numbers are largely consistent with historic trends. In the 23rd Annual Report published in 2019, BIS noted that the

[12] 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.
[13] The total does not equal 100 percent because a small number of reported offset transactions are not specified as direct or indirect.

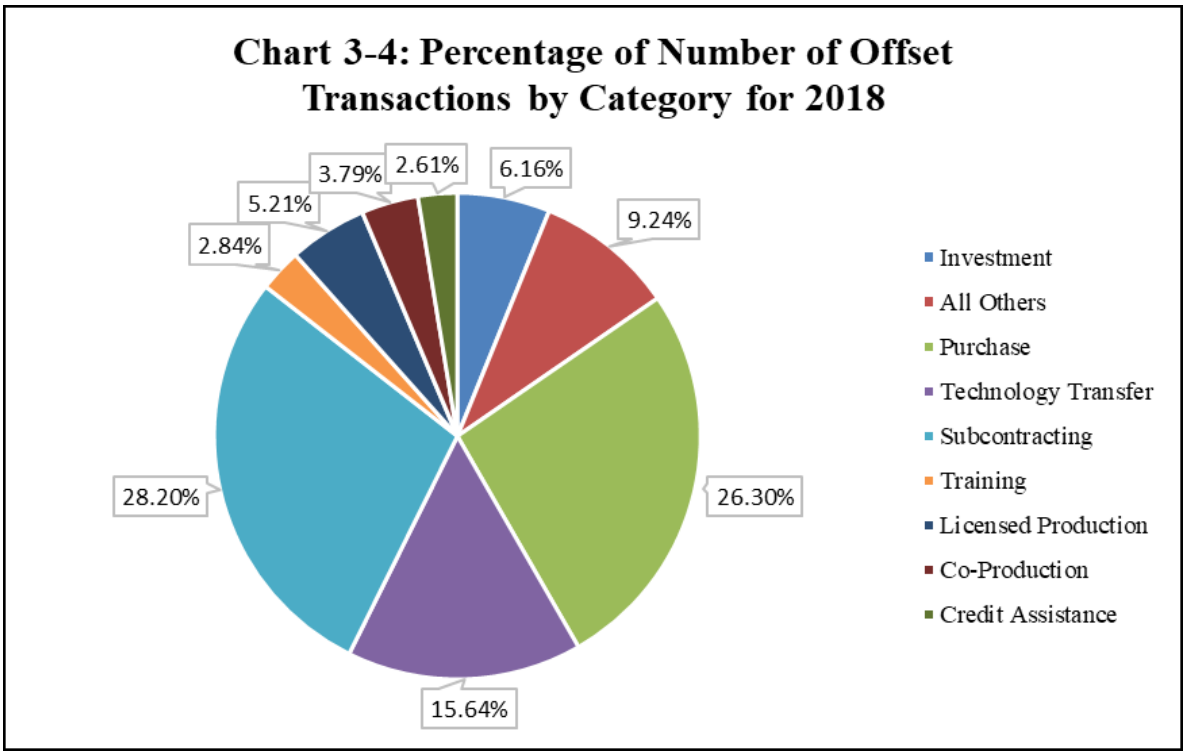
number of direct offset transactions was higher than historical averages in 2017 while the value of those direct offset transactions was below historical averages, which could indicate that offset demanding countries were requiring more direct offsets but were assigning less value to them. BIS had not observed this fact pattern in any other recent years of reported offset data. The fact that the same fact pattern did not present itself in 2018 could mean that the numbers from 2017 were a one-year anomaly. In fact, during 2018, the value of direct offsets was higher than historical averages. BIS will continue to monitor these numbers in future reports.

The top three offset transaction categories based on actual value reported by industry for 2018 were purchase, subcontracting, and technology transfer. These three categories represented 63.59 percent of all offset transactions reported for 2018 based on quantity, 65.75 percent of all offset transactions based on actual value, and 63.69 percent of all offset transactions based on credit value.

Table 3-2: Summary of Offset Transactions by Category for 2018

Transaction Category	Actual Value ($ thousands)	Percent of Total	Credit Value ($ thousands)	Percent of Total	Number of Transactions	Percent of Total
Subcontracting	$1,199,203	27.80%	$1,199,847	27.35%	119	28.20%
Purchase	$962,698	22.31%	$985,547	22.47%	111	26.30%
All Others	$676,412	15.68%	$615,356	14.03%	39	9.24%
Technology Transfer	$473,287	10.97%	$507,488	11.57%	66	15.64%
Credit Assistance	$355,965	8.25%	$361,010	8.23%	11	2.61%
Investment	$207,433	4.81%	$219,973	5.01%	26	6.16%
Co-Production	$145,551	3.37%	$154,689	3.53%	16	3.79%
Licensed Production	$158,142	3.67%	$158,142	3.60%	22	5.21%
Training	$135,512	3.14%	$184,870	4.21%	12	2.84%
Total	**$4,314,203**	**100.00%**	**$4,386,922**	**100.00%**	**422**	**100.00%**

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



Of the total number of transactions reported in 2018 that included a multiplier greater than one, the top three offset transaction categories based on quantity were subcontracting, purchasing, and technology transfer. Subcontracting accounted for 20 percent of these transactions, purchasing accounted for 14.29 percent, and technology transfer accounted for 14.29 percent.

The top three offset transaction categories reported by industry for the 26-year reporting period (1993-2018) were: purchasing, subcontracting, and technology transfer on the basis of quantity, actual value, and credit value. These three categories represented 79.91 percent of all transactions based on quantity, 73.33 percent of all transactions based on actual value, and 69.48 percent based on credit value. Purchasing alone accounted for 46.10 percent of all transactions based on quantity, 36.74 percent based on actual value, and 33.28 percent based on credit value. From 1993-2018, based on quantity, the top three offset transaction categories that included multipliers greater than one were purchases (27.71 percent), technology transfer (20.90 percent), and subcontracting (17.08 percent), respectively.

See Annex D for a summary of reported offset transactions by type, category, value, and with multipliers on an annual basis during the 25-year reporting period (1993-2018).

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 U.S. 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.[14]

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, and thereby may help to create or enhance current and future competitors to U.S. industry.

