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OFFSETS AND THE LACK OF A COMPREHENSIVE U.S. POLICY What Do Other Countries Know That We Don't?

BY OWEN E. HERRNSTADT

Over the past several years, the outsourcing of hundreds of thousands of white-collar and service jobs from the United States to countries like India and China has received increasing attention.¹ But there is a particular outsourcing arrangement that takes place under the radar, that involves high-paying, high-technology jobs in the export sector, and that impacts national security. This arrangement, known as an offset, is the transfer of technology and/or production from a U.S. company to another country in return for a sale. While offsets are virtually unregulated in the United States, other countries have well-established policies that are feeding the development of their own industries by bringing U.S. productive capacity and technology to their shores. The failure of the U.S. to adopt and enforce straightforward, transparent, and common sense policies to govern offsets costs the United States thousands of jobs and poses a serious threat to national security.

Despite the loss of over 3 million manufacturing jobs in the United States in just the past few years and the emasculation of key industries like shipbuilding, tools, autos, electronics, and semi-conductors, U.S. policy makers maintain their refusal to adopt meaningful responses to the decline in the industrial base. Instead of developing policies

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to foster and strengthen key industries, policy makers relegate decisions to major companies in the private sector,² where a short-term focus on individual firms' profits has devastating results for the overall economy and national security. In the meantime, U.S. competitors develop and aggressively pursue policies that are intent on maintaining and increasing their industrial base (see, for example, U.S. Department of Commerce 2007b, Appendix F).

Strangely from a national security standpoint, offsetting is common in production by the defense industry, and the number of offset deals in that industry alone is staggering. Over the 14-year period 1993-2006, U.S. companies reported over 8,500 transactions, valued at \$42 billion, that involved the transfer of production and technology to 42 countries. A U.S. government report concludes that over 16,000 jobs were lost each year over the 2002-05 period due to offset transactions in the defense industry.

One country that truly understands the importance of offsets is China. By pitting Boeing and Airbus against one another for sales of aircraft, the country 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. Boeing has signed hundreds of millions of dollars of supplier contracts with China's aviation industry, while Airbus, in addition to entering into supplier contracts, has announced the establishment of an assembly facility for the Airbus A-320 in China.

Policy makers need to recognize the threat that offsets pose for U.S. industry, its workers, and the economy. Proposals for eliminating this threat include:

- *Adopting policies that will enable the United States to aggressively use offsets to its own advantage.* United States industry and its workers should not be held defenseless to offset demands by other countries. If U.S. competitors insist on using offsets to their advantage and our detriment, the United States should establish policies of its own to strengthen its negotiating position.
- *Shining a light on current offset transactions in both the defense and commercial industries.* U.S. companies should be required to report the exact nature of their

offset transactions. U.S. taxpayers who supported the development of a particular technology should know whether their subsidy is supporting good jobs at home or is creating jobs in other countries. Moreover, companies receiving a government contract should report whether it involves any form of offset transaction and whether the transaction has an impact on domestic jobs.

- *Strengthening and enforcing prohibitions on offsets in all multilateral and bilateral trade agreements.* Current language regarding offset agreements is narrow and often ignored. Much progress could be made on this issue if and when the U.S.-EU Agreement on Trade in Large Civil Aircraft is resurrected.
- *Forming a national commission to review offset activities in both the defense and commercial industries.* Half-hearted efforts in the recent past to create and empower an interagency governmental task force garnered useful information but produced virtually nothing in the way of policy. Experts from industry and labor must join representatives from academia and government to develop meaningful policy proposals to address the challenges that offsets and other forms of outsourcing pose for U.S. industry, workers, the economy, and national security.

This paper reviews offsets and their implications for the U.S. economy and national security. The first section discusses the definition of offsets, how they can operate to the detriment of the U.S. economy and threaten national security, and how other countries have well-developed offset policies aimed at the United States. The second section traces offset policy in the United States by summarizing current legislation and discussing its inherent weaknesses. The third section contrasts the influence of offsets on the decline of the U.S. aerospace industry and the rise of China's. The final section puts forth policy proposals that address offsets and that, if adopted, will go a long way toward mitigating the threat that they pose for the U.S. economy.

The serious threat of offsets

In its series of reports *Offsets in Defense Trade*, the Com-

merce Department defines offsets as “[c]ompensation practices required as a condition of purchase in either government-to-government or commercial sales of ‘defense articles’ and/or ‘defense services’...” (U.S. Department of Commerce 2007b, Section 1-3; other related terms are defined here as well). Simply put, an offset is a condition a country places on its purchase of goods or services that requires the seller to transfer some production or technology to the purchaser. Traditionally, offsets have been divided into two categories, direct and indirect. *Direct offsets* involve technology and/or production directly related to the purchased product. For example, the production of part of a fighter jet is transferred to another country in return for that country purchasing the fighter jet. *Indirect offsets* involve transfers of technology, production, or other innovative schemes unrelated to the product being purchased. For example, in return for an agreement by one foreign government to purchase a jet fighter made in the United States, the U.S. producer of the fighter agrees to find someone in the United States who will purchase a totally unrelated product from a company in the foreign country (U.S. Department of Commerce 2007a, Section I-3; see also Herrstadt 1999, 197-211).

Although the basic concept of offsets is relatively simple, transactions can rapidly become complicated when they affect different products, services, and industries or take on complex forms. For example, in addition to the transfer of technology and production, offsets can involve outsourcing, licensing procurement, subcontracting, research and development, foreign investments, countertrade, financing, and co-production. Moreover, innovative methods for valuing some offset packages can also make them exceedingly complex (see U.S. Department of Commerce 2007b, Section 1-3).

While the Commerce Department’s definition of offsets refers to the defense industry, offsets and offset-like activities also occur in the commercial industry. But given the increasing complexity of offsets and the growth of indirect offsets, it is not always easy to distinguish between the effect of offsets in the defense and commercial industries. For example, an offset for a defense product can involve a commercial product. A few years ago, in a much publicized case, a U.S.

defense offset resulted in the purchase of commercial equipment produced in another country, apparently at the expense of purchasing a similar product from a U.S. company.³

Moreover, technology transferred with respect to a defense offset may be just as useful in a commercial setting as a defense one. Of course, the converse is true as well—commercial transfers find their way to defense use—a situation that raises the issues of transfer of sensitive technology and unintended contributions to another country’s defense industry (Thompson 1994). For example, when McDonnell Douglas shipped machine tools to the China National Aero-Technology Import and Export Corporation under an offset in 1994-95, some were transferred to a Chinese producer of military equipment (U.S. GAO 1996).

While more precise information is needed regarding offset transactions, what we do know about offsets in the defense and commercial industries is disturbing, and it should raise questions for anyone concerned with the nation’s economy and national defense.

Offsets are significant and increasing

U.S. government reports show that other countries demand extensive offsets from U.S. companies in the defense industry. As one such report concludes, “For 1993-2006, U.S. companies reported 8,660 offset transactions in 42 countries. The actual value of the offset transactions from 1993 to 2006 was \$42 billion,” of which \$16.6 billion was direct offsets and \$25 billion was indirect (U.S. Department of Commerce 2007b, v, Section 2-5). These figures cover only offsets within the defense industry, not offsets and offset-like activities in commercial industries.

Not only are offset values significant, but the demand for them is growing: “The data show that offset demands are increasing over time in all regions” (U.S. Department of Commerce 2007b, Sections 4-6 and 4-8).⁴ Much of this growth is due to increasingly sophisticated offset policies that have been adopted by other countries. Between 1993 and 2003, “the weighted trend in offset percentages” increased worldwide from 52.9% to 94.1%; within this period European offset percentages rose by 35.2 percentage points and non-European offsets rose

over 60 percentage points (U.S. Department of Commerce 2005a, Section 4-7).

