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Defense and Commercial Trade Offsets: Impacts on the U.S. Industrial Base Raise Economic and National Security Concerns

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Abstract: Defense and commercial trade offsets (also known as countertrade or industrial participation) are valued in the tens of billions of dollars each year and often accompany the export of advanced technological goods. An offset is any type of non-monetary compensation that a procuring government requires an exporting firm to provide as a condition of the sale and generally commits the exporting firm to spend a certain percentage of the value of the sale in the procuring country. This paper examines 1) how procuring governments use offsets to achieve their goals, and 2) the economic and national security implications of offsets.

Keywords: commercial trade offsets, countertrade, defense offsets, industrial participation, offsets

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Defense and commercial trade offsets (sometimes referred to as countertrade or industrial participation) are valued in the tens of billions of dollars each year and often accompany the international export of advanced technological goods. Yet economists in the United States have given offsets scant attention, despite the impact they can have on our nation's industrial base, its workforce, and related national security interests. An offset is any type of non-monetary compensation that a procuring government requires an exporting firm to provide as a condition of the sale. In general, an offset agreement commits the exporting firm to invest or spend a certain percentage of the value of the sale in the procuring country. Over 80 countries require offsets when procuring goods (National Defense Industrial Association [NDIA] 2004) and such mandatory conditions of exchange can take numerous forms, including co-production or licensed production arrangements, foreign subcontracting,

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technology transfers, foreign investment or purchases, training, or other types of activities or assistance (U.S. Department of Commerce, Bureau of Industry and Security [BIS] 2009a, 2009b; U.S. Government Accountability Office [GAO] 2004).

In the United States, the federal government has historically "maintained a 'hands off' policy toward defense offsets, viewing them as part of the part of the transaction between the contracting parties" (GAO 2004, 2). Yet over the years, offsets have become the norm as almost all governments that purchase defense goods from U.S firms require some sort of offset (BIS 2009a). Although comprehensive data on commercial offsets are not collected, data on defense offsets involving U.S. firms are tracked by the U.S. Department of Commerce (DOC) (BIS 2009b). Its data show that from 1993 to 2008, 48 U.S. firms entered into 677 offset agreements with 45 countries. These offsets were valued at $68.9 billion or 71% of the value of the exported products requiring offsets. While commercial and defense offsets can facilitate entrance into new markets for the exporting firm, if fulfillment of offset agreements involves unapproved technology transfers or negatively impacts the U.S. defense industrial base and/or its workforce capabilities, offsets may undermine U.S. national security. This paper examines 1) how procuring governments structure offsets to achieve their goals, and 2) the economic and national security implications of offsets.

Governments Require and Structure Offsets to Serve and Enhance Their Economic, Political, and National Security Interests

Procuring governments generally require and structure offsets to serve and enhance their economic, political, and national security interests. The primary reasons governments require offsets include:

- reducing the financial impact of their procurements,
- retaining their foreign currency reserves,
- obtaining valuable technology and manufacturing know-how,
- increasing domestic workforce skills and capabilities, especially in the industrial base,
- creating new jobs and preserving existing domestic employment,
- strengthening their defense industries, including targeted industrial and regional sectors,
- enhancing bid-offers among firms as they compete to tender the most compelling offset packages, and
- making procurements of foreign goods more politically palatable to their citizens (BIS 2009a; DOC, Bureau of Export Administration [BEA] n.d.; GAO 2004; Palia and Shenkar 1991; Wagstaff-Smith 2009).

Poland's use of defense offsets illustrates how a foreign government can use such arrangements to quickly advance the development of its industrial base (Herrnstadt 2008). The $3.8 billion deal for F-16s between Lockheed Martin and the government of Poland included subcontracts with Polish firms to produce "the Pratt & Whitney engine for the F-16" and "commercial jet trainers as well as parts for business aircraft

like the Gulfstream and Piper," which would then be exported by Poland back to the United States. The offset package also included "a partnership with the University of Texas to start a technology accelerator at the University of Lodz" (Herrnstadt 2008, 4).

On the commercial side, China's extensive use of offsets shows how a country can use offsets to foster technology transfers and rapidly advance the development of its industrial base and workforce capabilities. For example, in the automotive and aviation and aerospace industries, China has:

- "sought to acquire process technology from U.S. and European automobile manufacturers by requiring foreign companies to form joint ventures with Chinese companies to assemble cars and trucks in China,"
- extensively used offset agreements to obtain technology from American and European aerospace firms to build up China's aviation and aerospace industry "so that it can independently manufacture its own aerospace products," and
- "insisted that portions of commercial passenger jets be manufactured and assembled in China as a condition of purchasing them." (U.S.-China Economic and Security Review Commission 2008, 72).