Export and Offset Activity Trends

According to end-use export data published by the Bureau of the Census (Census), the value of U.S. merchandise exports totaled approximately $1.67 trillion in 2018.[15] Defense-related merchandise exports totaled $18.4 billion in 2018, or 1.10 percent of total U.S. merchandise exports.[16] In 2018, U.S. industry reported entering into offset-related defense export sales contracts worth $14.6 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

[14] See Government Accountability Organization (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.
[15] Census, U.S. International Trade Data, U.S. Exports by 5-digit End-Use Code 2007-2018, https://www.census.gov/foreign-trade/statistics/product/enduse/exports/index.html
[16] 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 https://www.census.gov/foreign-trade/statistics/product/enduse/exports/index.html.

several years between the conclusion of a contract for a defense sale and the beginning of shipments. See Table 4-1 for defense-related merchandise exports and offset activity trends from 2003–2018.

Table 4-1: U.S. Merchandise Exports and Reported Offset Activity, 2003 – 2018						
Year	**Total Merchandise Exports ($ millions)**	**Defense-Related Merchandise Exports ($ millions)**	**Defense-Related Exports as a Percentage of Total Merchandise Exports**	**Value of Reported Defense Export Sale Contracts with Related Offset Agreements ($ millions)**	**Value of Reported Offset Agreements ($ millions)**	**Value of Reported Offset Transactions ($ millions)**
2003	$724,771	$11,565	1.60%	$7,293	$9,110	$3,563
2004	$814,875	$11,884	1.46%	$4,934	$4,331	$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%	$6,932	$5,469	$3,805
2008	$1,287,442	$16,594	1.29%	$6,442	$3,835	$3,291
2009	$1,056,043	$14,796	1.40%	$11,065	$6,847	$3,495
2010	$1,278,495	$15,304	1.20%	$4,019	$2,451	$3,608
2011	$1,482,508	$14,911	1.01%	$10,989	$5,665	$3,880
2012	$1,545,821	$17,231	1.11%	$25,717	$10,425	$3,438
2013	$1,578,517	$17,617	1.12%	$10,015	$5,182	$3,189
2014	$1,621,874	$20,555	1.27%	$13,075	$7,709	$3,864
2015	$1,503,328	$19,933	1.33%	$8,180	$3,183	$5,049
2016	$1,451,460	$21,270	1.47%	$4,352	$1,491	$2,634
2017	$1,547,195	$18,965[17]	1.23%	$3,201	$2,091	$4,577
2018	$1,665,688	$18,357	1.10%	$14.62	$5,147	$4,317
Sources: BIS Offset Database and Census' 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

The Bureau of Industry and Security (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

[17] Revised data.

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 2016-2018, reported defense export sales contracts with offset agreements that were manufacturing-related based accounted for 97.76 percent of the total value of reported defense export sales contracts and 92.31 percent of the total number of reported defense export sales contracts.[18] The top six manufacturing-based sectors reported by industry during 2016-2018 based on the value of reported defense export sales contracts were guided missile and space vehicle manufacturing (NAICS 336414); other aircraft parts and auxiliary equipment manufacturing (NAICS 336413); ammunition (except small arms) manufacturing (NAICS 332993); aircraft manufacturing (NAICS 336411); search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing (NAICS 334511); and other guided missile and space vehicle parts and auxiliary equipment manufacturing (NAICS 336419). These six categories represented 85.95 percent of all defense export sales contracts reported during 2016-2018 based on quantity and 67.19 percent of the defense export sales contracts based on value. See Table 4-2.

Table 4-2: Reported Defense Export Sales by Industry Sector, 2016 – 2018

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	**$21,649,902,135**	**97.76%**	**122**	**92.31%**
Guided Missile and Space Vehicle Manufacturing	$6,344,019,766	28.65%	29	22.66%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$5,469,451,373	24.70%	7	5.47%
Ammunition (except Small Arms) Manufacturing	$2,789,200,000	12.60%	5	3.91%
Aircraft Manufacturing	$2,142,234,064	9.67%	10	7.81%

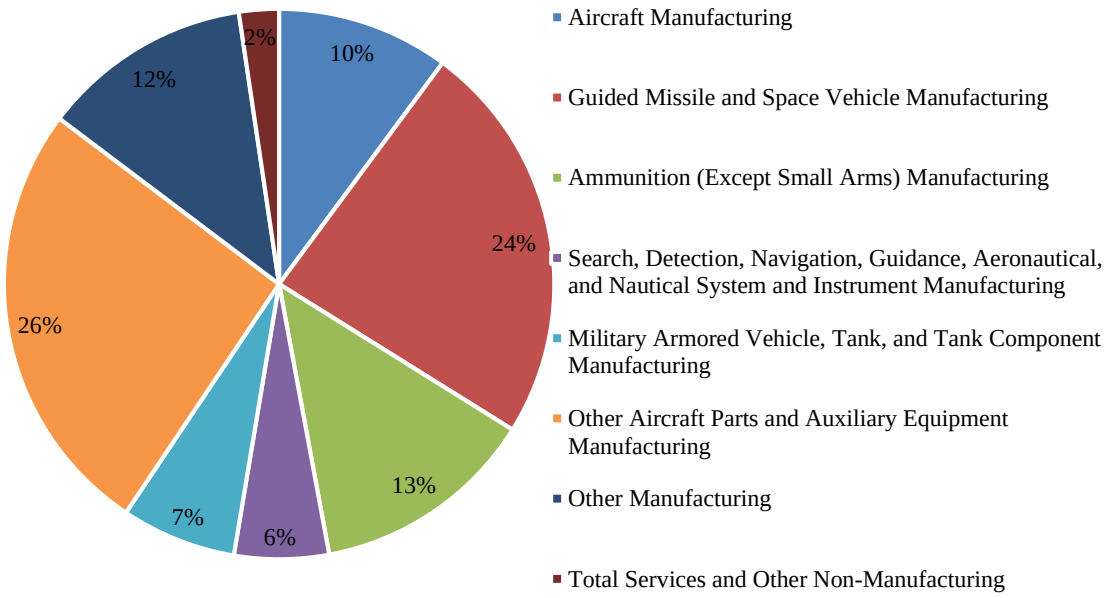
[18] BIS's analysis to measure offset-related impact is based on three years of data which compensates for annual fluctuations.

Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,173,365,155	5.30%	23	17.97%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$1,115,250,247	5.04%	12	9.38%
Other Manufacturing	$2,216,381,530	11.81%	36	28.13%
Total Services and Other Non-Manufacturing	**$494,986,364**	**2.24%**	**6**	**4.69%**
Grand Total	**$22,144,888,499**	**100%**	**128**	**100%**

Source: BIS Offset Database

Due to rounding, totals may not add up exactly.

Chart 4-1: Percentage of Total Value of Defense Export Sales Contracts by Inudstry, 2016-2018



Reported Offset Transactions by Industry Sector

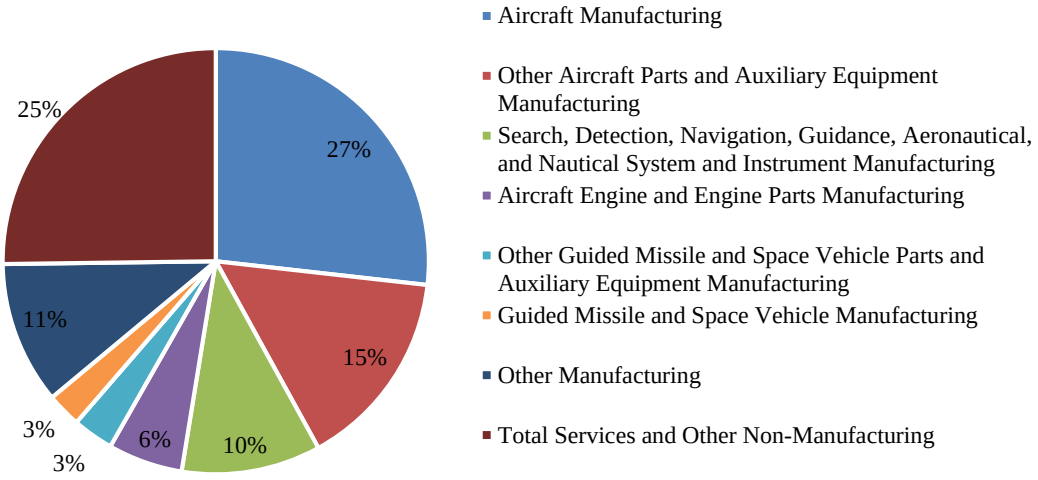
During 2016-2018, 74.79 percent of reported offset transactions were manufacturing-related based on the total actual value of reported offset transactions and 72.17 percent based on the total number of reported offset transactions. The top six sectors reported by industry during 2016-2018 based on the total actual value were aircraft manufacturing (NAICS 336411); other aircraft parts and auxiliary equipment manufacturing (NAICS 336413); search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing (NAICS 334511);

aircraft engine and engine parts manufacturing (NAICS 336412); guided missile and space vehicle manufacturing (NAICS 336414); and military armored vehicle, tank, and tank component (NAICS 336992). These six categories represented 46.84 percent of all offset transactions reported for 2016-2018 based on quantity and 63.96 percent of offset transactions based on actual value. See Table 4-3.

Table 4-3: Reported Offset Transactions by Industry Sector, 2016 – 2018

Industry Sector	Total Actual Value	Percent of the Total Actual Value	Number of Transactions	Percent of the Total Number of Transactions
Total Manufacturing	**$8,618,843,081**	**74.79%**	**1,063**	**72.17%**
Aircraft Manufacturing	$3,086,777,840	26.78%	139	9.44%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$1,754,111,815	15.22%	197	13.37%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,218,089,862	10.57%	256	17.38%
Aircraft Engine and Engine Parts Manufacturing	$653,998,108	5.67%	52	3.53%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$357,926,495	3.11%	10	0.68%
Guided Missile and Space Vehicle Manufacturing	$300,395,736	2.61%	36	2.44%
Other Manufacturing	$1,247,543,225	10.83%	373	25.32%
Total Services and Other Non-Manufacturing	**$2,905,743,222**	**25.21%**	**410**	**27.83%**
Engineering Services	$815,835,332	7.08%	117	7.94%
Other Support Activities for Air Transportation	$378,781,411	3.29%	37	2.51%
Flight Training	$311,695,536	2.70%	24	1.63%
Colleges, Universities, and Professional Schools	$246,179,564	2.14%	24	1.63%
Custom Computer Programming Services	$184,875,835	1.60%	48	3.26%
All Others	$968,375,544	8.40%	160	10.86%
Grand Total	**$11,524,586,304**	**100.00%**	**1,473**	**100.00%**

Chart 4-2: Percentage of Total Actual Value of Offset Transactions by Industry Sector, 2016 - 2018



BIS compared defense export sales contracts and offset transactions reported for 2016-2018 with data published by the Census on total 2014-2016 U.S. shipments of selected manufacturing industry sectors to provide context for the volume of offset activity relative to the U.S. economy.[19] Industry reported defense export sales contracts with 15 manufacturing NAICS codes and offset transactions with 60 manufacturing NAICS codes. The comparison of 2016-2018 offset-related data with 2014-2016 U.S. shipment data highlights that, while the reported defense export sales contracts accounted for a significant percentage of U.S. shipment data in certain manufacturing industry sectors, reported offset transactions data did not account for a significant percentage of U.S. shipment data in any manufacturing industry sector. See Table 4-4.

[19] 2017 shipment data from Census was not published in time for inclusion in this report. Therefore, Census data for the 2014-2016 period was used for comparison.