Offset policy is well developed by countries other than the United States

As the data above suggest, other countries recognize the value of a comprehensive offset policy, and they take offsets seriously (U.S. Department of Commerce 2007a, Appendix F). Many of these countries explicitly use offsets to gain production and technology in return for sales (U.S. GAO 2004).

Europe has led the way in establishing comprehensive offset programs, and over 20 European countries have offset agreements (U.S. Department of Commerce 2007a, Section 4-5 and Appendix F). The size of offsets demanded is often enormous:

The average offset percentage demanded by the 17 European countries involved in offset activity during the eleven-year reporting period [1993-2003] was 101.2 percent of the export contract values....[T]he average offset percentages for Europe have exceeded 90 percent in each year since 1999, reaching a peak of 148.8 percent in 2003, up from 94.3 percent in 2002. (U.S. Department of Commerce 2005a, Section 4-3)

Finland provides a good example of Europe's sophisticated approach to offsets. Its policy focuses on "participation of domestic defense industry, technology, export, internationalization of exports"; many other European countries share similar goals by utilizing offsets (U.S. Department of Commerce 2007b, Appendix F).

The offset deals demanded by European countries keep getting bigger. As summarized in the *New York Times*, "...offsets are growing. For American and European arms makers, lavish packages have become the key to closing deals. The Czech Republic, for one, has said that when it next buys fighter jets, the offsets will be more important than the jet's price or performance" (Wayne 2003c).

Perhaps there is no better example of the expansion of offset deals than the agreement between Lockheed and the country of Poland. The \$3.8 billion deal for F-16s contained extensive offsets:

The offsets from Lockheed and its industrial partners, which Lockheed pays, include subcontracts for Poles to make commercial jet trainers as well as parts for business aircraft like the Gulfstream and Piper for export to the United States and to make the Pratt & Whitney engine for the F-16 engine. There is also a venture with Accenture for a new technology company in Lodz, and a partnership with the University of Texas to start a technology accelerator at the University of Lodz. (Wayne 2003a)

While Europe is the leader in offset activity, "non-European countries' offset requirement percentages are increasing" (U.S. Department of Commerce 2007b, Section 4-7).⁵ For instance, the focus of South Korea's offset policy is "acquiring high technology, manufacturing, and exporting parts and components" (U.S. Department of Commerce 2007a, Appendix F). Boeing's \$4.4 billion contract with South Korea for 40 F-15s expanded the nature of offsets: the company "agreed that if it sells F-15s to other countries, South Korean workers will build the same parts and do the sub-assembly for those new Boeing customers" (Dine 2002).

Sophisticated offset policies have also been adopted by Canada, which has instituted a program requiring 100% of the value of the contract, with a focus on "long-term development of export markets, high technology" (U.S. Department of Commerce 2007a, Appendix F).

As a further indication of how extensive offsets have become throughout the world, they are now a big business for consultants. Offset conferences are held frequently.

Offsets have a significant impact on the U.S. economy

Although the U.S. government gathers little information concerning the precise impact that offsets have on the U.S. economy, we do know that offsets can and do assist in the creation of enterprises in other countries, ultimately resulting in greater competition for U.S. companies and their workers. We also know that, given the diverse nature of offsets, the economic impact can be felt in industries

and among suppliers that are not parties to the transaction (U.S. Department of Commerce 2007a, Sections 5-13 and 5-14).

While it is not easy to estimate the number of jobs that have been directly lost because of offset deals, anecdotal evidence suggests a serious impact. For example, when the offset with respect to the F-15 program in Korea was announced, news accounts reported that it would “create more than 30,000 jobs in South Korea,” jobs performing work that “once was done by St. Louis workers” (Dine 2002). As mentioned above, the agreement committed Boeing not only to hiring South Korean workers for the current purchase but for future F-15 work, as well. In fact, “...Boeing will transfer jobs and skills to South Korea that will enable it to produce its own fighter jet by 2015” (Wayne 2003b).

These agreements notwithstanding, neither workers nor the general public know much about the existence of offset arrangements. Companies rarely tell workers about the offset either before it is proposed or after it has been accepted, and attempts to negotiate information sharing on offsets into collective bargaining agreements are rarely, if ever, successful.

Although only limited government data are available on offsets—and the data that are available tend to be narrowly tailored to legislative requirements—studies raise significant questions regarding U.S. jobs and offsets in both the defense and commercial industries.

In his testimony before the short-lived Presidential Commission on Offsets, Randy Barber calculated the number of jobs lost each year due to the arrangements:

For the five-year period 1993-97, the job-years averaged about 25,700 per year. Based on past fulfillment-to-credit ratios, it would appear that the job impact of offsets is accelerating; new offset commitments entered into in 1997 will impact about 33,000 job-years. Likewise, new offset commitments entered into over the 1993-97 period involve an average of over 35,000 job-years. (Barber 2000)

An estimate that 35,000 jobs in the well-paying manufacturing/export sector are being affected per year by

offsets should serve as a wake-up call for policy makers, especially since the actual number is probably higher, for a variety of reasons: (1) the figure represents only “a conservative minimum impact baseline for defense-related offsets” (Barber 2000); the calculations consider only defense offsets, not commercial ones; and (3) the data are from 1993-97, and direct and indirect offsets in the defense sector have increased since then, as indicated by U.S. government reports (U.S. Department of Commerce 2007a).

Barber is not alone in concluding that significant job losses occur in the United States each year due to offsets. In its *Twelfth Study*, the Bureau of Industry and Security (BIS) concludes that “16,323 work-years annually associated with the offset transactions completed in the period 2002-2005” were lost (U.S. Department of Commerce 2007b, Section 3-3). The report concludes however that “32,408 work-years...were maintained by defense exports associated with offset agreements during the 2002-2005 period” (U.S. Department of Commerce 2007b, Section 3-2). But the methodology used by BIS in making the determination that offsets have a positive impact on employment during this period is subject to serious criticism. Its calculations are based on Census Bureau data and fundamental assumptions concerning the “value added per employee” factor contained in the calculations (U.S. Department of Commerce 2007b, Section 3-2), yet the report acknowledges the limitations in BIS’s calculations concerning job impact: “These calculations are based on the supposition that this value represents 100 percent U.S. content in all exports, which is not necessarily an accurate assumption” (U.S. Department of Commerce 2007b, Section 3-3, fn. 21). BIS also notes that its calculations do not take into account a variety of offset transactions, like, “Technology Transfer, Training, Overseas Investment, and Marketing,” which “in the short or long run, can shift sales from U.S. suppliers as well...” (U.S. Department of Commerce 2007b, Section 3-3). As stated in the *Twelfth Study*, “It should be noted that the 2002-2005 analysis does not include the potential impacts of an additional \$948 million annually of Technology Transfer, Training, and Overseas Investment offset transactions” (U.S. Department of Commerce 2007b, Section 3-3). Moreover, the number

of jobs affected by offsets does not include jobs on the commercial side. Nor do these estimates include consideration of employment effects that will occur in the long term as industries in other countries become formidable competition to U.S. employers (U.S. Department of Commerce 2007b, Section 3-3).⁶

Claims that the positive effects of offsets also outweigh the negative effects on jobs are shortsighted. Offsets have a deep effect on industries in the long term as suppliers are shifted outside the United States and as prime contractors ship work offshore. At the same time, other countries develop powerful companies that come back to compete fiercely with U.S.-based companies.