Regarding the procurement of passenger jets, Owen E. Herrnstadt has noted that "[b]y pitting Boeing and Airbus against one another for sales of aircraft, [China] has secured the transfer of technology and production by U.S. and European aerospace companies and taken a great leap forward in developing an aerospace industry of its own" (2008, 2). According to Herrnstadt, Boeing's offset arrangements with China date back to the 1980's and, since then, Boeing "has purchased more than $1 billion in aviation hardware and services from China" (2008, 12). The U.S.-China Economic and Security Review Commission found that over 4,500 Boeing planes had parts and assemblies built in China. Moreover, Boeing's offset arrangements are not confined to its older-model planes; China's agreement to purchase Boeing's new 787 Dreamliner jets included arrangements for producing the rudder and other components of the 787 in China (2005, 31).

Ashley Moretz has documented how China has used commercial offsets involving U.S. firms to develop and enhance its food production, electronics, and telecommunications industries. For example,

- Coke, Pepsi, and Kentucky Fried Chicken were allowed to market their soft drinks and fast food in China because Chinese authorities wanted "Coke's and Pepsi's water analysis purification technology, and KFC's technology for food preparation and preservation."
- In exchange for a commitment by the China Electronics Corporation (CEC) to help Intel establish its microprocessors as the standard in China, "Intel signed an agreement to test and assemble its 386SX microprocessors and microcontroller chip through Hauling Electronics," a subsidiary of CEC. Intel's market entry strategy proved to be successful — a survey found that by 1996, "Chinese consumers identified Intel as the 'most recognized' brand in personal computers."

- AT&T was allowed to market its switching system after "agreeing to transfer advanced integrated circuit technology and invest US$100 million in a switching systems project." AT&T further "agreed to transfer its more recent technology for making integrated circuits by 1997 . . . and agreed to increase its purchasing in [China] from US$60 million to US$250 million by the year 2000" (Moretz n.d., 4-5).

Robert F. Dodds, Jr. also examined AT&T's offset arrangements with China. He found that, in exchange for market access, "AT&T also committed to build a facility for semiconductor chip production and a Bell Labs unit," and he noted that "[f]or most of its manufacturing projects, AT&T agreed to technology transfer provisions, joint research and development, and the training of Chinese nationals" (1995, 1136).

China's extensive use of offsets illustrates how a country with vast domestic markets can leverage procurements of commercial goods to achieve its domestic goals. But even smaller countries are often able to structure the terms of their defense trade with the United States. Although a given U.S. firm may be the only seller of a particular weapon system in the United States, it may face competition in the global market if substitute products are produced by foreign firms. Such international competition, as well as the desire to obtain large dollar procurement contracts and tap into foreign markets, can explain why U.S. firms may concede to the offset demands of procuring governments. For example, several large U.S. defense firms have told the DOC that "offsets are usually necessary in order to make defense sales" (BIS 2009b, i).

The actual amount and structure of an offset agreement can be any that is negotiated and agreed to by the parties involved, including an amount that equals or exceeds the purchase price of the acquired good. From 1993 to 2008, defense offset agreements entered into by U.S. firms ranged from a low of 34% of the value of the associated defense exports in 1993 to a high of almost 125% in 2003 (BIS 2009b). When structuring the terms of the offset agreements, some governments have been rather sophisticated "in their management of offsets to achieve specific regional industrial and employment goals" (GAO 2004, 3). For example, GAO found one country required U.S. firms to fulfill their offset obligations by distributing their offset transactions across the country's various regions. And, "some countries establish time frames within which an offset must be performed and include penalty clauses for nonperformance within those time frames" (2004, 3). GAO also found that some governments allow firms to save up or "bank" offset credits, which may then "be used to fulfill offset obligations associated with future sales of defense goods in that country" (2004, 3).

Another way that governments structure offsets is through the use of "multipliers." A procuring country may offer multipliers to particular activities that the government deems to be highly valuable or desirable, such as technology transfers. By increasing the value of the offset credit, a multiplier provides an incentive for a firm to participate in certain activities. For example, if a firm spends $10,000 on a particular offset activity, and the activity has a multiplier of 1.5 — the average size of a multiplier in 2008 (BIS 2009b) — the value of the offset credit equals $15,000. GAO observed that using multipliers as a means to target funds to support specific types of

activities in the purchasing countries "underscores the sophistication of countries using offsets as part of an industrial policy" (GAO 2004, 1).