Table 4-4: 2016-2018 Reported Manufacturing Defense Export Sales and Reported Manufacturing Offset Transactions and 2014-2016 Value of U.S. Product Shipments by Industry Sector

Reported Manufacturing Defense Export Sales Contracts

Industry Sector	Value of Reported 2016-2018 Defense Export Sales Contracts	Total Value of 2014-2016 U.S. Product Shipments	Percent of Defense Export Sales Contracts to Total U.S. Product Shipments
Total Manufacturing	**$22,144,888,499**	**$1,122,606,385,000**	**1.97%**
Guided Missile and Space Vehicle Manufacturing	$6,344,019,766	$67,337,997,000	9.42%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$5,469,451,373	$114,163,816,000	4.79%
Ammunition (Except Small Arms) Manufacturing	$2,789,200,000	$4,096,298,000	68.09%
Aircraft Manufacturing	$2,142,234,064	$367,769,739,000	0.58%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,173,365,155	$132,863,120,000	0.88%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$1,115,250,247	$4,818,903,000	23.14%
Other Manufacturing*	$2,616,381,530	$397,416,609,000	0.66%

Reported Manufacturing Offset Transactions

Industry Sector	Value of Reported 2016-2018 Offset Transactions	Total Value of 2014-2016 U.S. Product Shipments	Percent of Transactions to Total U.S. Product Shipments
Total Manufacturing	$8,618,843,081	$3,236,107,297,000	0.27%
Aircraft Manufacturing	$3,086,777,840	$367,769,739,000	0.84%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$1,754,111,815	$123,654,535,000	1.42%
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,218,089,862	$120,386,371,000	1.01%
Aircraft Engine and Engine Parts Manufacturing	$653,998,108	$126,163,601,000	0.52%
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$357,926,495	$4,818,903,000	7.43%
Guided Missile and Space Vehicle Manufacturing	$300,395,736	$63,283,267,500	4.75%
Other Manufacturing*	$1,247,543,225	$279,933,208,000	0.45%

Source: BIS Offset Database and Census *Annual Survey of Manufacturers(ASM): Value of Products Shipments: Value of Shipments for Product Classes* (includes data from 2014 to 2016)

* The "Other Manufacturing" category in the Defense Export Sales Contracts table includes nine NAICS codes reported by U.S. defense contractors and the "Other Manufacturing" category in the Offset Transactions table includes 54 NAICS codes reported by U.S. defense contractors. The U.S. shipment data corresponds to those reported NAICS codes.

Note: 2017 shipment data from 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), and Census' *Annual Survey of Manufactures (ASM)* data, BIS has developed a method to approximate the value-added shipment and employment impact of offset activities across certain United States industry sectors.[20] Seventeen industry sectors were identified using 14 manufacturing NAICS codes reported to BIS for both defense export sale contracts with related offset agreements and offset transactions.[21]

During 2016-2018, industry reported defense export sales contracts involving offsets valued at $15.5 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 $15.5 billion in defense export sales contracts was $29.5 billion as shown in Table 4-5.[22] BIS estimates, using Census' *ASM* data, this $29.5 billion in inputs would create or sustain 127,328 employment opportunities.[23] 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.

[20] The BIS method utilizes the I/O accounts to determine the positive economic impact of defense export sales and the negative economic impact of offset transactions. 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. BIS then takes that impact from the I/O accounts and uses Census' *ASM* data to determine the potential employment impact of the defense export sales and offset transactions. 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. BIS's analysis to measure offset-related impact is based on three years of data which compensates for annual fluctuations.

[21] U.S. firms reported defense export sale contracts with 15 manufacturing NAICS codes and offset transactions with 60 manufacturing NAICS codes; however, only 14 manufacturing NAICS codes were reported for both defense export sale contracts with related offset agreements and offset transactions.

[22] 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.

[23] Census' ASM data was not available for 2017 as the ASM is not collected during Economic Census years, years ending in '2' and '7'. Consequently, 2014-2016 ASM data was used.

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. BIS estimates, using Census' *ASM* data and reported offset transaction data supplied by U.S. prime defense contractors, the $8.6 billion in reported offset transactions during 2016-2018 for which Census publishes annual employment and value-added data by NAICS code (valued at $10.1 billion with the I/O multiplier applied), could have created or sustained 38,330 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. 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 $19.4 billion in added "input" opportunities for the U.S. industrial base, and a net gain of 88,998 in employment opportunities created or sustained during the 2016-2018 period. The 88,998 employment opportunities created or sustained during 2016-2018 represents an annual average of 29,666 for the three-year period. Also shown in Table 4-5 is the actual annual average employment in each product category provided in Census ASM data. As a caveat, and 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, 2016-2018			
Positive Economic Activities as Defined by Export Sales Contracts Benefiting U. S. Prime Contractors			
Industry Sector	**Total Inputs**	**Value-added Output / Employee[24]**	**Employment Opportunities Created or Sustained**
Guided Missile and Space Vehicle Manufacturing	$9,463,622,971	$260,346 [25]	36,350
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$7,301,590,145	$196,603	37,139
Ammunition (except Small Arms) Manufacturing	$3,231,800,855	$185,387	17,433
Aircraft Manufacturing	$2,396,055,168	$378,709	6,327
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,456,271,355	$273,158	5,331
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$1,467,259,694	$155,409 [26]	9,441
Military Armored Vehicle, Tank, and Tank Component Manufacturing	$1,518,283,155	$276,379	5,493
Aircraft Engine and Engine Parts Manufacturing	$1,757,951,676	$310,548	5,661
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	$652,513,786	$220,798	2,955
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	$141,085,285	$222,478	634
Electronic Computer Manufacturing	$43,915,782	$352,040	129
Ship Building and Repairing	$37,007,002	$164,091	203
All Other Miscellaneous General Purpose Machinery Manufacturing	$24,465,598	$170,322	177
Optical Instrument and Lens Manufacturing	$6,983,384	$173,904	54
Total	**$29,504,641,997**		**127,328**
Sources: BIS Offset Database and BEA's *Benchmark Input-Output Accounts of the United States*			
Note: Due to rounding, totals may not add up exactly.			

[24] This is an estimate. Value-added data from the Census' ASM was not available for 2017 as the ASM is not collected during Economic Census years, years ending in '2' and '7'. Consequently, 2014-2016 ASM data was used.
[25] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014.
[26] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014.