This trend will become even more problematic in the future. As advanced industries like aerospace spin off to other countries, opportunities for U.S. development of new technologies will be lost. Technologies that have supported multi-billion dollar markets will likely relocate to other countries, leaving the United States and its workforce further out in the cold.

Offsets have national security implications

As offset arrangements grow and become more creative and more difficult to track, national security concerns also increase. Offsets directly affect national security in at least three ways:

Offsets foster foreign competition. Offsets to other countries may lead to the development of competing weapons platforms and other defense systems (see Evans 1997). This increasing capacity in other countries, as reported in the *Status Report of the Presidential Commission on Offsets and International Trade*, may in part be due to significant loss of capacity in the United States: "...roughly two-thirds of the lost U.S. work and jobs resulting in defense offsets is borne by suppliers to the U.S. exporters, and the affect may be sizeable" (Presidential Commission on Offsets 2001, 29; it goes on to state, "Thus suppliers appear to have borne the brunt of the work."). Indeed, one report shows that "the U.S. supplier base has decreased drastically (by 50%) in the aerospace industry over the period 1991-1995" (Herrnstadt 1999, 202, citing National Academy Press 1997). BIS gives more support to this conclusion. In the *Ninth Study* it stated:

Previous incidents indicate that U.S. contractors sometimes develop long-term supplier relationships with overseas subcontractors based on short-term offset requirements. These new relationships can reduce future business opportunities for U.S. subcontractors, with possible consequences for the industrial base. Offsets can also increase spending and capital investment in foreign countries for defense or non-defense industries, helping to create or enhance current and future competitors. (U.S. Department of Commerce 2005a, Section 3-11, citing U.S. GAO 1998)

The increasing dependence of U.S. defense systems on foreign suppliers is alarming, especially, it might be argued, in a post-September 11 world. What happens when the nation's friends become its enemies? What happens when supply routes, for example, anywhere across the Atlantic or Pacific Oceans, are disrupted?

Offsets can undermine national security

While the United States has a strong export licensing regime, national security is threatened "to the extent that offsets multiply the possibilities for leakage of leading-edge weapons and the technology for producing them..." (Markusen 2000).

In the Offsets Commission's *Status Report*, Commissioner Ann Markusen listed several national security "lapses" with respect to offsets:

- The Japan Aviation Electronics Industry was discovered to have illegally sold U.S.-licensed weapons components—gyroscopes and accelerometers for Japan's F-4 fighters—to Iran and was fined \$10 million in 1992.
- South Korea violated the terms of its license for M-16A1 submachine guns by selling them to hostile countries.
- Israel repeatedly transferred U.S.-licensed missile and radar technology to China in the 1980s and 1990s.
- Brazil transferred American technology gained with an offset to Iraq, and Iraq was able to use the technology to improve the targeting capability of its Scud missiles.

- Examples abound in the offsets arena of violations of licensing agreements involving small arms. Small arms proliferation is a significant security concern for the United States because regional conflicts in areas such as the Balkans, the Middle East, and Africa require peace-keeping and humanitarian operations that are rendered much more dangerous as small arms spread.
- In a 1989 study of 18 co-production agreements (a form of offsets), GAO found five cases of unauthorized transfers (Markusen 2000).

The commission also referred in its *Status Report* to a 1999 report of a House select committee looking into military/commercial transactions with China. That report identified “apparent lapses in the process, including the transfer of a commercial machine tool technology to a Chinese firm by McDonnell Douglas which apparently was diverted to a Chinese plant that manufactures military aircraft and cruise mission components” (Presidential Commission on Offsets 2001, 39, citing U.S. House of Representatives 1999, Ch. 10).

Offsets diminish the U.S. defense workforce

Defense offsets threaten national security by decimating the skilled workforce; if the United States ever must increase defense production, a U.S. skilled workforce may not be immediately available. The U.S. defense industry owes part of its success to its reliance upon a loyal, dedicated, highly skilled workforce. The skills gained by such a workforce are not learned overnight, but rather take a long time and often involve sophisticated apprenticeship and training programs. Today, the United States lacks a number of apprenticeship and training programs it once had, and workers who have been laid off in the aerospace industry have sought positions in other industries in which job security does not appear to be at such a risk.⁷

Current U.S. policy on offsets Legislation⁸

Legislation concerning offsets dates back to the Defense Production Act Amendments of 1984 (Pub. L. 98-265). This law “requires the President to submit an annual report on the impact of offsets on the defense preparedness,

industrial competitiveness, employment, and trade of the United States.” The law was amended later to require that the annual report “be a ‘detailed’ study” that includes (1) summaries of interagency studies on the effect of offsets, (2) the long- and short-term effects of offsets, and (3) the direct and indirect effects on lower-tier defense subcontractors and non-defense industry sectors” (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 99-441).

When Congress enacted the National Defense Authorization Act for fiscal year 1989, it required that companies that entered into defense contracts involving “an offset arrangement exceeding \$50 million to notify the Secretary of Defense of the proposed sale.” The law also requires the president to:

- (1) “establish a comprehensive offset policy that addresses the effect of offsets on specific subsectors of the industrial base and how to prevent or ameliorate any serious adverse effects on those subsectors.
- (2) “enter into negotiations with foreign countries to limit the adverse affect of offsets on the defense industrial base, and report to Congress every year for four years (1989-1992) on the status of negotiations.
- (3) “report by March 15, 1990, discussing actions the U.S. could take in reaction to offsets, such as requiring an offset or other equivalent advantage when buying goods from a country that requires U.S. firms to offer offsets” (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 100-456).

The 1990 National Defense Authorization Act for fiscal years 1990 and 1991 directs the “President to ‘make every effort’ to achieve an agreement that would limit the adverse effect of offsets during negotiations of memoranda of understanding between the United States and other countries” (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 101-189).

In the early 1990s, Congress revisited offsets and designated the Commerce Department as the agency with a prominent role in implementing offset policy. In the Defense Production Act Amendments of 1992, responsibilities regarding information gathering with respect to offsets was moved into the Commerce Department. This

law “designated the Secretary of Commerce to prepare the annual report on offsets, and required the report to address the cumulative effect of offset agreements on domestic defense production capability, especially the lower-tier subcontractors or suppliers, and the effect on the defense technology base of technology transfers that occur to fulfill offset agreements”; it also “required companies to notify Commerce Department officials when entering into a contract that is subject to an offset agreement exceeding \$5 million in value” (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 102-558). In addition to information gathering, the act also required that the president “designate the Secretary of Defense to lead an interagency team to consult with foreign nations on limiting the adverse effects of offsets in defense procurement and report annually on the result of these consultations” (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 102-558).

In 1994 the Foreign Relations Authorization Act for fiscal years 1994 and 1995 amended the Arms Export Control Act to “require that notifications to Congress of impending sales of defense goods” indicate whether an offset agreement is part of the transaction and, if so, provide a description of the agreement (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 103-236).