Lack of a Proactive Federal Policy Addressing Offsets May Undermine U.S. Economic and National Security Interests

Although U.S. defense firms "generally see offsets as a reality of the marketplace" in order to compete for international defense sales (BIS 2009b, i), the U.S. government's lack of a proactive policy that addresses the impact of offsets may undermine its economic and national security interests. As mentioned above, countries use and structure offsets to facilitate their various goals, but the net impact of these arrangements may be mixed. For example, officials in the exporting firms often consider offsets to be the key to increasing business opportunities in the procuring government's markets, developing new suppliers (often at lower costs), and establishing new international cooperative agreements and/or joint ventures. And, while a firm would not likely agree to offset demands if the firm did not perceive the arrangement to yield net gains for the firm, there may be negative impacts to the firm's country — such as detrimental effects to its industrial base — that are not incorporated into the firm's calculations, but which may limit or negate "the economic and industrial benefits claimed to be associated with defense export sales." For example, if an offset requires the use of a foreign supplier by a U.S. firm, this may lead to decreased business for U.S. suppliers, decreased employment for skilled labor in those sectors, and the transfer of capability from the U.S. industrial base to the foreign country (GAO 2004, 2). Other types of offset arrangements — such as co-production or licensed production in the foreign country — could also negate some of the benefits of defense exports (BIS 2009b). In addition, offset agreements may result in firms contributing to the development of their competitors. For example, to fulfill an offset, GAO found a U.S. prime contractor required a U.S. subcontractor "to grant a licensing agreement to a foreign company to produce a subsystem. The foreign company subsequently developed a similar subsystem to compete against the U.S. subcontractor" (GAO 2004, 2-3).

In terms of national security, offsets may enhance or undermine U.S. interests depending on the arrangement. For example, the DOC has noted that offsets can serve "important foreign policy and national security objectives of the United States, such as increasing the industrial capabilities of allied countries, standardizing military equipment, and modernizing allied forces" (BIS 2009a). However, when offset arrangements transfer advanced technology, production, and/or skill capabilities out of the United States, national security concerns are likely to be raised.

Herrnstadt has identified three ways in which defense offsets can have an adverse impact on national security. First, offsets may undermine national security interests if they exacerbate the decline in the defense industrial base or disrupt critical parts of the defense supply chain. Second, offsets may undermine national security if the offsets result in the loss of critical skills in the defense industry's workforce that cannot later be replaced or expanded quickly. And third, while the United States has

export licensing requirements, offsets multiply the chances that "leading edge weapons and the technology for producing them" may go to countries that represent a threat to U.S. national security interests (2008, 6-7).

The health of the U.S. industrial base and the efficacy of the export control system were recently examined in the 2010 *Quadrennial Defense Review Report* (QDR). Although offsets were not mentioned in the QDR, it observed that the federal government's "largely hands-off" approach toward the U.S. defense industrial base has resulted in a defense industry that may not have all of the capabilities that are needed today (U.S. Department of Defense 2010, 81). Moreover, the QDR declared the export control system to be "a potential national security risk," and explained that it "is not adequately focused on protecting those key technologies and items that should be protected and ensuring that potential adversaries do not obtain technical data crucial for the production of sophisticated weapons systems" (84).

Despite the risks posed by offsets, the U.S. federal government continues to take a hands-off approach. A 2009 DOC report reiterated that that the official federal policy on offsets considers them to be "economically inefficient and trade distorting," and that U.S. agencies are prohibited "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" (BIS 2009b, i). And, although, the Congress has mandated numerous reporting requirements and studies over the years to determine the impact of offsets and make recommendations (GAO 2004), the results have been limited. In 2003, a federal Interagency Working Group (IaWG) was mandated to seek advice from foreign nations on how to limit the adverse effects of defense offsets without harming the U.S. economy or the industrial base (BIS 2009a). In 2007, the IaWG recommended that the U.S. government "dialogue with nations and international organizations to promote global understanding of how the different types of offsets impact the industrial base; encourage the development of global offset principles to limit the adverse effects of offsets; and encourage countries to provide defense contractors with maximum flexibility in fulfilling offset requirements" (BIS 2009b, Annex F, 2). In 2009, the DOC reported that the IaWG has continued to dialogue on these issues and that the dialogue was still ongoing.

Today, the federal government still lacks a proactive offset strategy that comprehensively addresses the impact of offset arrangements on the health of the defense industrial base, the capabilities of its workforce, or on technology transfers. By viewing offset arrangements as merely transactions between two parties, the federal government is, in essence, voluntarily delegating its industrial base policy to the private sector firms and the foreign governments they have contracts with. Such delegation of policymaking can undermine economic and national security interests because private sector firms have a legal, fiduciary responsibility to their stockholders and, as such, their focus and responsibilities may or may not align with the economic and national security interests of the United States.

Conclusions and Recommendations

The federal government's hands-off policy regarding offsets has produced a situation in which offset arrangements and their impacts are largely determined by private sector firms' agreements with foreign nations. With the federal government ceding its policymaking and regulatory authority over offsets to market participants, the United States is likely to continue to experience offset arrangements that run counter to its interests because the goals of private sector firms and other governments are not necessarily aligned with U.S. economic and national security interests.

Despite the risks that are raised by the use of offsets, the United States has yet to develop a proactive offsets strategy. Therefore, this paper recommends that the Department of Commerce, as the agency tasked with monitoring defense offsets, take the lead in developing a proactive strategy that identifies policies and actions that comprehensively address the risks posed by defense and commercial trade offsets. Moreover, this offsets strategy should be developed as expeditiously as possible and incorporated in national strategy documents as appropriate.

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