Table 4-5: Employment Opportunities Created or Sustained in Manufacturing Industry Sectors, 2016-2018 (Continued)			
Negative Economic Activities as Defined by Export Sales Contracts Benefiting U. S. Prime Contractors			
Industry Sector	**Total Inputs**	**Value-added Output / Employee[27]**	**Employment Opportunities Created or Sustained**
Guided Missile and Space Vehicle Manufacturing	$448,112,095	$260,346[28]	1,721
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$2,341,698,402	$196,603	11,911
Ammunition (except Small Arms) Manufacturing	$63,265,009	$185,387	341
Aircraft Manufacturing	$3,452,512,552	$378,709	9,117
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	$1,511,779,489	$273,158	5,534
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$470,899,801	$155,409[29]	3,030
Military Armored Vehicle, Tank, and Tank Component Manufacturing	$29,304,369	$276,379	106
Aircraft Engine and Engine Parts Manufacturing	$1,214,722,548	$310,548	3,912
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	$473,472,300	$220,798	2,144
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	$55,655,081	$222,478	250
Electronic Computer Manufacturing	$7,574,080	$352,040	22
Ship Building and Repairing	$29,455,277	$164,091	180
All Other Miscellaneous General Purpose Machinery Manufacturing	$7,471,628	$170,322	44
Optical Instrument and Lens Manufacturing	$3,199,947	$173,904	18
Total	**$10,109,122,577**		**38,330**

Sources: BIS Offset Database and BEA's *Benchmark Input-Output Accounts of the United States*

[27] This is an estimate. Value-added data from the Census' Annual Survey of Manufacturers (ASM) was not available for 2017 as the ASM is not collected during Economic Census years, years ending in '2' and '7'. Consequently, 2014-2016 ASM data was used.

[28] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014

[29] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014.

Note: Due to rounding, totals may not add up exactly.

Table 4-5: Employment Opportunities Created or Sustained in Manufacturing Industry Sectors, 2016-2018 (Continued)

Net Impact of Economic Impact from Export Sales Contracts and Offset Transactions

Industry Sector	Total Inputs	Value-added Output / Employee[30]	Net Employment Opportunities Created or Sustained	Annual Average Number of Net Employment Opportunities Created or Sustained, 2016-2018	Annual Average Number of Employees During 2014-2016[31]
Guided Missile and Space Vehicle Manufacturing	$9,015,510,876	$260,346[32]	34,629	11,542	49,379
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$4,959,891,743	$196,603	25,228	8,409	108,470
Ammunition (except Small Arms) Manufacturing	$3,168,535,846	$185,387	17,091	5,697	10,354
Aircraft Manufacturing	-$1,056,457,384	$378,709	-2,790	-930	168,215
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	-$55,508,134	$273,158	-203	-68	112,263
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	$996,359,893	$155,409[33]	6,411	2,137	6,818
Military Armored Vehicle, Tank, and Tank Component Manufacturing	$1,488,978,786	$276,379	5,387	1,796	5,892
Aircraft Engine and Engine Parts Manufacturing	$543,229,128	$310,548	1,749	583	77,090
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	$179,041,486	$220,798	811	270	67,816
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	$85,430,204	$222,478	384	128	16,775
Electronic Computer Manufacturing	$37,731,306	$352,040	107	36	11,123
Ship Building and Repairing	$3,780,153	$164,091	23	8	99,854
All Other Miscellaneous General Purpose Machinery Manufacturing	$22,737,654	$170,322	133	44	51,776
Optical Instrument and Lens Manufacturing	$6,257,863	$173,904	36	12	15,002
Total	**$19,395,519,420**		**88,998**	**29,666**	**854,746**

Sources: BIS Offset Database and BEA's *Benchmark Input-Output Accounts of the United States*

[30] This is an estimate. Value-added data from the Census' Annual Survey of Manufacturers (ASM) was not available for 2017 as the ASM is not collected during Economic Census years, years ending in '2' and '7'. Consequently, 2014-2016 ASM data was used.

[31] Number of Employees data from Census' ASM was not available for 2017 as the ASM is not collected during Economic Census years, years ending in '2' and '7'. Consequently, 2014-2016 data was used.

[32] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014.

[33] This is an estimate. Value added data from Census' ASM was not available for 2014. Consequently, the average for the 2015 and 2016 ASM data was used to estimate 2014.

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, 2018 data is utilized to illustrate the relationship between the offset-related technology transfer and total U.S. research and development expenditures. As shown in Table 4-6, in 2018, the value of reported offset transactions that involved technology transfers was $479 million, equivalent to 0.08 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, 2004-2018

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	$304,500,000,000	0.22%
2005	$1,479,648,075	$327,200,000,000	0.45%
2006	$717,679,906	$352,900,000,000	0.20%
2007	$709,925,212	$380,000,000,000	0.19%
2008	$958,313,688	$404,773,000,000	0.24%
2009	$986,715,904	$402,931,000,000	0.24%
2010	$874,836,815	$406,580,000,000	0.22%
2011	$672,618,738	$426,160,000,000	0.16%
2012	$612,402,005	$433,619,000,000	0.14%
2013	$873,225,615	$453,964,000,000	0.19%
2014	$374,540,811	$475,426,000,000	0.08%
2015	$553,653,292	$495,144,000,000	0.11%
2016	$156,077,013	$509,967,000,000	0.03%
2017	$499,197,620	$547,886,000,000	0.09%
2018	$479,286,761	$579,985,000,000	0.08%

Sources: BIS Offset Database and the National Science Foundation, *National Center for Science and Engineering Statistics: National Patterns of R&D Resources: 2017-2019* Data Update, January 2020.

Note: The values shown are in current dollars.

[34] This figure does not mean that U.S. industry lost 0.08 percent of its R&D spending in 2018. Rather, the number indicates that the actual value of offset transactions involving technology transfer was equivalent to 0.08 percent of domestic R&D spending.

BIS does not collect data from industry on the specific technologies transferred as a result of offset agreements and offset transactions. 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.

Domestic Defense Productive Capability

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 2018 totaled approximately $359 billion, of which $11.9 billion or 3.3 percent was expended on purchases from foreign entities. Defense equipment constituted approximately 14 percent of the purchases from foreign entities. Fuel, services, construction, and subsistence accounted for 72 percent, with the remaining 14 percent covering a variety of other categories.[35]

See Annex G for an overview of DOD's Fiscal Year 2018 purchases from foreign entities by claimant programs.

[35] See Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report to Congress – Department of Defense Fiscal Year 2018 Purchases from Foreign Entities*, July 2019.