The Defense Offsets Disclosure Act of 1999 set forth more comprehensive legislation concerning offsets. This law:

Established a National Commission on the Use of Offsets in Defense Trade. Required a report within 12 months on (1) the collateral impact of offsets on industry sectors unrelated to the items sold, (2) the role of offsets with respect to U.S. competitiveness in international trade, and (3) the impact on national security of technology transferred to fulfill offset obligations. (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 106-113, App. G)

It also:

(1) Directed the U.S. government to enter into discussions through multilateral forums to establish

standards for the use of offsets in international trade. (2) Required the National Commission on the Use of Offsets in Defense Trade to submit an analysis of proposals for unilateral, bilateral, and multilateral measures to reduce the detrimental effect of offsets and to identify the appropriate agencies to monitor the use of offsets. (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 106-113, App. G)

By executive order, President Clinton expanded the commission’s duties to include offsets in the commercial industry by creating a commercial offsets council (Office of the President 2000). The work of the council was combined with that of the Offsets Commission. Despite the multiple tasks set forth in the act and the executive order, the commission met only once, for one morning, and issued only a status report, not the final report directed by the law.

The Defense Production Act Reauthorization of 2003 requires:

...the Secretary of Commerce to prepare a report on the impact of offsets on domestic contractors and subcontractors. The Secretary was to (1) detail the number of offset agreements and export contracts involving U.S. contractors for a five-year period 1998-2002, (2) calculate the aggregate, median, and mean value of the contracts and offset agreements during the period, (3) describe the impact of offset agreements and related export contracts on domestic prime contractors and subcontractors in terms of employment. (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 108-195)

The Department of Defense Appropriations Act of 2004 requires:

...the Secretary of Defense to report to Congress by March 1, 2005 on the effect of offset arrangements on specific subsectors of the U.S. industrial base; what actions have been taken to prevent or mitigate any serious adverse effects;

and the extent to which offsets and other arrangements have provided for technology transfer that would significantly and adversely affect the national technology and defense industrial base. (U.S. Department of Commerce 2005a, Appendix F, citing Pub. L. 108-87)

Trade agreements

U.S. policy regarding offsets is also, to a certain extent, reflected in international agreements. Currently, two international agreements address offsets in commercial trade. The 1979 Government Procurement Code of the General Agreement on Tariffs and Trade (GATT), referred to now as the World Trade Organization's Agreement on Government Procurement, addresses offsets in the commercial industry. Specifically, Article XVI states that "signatories shall not, in the qualification and selection of suppliers, products or services, or in the evaluation of tenders and award of contracts, impose, seek or consider offsets"; however, as the Offsets Commission noted, "this prohibition on offsets does not apply to the procurement of defense goods or services which involve essential security interests" (Presidential Commission on Offsets 2001, 17). The commission also noted that, "as of the end of 1997, 26 countries had signed this Agreement, including the United States, the European Economic Community (EC) and its member countries, Japan, and other countries. Developing countries signing the Agreement are allowed to negotiate conditions under which they may use offsets, and these signatory countries have in some cases negotiated an exemption for their procurement of telecommunications and transportation products" (Presidential Commission on Offsets 2001, 17).

Another international agreement, restricting offsets in transactions involving civil aircraft, was created under the GATT's 1979 Agreement on Trade in Civil Aircraft and was signed by the United States and the European Community; in total there "are 30 parties" to the agreement (U.S. Department of Commerce 2005b). According to the Offsets Commission, under Article 4.3 of this agreement "signatories agree that the purchase of products covered by the Agreement should be made only on a competitive price, quality, and delivery basis"; in other words, the language in the agreement "implicitly proscribes pur-

chases requiring offsets" (Presidential Commission on Offsets 2001, 17).

The bilateral 1992 U.S.-EU Agreement on Trade in Large Civil Aircraft was for a time the third international agreement dealing with offsets, but the United States withdrew from the pact in announcing its WTO case against the EU over Airbus subsidies (USTR 2004). Interpreting Article 4.3 of the GATT Agreement on Trade in Civil Aircraft, the agreement stated "...the signatories agree that Article 4.3 does not permit Government-mandated offsets. Further, they will not require that other factors, such as subcontracting, be made a condition or consideration of sale. Specifically, a signatory may not require that a vendor must provide offset, specific types or volumes of business opportunities, or other types of industrial compensation. Signatories shall not therefore impose conditions requiring subcontractors or suppliers to be of a particular national origin" (Presidential Commission on Offsets 2001, 17-18).

As this summary of international agreements suggests, most of the actions by Congress and the executive branch have focused only on the defense industry and only on information gathering and reporting. While efforts to minimize offsets through international negotiations have been directed by legislation, there is little tangible evidence that much effort has been made. In any case, current legislation defines offsets so narrowly that it is difficult to imagine that negotiations could be effective. Commercial offsets are excluded, as are offset-like activities (in the defense and commercial industries) that do not meet the rigid definition of offsets. Even the regulation of defense offsets includes huge exceptions. For example, offsets that involve exclusively private parties (i.e., are not technically government-mandated, despite the strong role of a government such as China), are excluded from coverage, as are many indirect offsets (a growing area of concern as offset structuring becomes more innovative and opaque).

For all practical purposes, the U.S. government has relegated offset policy in the defense and commercial industries to private parties. While engaging in information gathering and reporting is welcome for defense offsets, a more vigorous effort should be made by the government to collect data, analyze it, and enforce trade agreements.

To begin with, U.S. policy makers must acknowledge that offsets in the defense and commercial industries are serious and have a significant impact on both economic and national security. Moreover, the long-term effects of offsets will grow as global competition increases, national security is further compromised, and economic security is further weakened.

Not coincidentally, at the same time that the United States has relegated its role regarding offset policy to private parties, other countries are seriously engaged in offsets and the creation of offset policies to further their own domestic concerns, including employment (Presidential Commission on Offsets 2001, ii). The result is that the U.S. private sector could be serving the interests of foreign governments without adequate oversight from the Commerce Department, the State Department, or anyone else in Washington. And Washington has no policy of its own that “turns the tables” by demanding offsets.

Case in point: the U.S., China, aerospace, and offsets

Aerospace is an especially important industry for a nation’s economic and physical security, and perhaps no other country has benefited more from the aerospace industry than the United States.⁹ *The Final Report of the Commission on the Future of the United States Aerospace Industry* states that the industry “contributes over 15 percent to our Gross Domestic Product and supports over 15 million high quality American jobs” (Aerospace Industry Commission 2002, 1-2). U.S. aerospace has been identified as a major source of “technical innovation with substantial spillovers to other industrial and commercial sectors” and “high-wage employment, which spreads the benefits of rising productivity throughout the U.S. economy...” The Aerospace Commission also noted the industry’s contribution to the nation’s “economic growth, quality of life, and scientific achievements...” (Aerospace Industry Commission 2002, 1-2).

Despite the importance of aerospace, the deterioration of the industry at home has continued at a dramatic rate. Nearly 500,000 jobs have been lost in the U.S. aerospace industry since 1990 (Aerospace Industry Commission 2002, 8-12; see also AIA 2007), and several hundred thousand more workers have lost their jobs in related

industries. Sadly, the fact of these enormous job losses comes as no surprise. More than 10 years ago, in *Jobs on the Wing*, authors Randy Barber and Robert Scott predicted that “up to 469,000” jobs in the aerospace and related industries “could be eliminated by 2013 because of offset policies and increased foreign competition” (Barber and Scott 1995, 2). In a later study, Scott predicted that by 2013 the industry would suffer a loss of over 25% “of the total jobs in aircraft production in 1995” (Scott 1998). These gloomy predictions are apparently reinforced by U.S. government reports. According to the Department of Labor, the outlook for employment in the U.S. aerospace industry is not rosy: between 2002 and 2012 aerospace employment in the United States will “decrease by 18 percent” (U.S. Department of Labor 2004).

The future health of the industry depends in large part on its ability to attract new workers, but the crisis in employment and the prediction that the crisis will deepen does not bode well for attracting new workers. In its final report, the Aerospace Commission summarized this concern:

The U.S. aerospace sector, once the employer of choice for the “best and brightest” technically trained workers, now finds it presents a negative image to potential employees. Surveys indicate a feeling of disillusionment about the aerospace industry among its personnel, whether they are production/technical workers, scientists or engineers. The majority of newly dislocated workers say they will not return to aerospace. In a recent survey of nearly 500 U.S. aerospace engineers, managers, production workers, and technical specialists, 80 percent of respondents said they would not recommend aerospace careers to their children. (Aerospace Industries Commission 2002, 8-5)

While the Aerospace Commission found that “U.S. policy toward domestic aerospace employment must reaffirm the goal of stabilizing and increasing the number of good and decent jobs in the industry,” this policy has yet to be embraced, let alone implemented (Aerospace Industries Commission 2002, 8-12).

Far from embracing any sort of effective industrial policy when it comes to aerospace, the U.S. government continues to relegate policy development in this area to private parties, just as it does with offsets in general. The inherent weakness to this approach is obvious—private U.S. companies must compete with foreign companies that have the full support of their governments. If a sale means transferring production and/or technology, private companies are in a difficult position. Given that their interests do not always align with the national interest, they can be expected to maximize corporate returns, even though the use of offsets, which can deeply affect an industry as essential to the nation's economy and security as aerospace, can be detrimental to U.S. national interests.

Should there be any doubt about the seriousness of the competition from foreign entities and governments, one has only to look at the success of companies like EADS. What were once fledgling industries are now U.S. competitors who benefit from a sophisticated approach to offsets that moves jobs and technology their way.¹⁰ As succinctly stated by the Aerospace Commission, "...foreign nations clearly recognize the potential benefits from aerospace and are attempting to wrest global leadership away from us" (Aerospace Industries Commission 2002, 1-2).

A country that truly understands the importance of adopting a comprehensive aerospace policy based on offsets is China. As reported in the *2005 Report to Congress of the U.S.-China Economic and Security Review Commission*, "...Chinese firms have used their leverage to extract offsets—agreements to transfer some of the aircraft production along with related expertise and technology—as part of the deals"; the report further concludes, "China nurtures its domestic aviation and aerospace industry by exploiting the international competition already in the industry" (U.S.-China Review Commission 2005, 30). Indeed, as summarized in one U.S. government report:

China is likely to be the largest customer—and possibly an emerging competitor—of the U.S. aerospace industry in the future. China's aerospace manufacturing base is enormous. U.S. companies (and European companies to a lesser extent) have successfully partnered with Chinese companies

that provide components or parts for a number of commercial aerospace programs. However, China also is seeking to become a world-class prime commercial aerospace manufacturing industrial base, both through indigenous development programs and joint ventures with non-Chinese companies. (U.S. Department of Commerce 2005b, xii)

In testimony in 2001, the International Association of Machinists and Aerospace Workers (IAM) singled out China for developing an effective industrial policy in an effort to create its own aerospace industry. It noted in its testimony that the U.S. International Trade Commission had already found with respect to China, "...the nation's aviation sector intends to pursue a principal role in commercial aircraft manufacturing."¹¹

During a 1998 visit to China to tour aerospace facilities, IAM participants observed the country's enormous aerospace capacity.¹² China's aviation industry "consists of more than 200 enterprises that produce and manufacture products such as aircraft, turboprop engines, aircraft components and subsystems, helicopters, industrial gas turbines, and various electromechanical products" (U.S. Department of Commerce 2005b, 58). China's huge industrial capacity has been noted by other observers as well.¹³ For example, one research group notes that in China there are six companies devoted to "airframe assembly," eight "engine" companies, 28 entities involved with "components," and 20 "research institutes."¹⁴ The two leading aircraft companies in China (China Aviation Industry Corporation I [AVIC I] and Aviation Industry Corporation II [AVIC II]) "and their subsidiaries have about 491,000 employees" (U.S. Department of Commerce 2005b, 58¹⁵). How did China develop such a huge capacity for aerospace production? While there are many different and related methods China uses, a significant one is offsets.¹⁶ As globalization critic Jeff Faux said in testimony to Congress, "China is one of the most aggressive countries in pursuing offsets agreements and, with its market potential and minimal labor standards, it has substantial leverage in negotiating these agreements" (Faux 2002). And as a business person told the *Wall Street Journal*, "they're interested in having total access to technology..."¹⁷

Of particular concern to the United States is the huge involvement of Boeing in China, an involvement the company acknowledges. According to its Web site: “Boeing procurement from China is significantly greater than other aviation companies” (Boeing 2007). According to company summaries:

- Since the 1980s, Boeing has purchased more than \$1 billion in aviation hardware and services from China.
- Approximately 4,500 Boeing airplanes with parts and assemblies built by China are flying throughout the world today.
- Boeing and Boeing supplier partners have active supplier contracts with China’s aviation industry valued at well over \$2.5 billion (Boeing 2007).

A detailed listing illustrating Boeing’s extensive procurement activities, production work, and supplier involvement in China appears in the appendix.

According to a news report, “Boeing is expanding its relationship with China through plans to double its annual purchases from Chinese companies over the next six years to more than \$1 billion per year by 2010” (U.S. Department of Commerce 2005b, 59, citing *Business Daily Update*, “Boeing Seeks Higher-Level Cooperation With Chinese Suppliers”).

Boeing is, of course, just one of many aerospace companies investing in China’s aerospace industry; another is Boeing’s chief rival, Airbus. As quoted in *The Australian* (“Airbus Enlists China,” June 14, 2004), Airbus Chief Executive Noel Forgeard explained his company’s philosophy with respect to China: “Airbus is not only selling aircraft in China but is also committed to the long-term development of China’s aviation industry.” *The Australian* also reported that parts of the A380 will be produced in China:

European aircraft maker Airbus has subcontracted a state-owned Chinese manufacturer to make parts for its super-jumbo A380 plane, in a deal worth about \$170 million. China Avia-

tion Corp. I (AVIC I) will make panels for A380 nose-landing gear....China’s Shenyang Aircraft Corp., affiliated with AVIC I, would also be subcontracted to make A330/A340 forward-cargo door projects....Five Chinese companies are now making parts for Airbus.

The *New York Times* reported that Airbus is committed “to buy at least \$60 million yearly in parts from China by 2007, rising to \$120 million yearly by 2010.”¹⁸

According to other news reports, China will “build wing boxes for Airbus” in a \$500 million deal,¹⁹ and Airbus and China have agreed on “a \$9 billion order... for 150 narrow-body A320 aircraft, and said they would study the possibility of building a final assembly line for the aircraft in China.”²⁰ That study apparently produced positive results; as stated in an Airbus press release (“Joint Venture Contract Signed for the A320 Family Final Assembly Line in Tianjin,” June 28, 2007): “The FAL [final assembly line] in Tianjin will be based on the latest state-of-the-art Airbus single-aisle final assembly line in Hamburg, Germany. The aircraft will be assembled and delivered in China to the same standards as those assembled and delivered in Europe.” The significance of such a development cannot be overstated: “the memorandum of understanding between China’s National Development and Reform Commission and Airbus...meant that China was likely to become only the third country assembling Airbus aircraft, after France and Germany.”²¹

Brazil’s aerospace industry is also teaming up with China. “In order to supply its domestic market while continuing to learn how to assemble a modern, complete aircraft to Western standards, two AVIC-II companies teamed with Embraer...in 2002 for co-production of their regional jet (ERJ-145) in Harbin” (Andersen 2008).