5 Utilization of Annual Report

The data contained in this annual report is considered and utilized by BIS and other representatives of the United States during discussions with foreign governments on offsets in defense trade. For instance, BIS discussed offsets with representatives from the European Commission (EC) in 2019. These discussions included both BIS and the EC providing updates on their activities related to offsets in defense trade. As demonstrated below, European Union (EU) countries account for a significant portion of U.S. industry offset activity and that data and activity were part of these discussions as well.

In 2018, U.S. firms reported entering into 16 new offset agreements with five members of the EU valued at $5.24 billion. These 12 agreements accounted for 41 percent of the new offset agreements reported by U.S. firms in 2018 based on quantity and 36 percent based on offset agreement value. In 2018, U.S. firms reported 163 offset transactions with EU members with an actual value of $815 million, and an offset credit value of $709 million. The EU members accounted for 39 percent of all offset transactions reported by U.S. firms in 2018 based on quantity and for 19 percent of the actual value of offset transactions.

In April 2018, the President issued a new Conventional Arms Transfer (CAT) Policy that supports the U.S. National Security Strategy through a whole-of-government approach to better align U.S. conventional arms transfers with U.S. national security and economic interests. In July 2018, the Administration developed an Implementation Plan to ensure that the new CAT Policy is fully integrated with real world challenges.

One task within the CAT Policy Implementation Plan was to reestablish the Interagency Offset Working Group within the Executive Branch. The Interagency Offset Working Group is co-chaired by the Departments of State and Commerce and also includes representatives from the Department of Defense and the Office of the U.S. Trade Representative. The Interagency Offset Working Group is tasked with working with industry to develop recommendations on actions that could be taken to minimize the adverse effects of offsets in defense trade while not hindering the flexibility of U.S. industry as it competes in the global defense market.

Annex A (Not for Public Release)

Annex B (Not for Public Release)

Annex C (Not for Public Release)

Annex D – Overview of Offset Transactions by Category and/or Type, 1993-2018

Table D-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	-	36.49%	63.51%	-
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	-	38.07%	61.93%	-
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%
2016	$2,634	$905	$1,728	$1	34.36%	65.62%	0.03%
2017	$4,577	$1,109	$3,468	$0	24.22%	75.78%	0.00%
2018	$4,314	$2,232	$1,990	$1.5	53.85%	46.15%	0.03%
Total or Average	**$87,112**	**$34,196**	**$51,500**	**$1,417**	**39.25%**	**59.12%**	**1.63%**
	Credit Value ($ 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	-	38.08%	61.92%	-
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	-	34.40%	65.60%	-
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%
2016	$3,064	$1,118	$1,945	$1	36.49%	63.49%	0.02%
2017	$5,349	$1,243	$4,104	$1	23.24%	76.73%	0.03%
2018	$4,386	$2,253	$2,133	$1	51.37%	48.63%	0.03%
Total or Average	**$101,626**	**$40,846**	**$59,034**	**$1,745**	**39.95%**	**58.23%**	**1.82%**

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

Table D-2: Number of Offset Transactions by Type and with Multipliers, 1993 – 2018						
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	74	11.03%
2009	702	261	440	1	112	15.95%
2010	707	210	496	1	115	16.27%
2011	740	256	467	17	77	10.41%
2012	690	213	402	75	74	10.72%
2013	546	191	354	1	45	8.24%
2014	672	180	488	4	76	11.31%
2015	651	205	444	2	44	6.76%
2016	508	154	353	1	59	11.61%
2017	543	266	276	1	58	10.68%
2018	422	133	287	2	35	8.27%
Total or Average	**16,173**	**5,704**	**10,327**	**142**	**1,916**	**11.85%**

Source: BIS Offset Database
Note: Because of rounding, totals may not add up exactly.

Table D-3: Number of Offset Transactions by Category and Type and with Multipliers, 1993 – 2018					
Transaction Category	**Total**	**Direct**	**Indirect**	**Unspecified**	**Multipliers Greater than 1**
Purchasing	7,455	313	7,134	8	531
Subcontracting	3,740	3,176	559	5	326
Technology Transfer	1,811	836	953	22	400
Co-production	599	583	12	4	33
Training	481	219	253	9	165
Investment	403	50	347	6	114
Licensed Production	329	201	126	2	27
Credit Assistance	183	18	165	0	33
Other	1,172	308	778	86	287
Total	**16,173**	**5,704**	**10,327**	**142**	**1,916**
Source: BIS Offset Database					

Table D-4: Offset Transactions by Category, Type, and Value, 1993-2018								
Transaction Category	**Actual Values ($ millions)**				**Percent by Column Total**			
	Total	**Dir.**	**Ind.**	**Unsp.**	**Total**	**Dir.**	**Ind.**	**Unsp.**
Purchasing	$32,009	$1,764	$30,209	$36	36.75%	5.16%	58.60%	2.53%
Subcontracting	$17,206	$15,892	$1,299	$15	19.75%	46.48%	2.52%	1.06%
Technology Transfer	$14,665	$7,144	$7,213	$306	16.83%	20.89%	14.00%	21.60%
Co-production	$3,990	$3,930	$18	$42	4.58%	11.49%	0.03%	2.96%
Licensed Production	$2,637	$1,427	$1,186	$24	3.03%	4.17%	2.30%	1.69%
Investment	$4,516	$619	$3,807	$91	5.18%	1.81%	7.39%	6.42%
Credit Assistance	$2,442	$314	$2,128	-	2.80%	0.92%	4.13%	-
Training	$2,227	$876	$1,346	$5	2.56%	2.56%	2.69%	0.35%
Other	$7,419	$2,227	$4,293	$899	8.52%	6.51%	8.33%	63.40%
Total	**$87,112**	**$34,193**	**$51,499**	**$1,418**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Transaction Category	**Credit Values ($ millions)**				**Percent by Column Total**			
	Total	**Dir.**	**Ind.**	**Unsp.**	**Total**	**Dir.**	**Ind.**	**Unsp.**
Purchasing	$33,828	$1,609	$31,191	$43	33.29%	4.17%	53.62%	2.42%
Subcontracting	$19,222	$16,662	$1,348	$13	18.91%	43.18%	2.32%	0.73%
Technology Transfer	$17,555	$8,249	$8,552	$236	17.27%	21.38%	14.70%	13.30%
Co-production	$4,628	$4,420	$11	$42	4.55%	11.46%	0.02%	2.37%
Licensed Production	$3,173	$1,712	$1,271	$31	3.12%	4.44%	2.18%	1.75%
Investment	$6,170	$964	$6,116	$173	6.07%	2.50%	10.51%	9.75%
Credit Assistance	$2,734	$301	$2,076	-	2.69%	0.78%	3.57%	-
Training	$3,560	$1,580	$1,776	$18	3.50%	4.10%	3.05%	1.01%
Other	$10,756	$3,086	$5,832	$1,218	10.58%	8.00%	10.03%	68.66%
Total	**$101,626**	**$38,583**	**$58,173**	**$1,774**	**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 D-5: Offset Transactions by Category ($ thousands)