Eurocopter, a subsidy of EADS, is also involved with China’s aerospace industry. “France’s Eurocopter and Singapore Technologies Aerospace have signed with Hafei Aviation, a listed arm of one of China’s top military contractors, to make helicopters for domestic civil use.”²²

China’s aerospace industry is apparently not content to maintain its current level of success. According to news reports, “China is likely to start developing its own large aircraft rather than rely solely on foreign giants Boeing

and Airbus....”²³ The country recently announced that it would be entering the large civil aircraft industry in the next 20 years,²⁴ and, according to news reports, much of the success of this effort depends on the transfer of production and technology from other countries, presumably in the form of outsourcing and offsets from U.S. and other aerospace companies. And according to a report in *Jane’s Defence Weekly*, “China is developing a new stealthy fighter jet aircraft and many of the design concepts and components have already been created.... This new aircraft is the first Eastern rival to the West’s F/A-22 Raptor and F-35 Joint Strike Fighter to be put into development....”²⁵

China’s aerospace industry may even be expanding to space. In an article headlined “The Next Space Race: China Heads to the Stars,” the *New York Times* (January 22, 2004) raises the possibility of a space race with China, noting:

The Chinese plan to send more astronauts into space next year, to launch a Moon probe within three years, and are aiming to land an unmanned vehicle on the Moon by 2010....

Will the U.S. aerospace industry remain the strongest in the world? As other countries implement industrial policies based on outsourcing and offsets, the question becomes more urgent. Moves by countries like China to implement industrial policies targeting U.S. leadership in such essential industries as aerospace call for a response by U.S. policy makers. Even if China’s aerospace industry remains behind that of the United States, it is poised to contribute to growing global competition. It has the capacity, skilled workforce, and the will to make this a reality.

The virtually unregulated world of offsets only exacerbates this situation. While the U.S. government continues a hands-off approach to this market-distorting scheme, other countries are giving their companies significant backing based on well-developed industrial policies.

Some skeptics dismiss alarms over the growing threat from offsets (see, for example, Johnson 1999). For them, countries like China do not have the skilled workforce, technology, and related ability to produce products of a quality to compete with the United States. Skeptics made the same argument years ago with respect to Japan,

only to see the “made in Japan” label become sought after by consumers who believed it represented high-quality, technologically advanced goods. And 40 years ago, the notion that Europe would be home to one of the top two commercial aerospace companies in the world would have been hard to believe. No one finds it hard to believe now, however—least of all the U.S. aerospace industry.

Proposals for strengthening U.S. policy on offsets

In view of the national economic and security interests that are affected by offsets, it is critical that the U.S. government establish a comprehensive offset policy. Current policy, which in effect is left up to private entities, is simply irresponsible when other countries have targeted offsets as a tool for obtaining U.S. technology and production. The use of offsets by other countries to mine the United States for technology and production will only increase in the coming years. The short-term and long-term effects of these offsets will be profound if not addressed comprehensively by U.S. policy makers now.

When considering a comprehensive approach to setting offset policy, policy makers should consider the following proposals:

Adopt policies that will enable the United States to aggressively use offsets to its own advantage

The current lack of a comprehensive policy on offsets has put U.S. industry and its workforce in a “prisoner’s dilemma.”²⁶ The common industry claim is that it could not make a sale if it did not agree to an offset, and some in industry have referred to offsets as a necessary evil. While the claim that a sale could not have been made had it not been for the offset transaction is subject to dispute (after all, how is anyone to know whether the purchaser would have ultimately rejected the sale?), workers should not be held hostage to offset demands by other countries.

If other countries insist on using offsets to the detriment of U.S. industry and its workers, the United States should develop and implement similar offset policies that can be used in conjunction with purchases from these countries. The United States, the largest market in the world for many goods, has the leverage, and it ought to

use this leverage just as its competitors do. Offset policy could reflect the policies adopted by European countries, or a policy could mandate that offsets demanded by the United States will match those mandated by each country that is attempting to sell a product to the United States.

Strengthen and enforce prohibitions on offsets in all multilateral and bilateral trade agreements

Despite multiple legislative mandates, efforts to eliminate offsets in the defense and commercial industries on a multilateral or bilateral basis have been fruitless. In 1989, under the National Defense Authorization Act, Congress directed the president to “enter into negotiations with foreign countries to limit the adverse effect of offsets on the defense industrial base” (U.S. Department of Commerce 2005a, citing Pub. L. 100-456). Later, the Defense Authorization Acts for 1990 and 1991 directed the president to “‘make every effort’ to achieve an agreement that would limit the adverse effect of offsets during negotiations of memoranda of understandings between the United States and other countries” (U.S. Department of Commerce 2005a, citing Pub. L. 101-189). Still later, the Defense Production Act Amendments of 1992 required the president to “designate the Secretary of Defense to lead an interagency team to consult with foreign nations on limiting the adverse effects of offsets in defense procurement,” among other things (U.S. Department of Commerce 2005a, citing Pub. L. 102-558). The Defense Offsets Disclosure Act of 1999 established the National Commission on Offsets in Defense Trade and charged it “to submit an analysis of proposals for unilateral, bilateral, and multilateral measures to reduce the detrimental effect of offsets...” (U.S. Department of Commerce 2005a, citing Pub. L. 106-113, App. G).

Although unacted upon, these congressional mandates have nevertheless addressed only defense offsets. Only slight efforts have been undertaken to rein in commercial offsets. One of the few international agreements to address commercial offsets, the U.S.-EU 1992 Agreement on Trade in Large Civil Aircraft, has been dissolved. While the remaining agreements relate to GATT and its provision preventing offsets in the commercial industry, the agreements contain such major loopholes that a country

could fly a jumbo jet through them. For example, the narrow definition of offsets enables countries like China, which leaves offset policies to pseudo-private companies, tremendous opportunities to escape coverage.²⁷

As noted in the *Status Report of the Presidential Commission on Offsets in International Trade*:

...China seems to have relaxed its offset demands based on an understanding with U.S. aerospace firms that these firms would be more proactive in partnering and subcontracting with Chinese firms. This offset-like arrangement may, in effect, not be much different than the offset policy it replaced. Similarly, France does not require offsets in civil aerospace, but does have an offset-like policy under which French firms are given the opportunity to bid for subcontracts with the U.S. exporter, and which may in effect not be much different than actual offsets. (Presidential Commission on Offsets 2001, 17)

Some industry representatives have acknowledged the limitations of agreements to curtail the use of offsets. As the Presidential Commission on Offsets found, “the U.S. aerospace, telecommunications, and power generation firms that the commission staff talked with did not perceive these agreements to be effective in reducing commercial offset demands by other nations...” (Presidential Commission on Offsets 2001, 18).

Given the apparent ineffectiveness of both domestic legislation and international agreements to curtail the use of offsets, a reinvigorated effort should be a priority of U.S. policy makers. Among other things, strong offset language must be contained in any new transatlantic agreement on large civil aircraft. Indeed, the dissolution of the 1992 U.S.-EU agreement presents a unique opportunity for the United States to strengthen provisions that would lead to the elimination of the use of offsets. A new agreement should adopt a broader definition of offsets by expanding the current language, which limits offsets to government-mandated activities, to include offset-like activities between private parties.²⁸

Of course, monitoring and enforcement must also be strengthened. With respect to offsets in the defense

industry, more transparency is needed to determine what, if any, efforts are occurring pursuant to various congressional mandates. Congress needs to hold the executive branch accountable for ensuring that offsets are major topics for trade negotiations. To date, while it is not certain what discussions have taken place, it is apparent that the public is not aware of any meaningful progress. At the very least, policy makers should have accurate information on the status of offset negotiations.

Shine a light on current offset transactions in both the defense and commercial industries

The government has no precise method for tracking offsets. The little information the Commerce Department gathers is limited to the defense industry. There is virtually no collection of information regarding offsets in the commercial industry.

Various agencies and departments of the U.S. government play a role in facilitating or enabling international transactions by U.S. commercial entities, and yet they fail to provide sufficient economic impact analysis prior to the award of contracts or grants. This failure represents yet another missed opportunity to gather vital information on the effects of offsets. U.S. taxpayers have a right to know whether their tax dollars are going to support good jobs at home or are going to create jobs in other countries through offsets.

The U.S. Export-Import Bank, created to assist in financing the export of U.S. goods and services, serves as a good example of the inadequacy of current economic impact examinations that are conducted by federal entities. The Ex-Im Bank is unique in that its objective is “to contribute to maintaining or increasing employment of United States workers” (Charter of the Export-Import Bank, Section 2(a)(1)), and it has congressional direction to implement economic impact procedures.²⁹ However, these procedures are far from perfect.

The limitations of the bank’s economic impact analysis begins with the method it uses to narrow the kinds of projects that receive a full review. “The Bank relies on a series of hurdles to limit the transactions that are subject to full economic impact review.”³⁰ It screens out transactions for “goods,” giving greater review only to “exports of capital goods and services (e.g., manufacturing

equipment, licensing agreements) that will result in the foreign production of an exportable good...” (Ex-Im Bank 2007).³¹ Once this hurdle is cleared, the transaction in question must be for more than \$10 million in Ex-Im Bank financing. The bank then must determine that the transaction poses “the risk of substantial injury,” i.e., “transactions that enable a foreign buyer to establish or increase foreign production by an amount that is equal to or greater than 1% of U.S. production (of the same, similar, or competing good)...” (Ex-Im Bank 2007).

Given the extremely narrow application of full economic analysis by the bank, it is not surprising that the number of economic impact notices issued is small.³² And even if it reviews a transaction, it is not clear if the bank determines if the transaction involves offsets, either direct or (extremely unlikely) indirect.

The bank and other federal agencies that provide support assistance, grants, or awards could gather data on offsets simply by posing several questions to applicants regarding potential transactions:

1. How many jobs will be created or supported by the transactions?
2. Where will those jobs be located?
3. What will be the duration of those jobs?
4. What kinds of jobs will be supported or created?
5. Will the transaction involve any transfer of production and/or technology to another country by a prime contractor or any of its suppliers and, if so, what are the details of such transfer?

The failure of the Ex-Im Bank to ask questions at any stage of the process, whether the transaction involves the transfer of jobs or technology, appears to be a serious failure in its analysis. As the *New York Times* reported in 2002, “in the last two years, the bank has provided \$791.5 million in aid to help Boeing sell planes to Chinese airlines in deals that often require some parts of the planes to be built in China” (Wayne 2002). Was the bank aware of any of these deals that involved offsets? Did it make any inquiry? If offsets were involved in any of these deals, what have been the short- and long-term implications for

the U.S. aerospace industry and its workers? If the deals involved indirect offsets, were other U.S. industries and its workers affected?

These are all questions that should be answered prior to and after the approval of any government contract, award, assistance, or grant. The U.S. taxpayer and U.S. policy makers should have precise information regarding how public money is spent and what impact these expenditures are having on the nation's workforce.

Create a meaningful commission to devise an effective policy

Past congressional and executive branch efforts to form a commission on offsets have been disappointing. The short-lived Presidential Commission on Offsets in International Trade met only once, hardly any time to even begin considering its broad mandate. As previously mentioned, the purpose of the commission and the Commercial Offsets Council, established in tandem with the commission by executive order, was to "review and report to Congress within a year on the extent and nature of offsets in defense trade and on the impact of such offsets on U.S. jobs, U.S. economic competitiveness, and U.S. national security" (Presidential Commission on Offsets 2001). The commission and council were to specifically address the following items:

- Review foreign government practices in requiring offsets, and the extent and nature of offsets offered by U.S. and foreign defense contractors.
- Review the impact of offsets "on defense subcontractors and non-defense industrial sectors."
- Review "the role of offsets...on domestic industry stability, United States trade competitiveness, and national security."
- Analyze the "impact of offsets on 'industries' that may be different than those of the contractor providing the offsets...."
- Analyze the effect of offsets on the competitiveness of the U.S. defense industry and the potential damage to U.S. contractors if offsets were prohibited or limited.

- Analyze "the collateral impact of offsets on industry sectors that may be different than those of the contractor paying offsets, including estimates of contracts and jobs lost as well as an assessment of damage to industrial sectors."
- Analyze "the role of offsets with respect to competitiveness of the United States defense industry in international trade and the potential damage to the ability of United States contractors to compete if offsets were prohibited or limited."
- Analyze "the impact on the United States national security, and upon United States nonproliferation objectives of the use of co-production, subcontracting, and technology transfer with foreign governments or companies that results from fulfilling offset agreements with particular emphasis on the question of dependency upon foreign nations for the supply of critical components or technology."
- "Propose unilateral, bilateral, or multilateral measures aimed at reducing any detrimental effects of offsets and an identification of the appropriate executive branch agencies to be responsible for monitoring the use of offsets in international defense trade."³³

The commission's *Status Report* addressed some of the above items, but many of the items specifically mandated by Congress and listed in the Executive Order were left unaddressed or were addressed in only a general matter.

The establishment in 2004 of a governmental interagency team "to consult with foreign nations on limiting the adverse effects of offsets in defense procurement without damaging the economy or the defense industrial base of the United States, or United States defense production or defense preparedness," was, in theory, a welcome development, as was the creation of a government working group "to support the consultation process of the interagency team" (U.S. Department of Commerce 2005a, ix-x). However, the interagency team approach as implemented addressed only offset issues in the defense industry.³⁴

The goals of the interagency team and working group were to:

1. Establish a plan of work to fulfill the requirements of the statute.
2. Identify and define the meaning of “effects” of offsets in defense procurement.
3. Identify potential strategies for limiting “adverse effects.”
4. Identify foreign nations and other parties, both domestic and foreign, for consultations.
5. Develop methods and objectives for consultations.
6. Develop a schedule for engaging in consultations.
7. Provide annual reports to Congress describing meetings and the results of consultations.
8. Submit to the president any recommendations that may result from these consultations.

The report of the interagency team and working group fell far short of offering any new findings or meaningful proposals (U.S. Department of Commerce 2007a, Appendix H). For example, even though it notes that “most nations” use offsets and that they are “increasing,” its recommendations continued the status quo—relegating U.S. offset policy to private parties. Fundamental questions regarding the actual impact of offsets on U.S. jobs in the short and long term are basically left unaddressed. Other findings and comments contained in the report are subject to dispute.³⁵

The disappointing record of the interagency team suggests that, if a new effort is initiated, changes must be made regarding the team’s mission. For example, given the complicated nature of offsets in the commercial and defense industries, it is essential that all stakeholders (industry, labor, government) have direct input into the activities of the task force.³⁶ It is also critical that the stakeholders be given an opportunity to exchange views with each other in order to eliminate confusion and misunderstandings and to foster consensus and the development of effective recommendations.

One way to achieve this needed input is to resurrect the Presidential Commission on Offsets to review activities in both the defense and commercial industries.

To ensure that commissioners would be given adequate time and information to foster meaningful discussion and the formation of a comprehensive report, such a commission should be made permanent.