Year	Co-Production			Credit Assistance			Investment			Licensed Production			Purchase		
	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	$703,850	$865,524	226
1994	$111,895	$112,185	10	$3,494	$21,639	3	$93,265	$98,474	17	$45,424	$67,629	15	$694,506	$735,909	288
1995	$86,898	$86,898	11	$374,248	$468,930	20	$117,152	$363,556	9	$5,110	$4,965	2	$863,425	$932,133	367
1996	$16,952	$22,052	3	$244,270	$258,970	15	$10,656	$10,656	2	$26,425	$26,425	1	$1,090,104	$1,116,434	298
1997	$28,339	$28,339	22	$168,410	$168,410	20	$85,126	$271,538	6	$0	$0	0	$837,071	$894,517	245
1998	$94,332	$98,283	30	$43,920	$43,920	4	$0	$0	0	$0	$0	0	$582,198	$595,910	253
1999	$47,803	$47,803	19	$16,888	$16,888	3	$28,475	$219,079	9	$460	$23,000	2	$869,591	$883,930	203
2000	$27,691	$27,691	15	$9,952	$9,952	2	$52,343	$69,621	7	$9,816	$9,816	1	$840,845	$915,622	299
2001	$16,575	$80,300	2	$4,726	$8,027	3	$59,933	$72,945	7	$25,000	$25,000	1	$1,132,958	$1,250,367	331
2002	$0	$0	0	$29,453	$29,453	1	$24,484	$85,234	12	$0	$0	0	$1,289,790	$1,537,001	452
2003	$260,250	$266,465	18	$51,610	$51,610	6	$172,683	$226,215	13	$1,500	$0	1	$1,790,932	$1,835,692	422
2004	$1,395,766	$1,268,666	105	$141,234	$170,453	20	$162,077	$393,819	15	$13,679	$13,679	3	$1,351,878	$1,463,620	213
2005	$309,409	$322,204	74	$61,028	$76,828	10	$185,819	$192,387	19	$123,836	$268,326	5	$1,975,390	$2,393,048	286
2006	$383,587	$432,089	93	$442,028	$453,521	28	$118,733	$124,593	17	$62,000	$64,000	3	$2,029,212	$2,280,352	252
2007	$398,250	$496,255	83	$76,997	$84,164	8	$106,953	$158,986	21	$2,972	$2,972	1	$916,823	$963,306	219
2008	$243,888	$519,084	51	$41,641	$54,171	5	$116,063	$168,033	22	$10,393	$10,393	2	$940,543	$956,295	327
2009	$107,080	$107,080	13	$6,377	$6,377	3	$111,923	$160,883	17	$207,742	$214,696	43	$1,469,915	$1,501,925	333
2010	$148,300	$237,583	2	$8,745	$19,700	2	$185,338	$306,236	25	$380,277	$398,213	45	$1,236,751	$1,307,767	380
2011	$13,943	$13,943	3	$0	$0	0	$112,643	$272,628	35	$307,095	$535,101	56	$1,539,704	$1,512,310	382
2012	$58,304	$58,304	12	$15,872	$30,872	3	$43,226	$43,226	7	$308,339	$308,339	34	$978,762	$956,765	228
2013	$1,999	$1,999	5	$0	$0	0	$77,457	$83,457	13	$261,835	$347,618	31	$945,762	$937,560	215
2014	$432	$432	1	$0	$0	0	$201,418	$307,478	30	$259,362	$259,362	26	$2,362,465	$2,426,634	327
2015	$0	$0	0	$0	$0	0	$134,147	$139,614	21	$159,817	$159,817	9	$2,873,731	$2,887,585	312
2016	$50,016	$198,366	2	$18,084	$140,806	6	$64,110	$113,918	14	$115,734	$115,734	8	$1,157,658	$1,140,499	228
2017	$6,722	$11,817	3	$3,986	$13,539	2	$2,003,775	$2,026,025	26	$114,434	$118,234	10	$572,710	$551,937	258
2018	$145,551	$154,689	16	$355,965	$361,010	11	$207,433	$219,973	26	$158,142	$158,142	22	$962,698	$985,547	111

Source: BIS Offset Database
Note: The values shown have not been adjusted for inflation.

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

Year	Subcontracting			Technology Transfer			Training			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
1993	$336,368	$405,101	109	$300,307	$320,504	32	$50,994	$69,027	21	$50,967	$68,168	17
1994	$267,518	$319,081	95	$462,569	$495,849	68	$107,448	$191,956	34	$148,742	$163,370	36
1995	$830,419	$887,985	147	$334,328	$395,024	71	$81,146	$157,453	33	$197,760	$295,647	51
1996	$721,298	$733,511	175	$476,657	$426,849	60	$176,196	$245,478	38	$113,266	$257,647	42
1997	$848,489	$868,412	141	$289,527	$492,451	67	$9,460	$61,636	13	$454,159	$487,010	64
1998	$1,215,476	$1,244,506	164	$196,765	$413,335	63	$34,929	$70,007	14	$144,550	$157,246	54
1999	$452,464	$476,331	140	$336,018	$396,856	69	$4,330	$31,370	3	$303,704	$713,077	65
2000	$583,874	$774,278	149	$293,377	$430,962	76	$68,887	$123,299	27	$302,950	$388,093	50
2001	$707,069	$863,615	154	$529,343	$788,885	89	$18,427	$28,710	15	$48,656	$82,960	14
2002	$826,348	$929,994	163	$287,465	$383,076	66	$26,344	$33,004	12	$135,848	$149,847	28
2003	$506,058	$602,288	101	$547,446	$563,306	75	$87,170	$165,247	19	$145,262	$297,232	34
2004	$848,650	$849,886	207	$669,458	$782,957	85	$140,524	$148,739	29	$211,266	$273,924	33
2005	$485,233	$508,445	91	$1,479,648	$1,504,264	100	$6,473	$21,167	5	$95,146	$152,360	34
2006	$690,033	$690,033	150	$717,680	$637,598	75	$88,558	$87,265	14	$174,010	$136,966	29
2007	$879,561	$921,161	169	$709,925	$905,483	56	$50,120	$162,998	12	$662,926	$1,046,377	64
2008	$680,119	$863,793	121	$958,314	$1,462,126	86	$73,283	$108,226	13	$226,486	$626,110	44
2009	$472,836	$698,370	140	$986,716	$1,120,309	109	$14,571	$76,325	13	$118,210	$242,668	31
2010	$605,563	$825,264	124	$874,837	$1,076,516	76	$52,207	$83,329	15	$116,107	$222,297	38
2011	$979,598	$1,198,649	136	$672,619	$866,470	80	$88,878	$483,351	21	$165,737	$179,051	27
2012	$466,270	$563,589	231	$612,402	$665,508	68	$200,111	$201,488	27	$754,223	$1,015,158	80
2013	$754,136	$797,242	154	$873,226	$1,050,304	88	$159,208	$218,132	23	$115,434	$126,582	17
2014	$374,218	$455,199	184	$374,541	$476,202	50	$110,628	$127,708	12	$180,795	$236,431	42
2015	$439,261	$489,719	162	$553,653	$650,066	45	$262,695	$267,317	19	$626,059	$729,059	83
2016	$617,096	$630,255	129	$156,077	$206,882	49	$37,660	$42,729	15	$375,131	$432,081	49
2017	$419,070	$426,241	85	$499,180	$535,307	42	$140,974	$168,877	22	$815,722	$1,496,750	95
2018	1,199,203	$1,199,847	119	$473,288	$507,488	66	$135,512	$184,870	12	$676,412	$615,356	39

Source: BIS Offset Database
Note: The values shown have not been adjusted for inflation.

Annex E (Not for Public Release)

Annex F (Not for Public Release)

Annex G – Department of Defense's Foreign Purchases by Category and Total Obligation, Fiscal Year 2018

DOD Purchase Category	Foreign Purchases (Dollars)
Construction	$2,968,461,872
Petroleum	$2,799,348,730
Services	$2,774,591,770
All Others Not Identifiable to Any Other	$1,550,681,406
Ships	$349,287,712
Other Aircraft Equipment	$338,462,851
Electronics and Communication Equipment	$198,214,461
Weapons	$170,333,654
Airframes and Spares	$126,309,848
Ammunition	$115,869,632
Combat Vehicles	$96,224,035
Aircraft Engines and Spares	$92,854,665
Non-Combat Vehicles	$83,406,713
Other Fuels and Lubricants	$52,460,980
Medical and Dental Supplies and Equipment	$44,269,088
Missile and Space Systems	$39,503,807
Materials Handling Equipment	$22,897,475
Textiles, Clothing and Equipage	$18,086,468
Construction Equipment	$15,875,012
Building Supplies	$12,195,764
Production Equipment	$2,267,449
Separately Procured Containers and Handling	$1,059,337
Subsistence	$516,335
Miscellaneous	$359,399
Photographic Equipment and Supplies	$181,540
Transportation Equipment (Railway)	$39,371
Total	**$11,927,577,027**
Source: Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report to Congress – Department of Defense Fiscal Year 2018 Purchases from Foreign Entities*, July 2019.	

Annex H – 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.

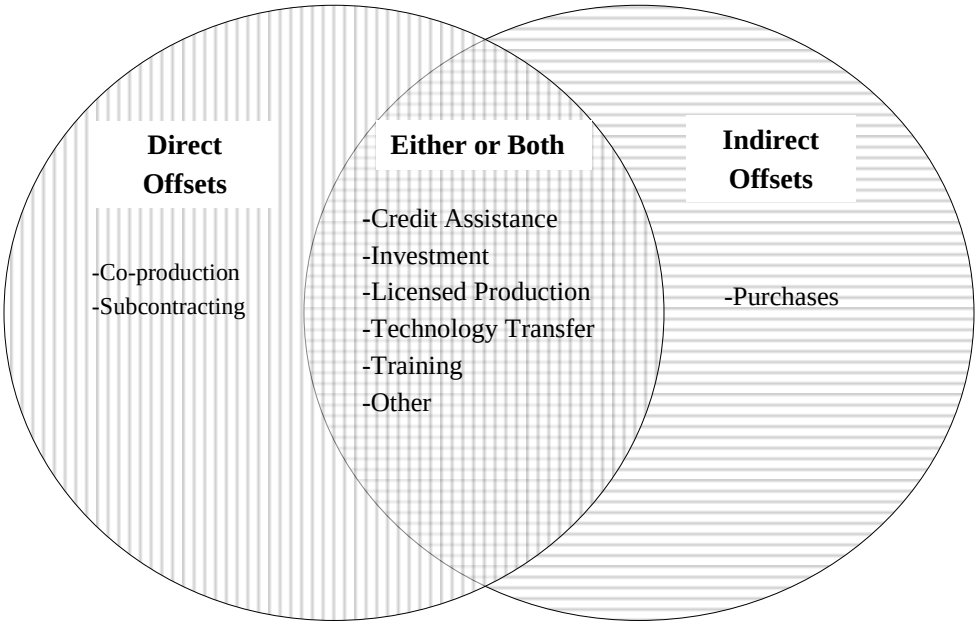
Co-production: Transactions that are based upon government-to-government agreements authorizing the transfer of technology to permit foreign companies to manufacture all or part of U.S.-origin defense articles. Such transactions are based upon an agreement specifically referenced in Foreign Military 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. § 2751 et seq.) 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.