Creating a permanent commission to address critical topics affecting the nation’s economy and security is not unusual. The Congressional Commission on the Trade Deficit evolved into the current Presidential Commission on the U.S.-China Economic and Security Review Commission, which has issued several substantive reports. The groundwork for a permanent offset commission has already been laid out in the 1999 congressional legislation and in the 2000 executive order.

Conclusion

It is not difficult to imagine that, as this paper is being read, some offset, direct or indirect, is being negotiated by U.S. private companies and foreign entities or enterprises. The negotiation itself will probably be held in secret, with little or no transparency. U.S. workers who may be most directly affected by the transaction will be left in the dark. Together with the general public and most policy makers, they will not even learn about the deal until it has been executed and implemented. Even then, there is no guarantee that the offset will be made public. And in the rare situation in which the transaction is revealed, few will know what it means, how it will be implemented, or what impact it will have on U.S. workers, U.S. industries, and the nation’s economy and security.

As the nation grapples with the new global economy and what it means for all Americans and American workers in particular, one thing is certain: offsets in their current form represent a threat to the U.S. economy and national security, and these threats are growing every day that we fail to address offset policy. Other countries have recognized the importance of these arrangements and have addressed them. The United States should move quickly to develop a comprehensive solution to the economic and security challenges imposed by offsets.

—*Owen E. Herrnsstadt* is director of the Trade and Globalization Department, International Association of Machinists and Aerospace Workers.

Appendix: Boeing procurement, production, and supplier activity in China

Source: Boeing Web site (Boeing 2008)

Historically, Boeing has displayed its close involvement with China through varied procurement activities, including:

- Boeing manufacturing training, raw materials, and parts (mid-1970s);
- MD-80/90 nose sections, landing gear doors, horizontal stabilizers (contract 1979, last delivery 1999);
- 737, 747 machined parts (1980-92);
- 737 classic vertical fin, horizontal stabilizer, forward access door in Xi'an (1982-99);
- MD-80s 35 airplanes assembled in Shanghai (from kits 1985-94);
- Two MD-90s assembled in Shanghai (contract 1992, completion 2000);
- 757 empennage (vertical, horizontal, tail section) in Chengdu (1995-2004);
- 757 cargo doors in Shenyang (1989-2004);
- TAECO in Xiamen: 737NG elevator retrofit modification program (2002-03).

This involvement has intensified and includes “ventures” at the following facilities located in China:

- Baoji Group Ltd. in Shaanxi Province, titanium ingot, plate and sheet (2006 contract);
- BHA Aero Composites Manufacturing Co. Ltd., a Boeing joint venture, in Tianjin;
 - Interior parts, secondary composite structures for 737, 747, 767, 777, and 787 (beginning in 2002);
 - 737 composite panels and parts (flight deck, close-out panels, dorsal fin, wing-to-body

fairing, cover panels, wing fixed trailing edge, wing fixed leading edge, tail cone, interior panels);

- 747 miscellaneous composite panels, door liners, fixed trailing edge;
- 767 and 777 wing fixed trailing edges and dry bay barriers; empennage panels;
- 777 flight deck interior panels;
- 787 trailing edge panels for the vertical fin (contracted 2005); additional panels (2007);
- Chengdu Aircraft Industrial (Group) Co. Ltd.:
 - 787 rudder, single source (contracted 2005, first parts delivery 2006, first full rudder 2007);
 - 737 forward entry doors (since 2005), contract is with Vought;
 - 737 overwing exit doors (since 2005), contract is with Vought;
 - 747-8 ailerons and spoilers, single source (contracted 2007);
 - 747-8 horizontal stabilizer parts and sub-assemblies (contracted 2007 with Vought);
- Hafei Aviation Industry Co. Ltd., in Harbin:
 - 787 upper and lower panels for wing-to-body fairings (2005 contract), first delivery 2007, single source;
 - 787 vertical fin parts (contracted 2007);
- Hong Yuan (HYFC) in Sanyuan, titanium forgings, 12 for each 747 plane (since 1984);
- Shanghai Aviation Industry Corp.:
 - 737 NG horizontal stabilizers (contract 1995; over 1,000 ship sets delivered);
- Shenyang Aircraft Industrial (Group) Co. Ltd.:
 - 787, vertical fin leading edge (contracted in 2005, first delivery 2007), single source;

- 737 aft fuselage subassemblies (1996/2001), expanded to include “Texas Star” (November 2004); contracted with Spirit, expanded to full aft section (2007);
- Southwest Aluminum in Chongqing, aluminum forgings, four for each 747 plane (since 1988);
- Quick Electronics in Beijing, PC, print hardware, servers in support of Boeing IT hardware in Asia (1997 contract);
- Taikoo Aircraft Engineering Co. Ltd. (TAECO), a Boeing joint venture, in Xiamen:
 - Parts, subassemblies, and touch labor 747-400 Boeing Converted Freighter (BCF) modification program (2004-10);
- Xi’an Aircraft Industry (Group) Company Ltd.:
 - 737 NG vertical fin (1995; nearly 1000 delivered);
 - 747 trailing edge wing ribs (contract 1996, more than 550 ship sets delivered), single source;
 - 747-8 inboard flaps (contracted 2007);
 - 747 floorbeams and detailed parts and sub-assemblies for Boeing Converted Freighter (contracted in 2004).

Boeing is also involved in its suppliers’ activities in China. As the company states, “Boeing encourages our global supplier network to engage with China” (Boeing 2007). Boeing “work packages” involving suppliers include:

- Cytec Engineered Materials, which is building an aerospace composite materials production-facility in Shanghai. It will be operational in late 2008. Initially it will supply carbon fiber epoxy pre-preg material for commercial transport programs throughout the Asia Pacific region;
- Fisher Aerospace (at BHA);

- Fokker-Elmo, builds large electrical wire harness packages for the 737 in Langfang, Hebei province. They are built for the Boeing Electrical System Responsibility Center for the 737 airplane. Five packages of 10 harnesses at a rate of about 1,000 harnesses per month, beginning in October 2005; additional electrical equipment in 2006, including junction boxes;
- General Electric procurement from Harbin, Shanghai, Xi’an, Sichuan, Suzhou, Guizhou, Shenyang;
- Goodrich CF34 fan cowl (at BHA, 2003);
- Hamilton Sundstrand Qinling Aerospace (Xiamen) Ltd., a joint venture between Hamilton Sundstrand USA (65%) and Shaanxi AeroElectric Company Ltd. (35%) in Xiamen. It provides overhaul repair services for Hamilton Sundstrand electric power systems to airlines in China;
- Korean Aerospace Industries (KAI), 737 parts for vertical fin, horizontal stabilizer, at SAIC, XAC and BHA (2006);
- Parker Hannifan, machining with Jincheng Corp., Shanghai Qi Yi Automotive, Sichuan Golden Dragon Machine;
- Pratt & Whitney, engine components, Xi’an and Chengdu;
- Primus International in Suzhou, factory ground-breaking 2004; airplane components;
- Rolls Royce, procurement from several locations including Xi’an, Shenyang;
- Snecma, CFM56 engine blades, joint venture in Guiyang;
- Smith Aerospace, Suzhou; engine parts, flight controls;
- Spirit Aerospace, 737 Section 48 from Shenyang;
- Vought, 737 overwing exits and forward entry doors, 747-8 horizontal stabilizer parts and subassemblies from Chengdu.

Endnotes

1. See, for example, recent studies by Atkinson and Wial (2007) and McCarthy (2004).
2. See Defense Production Act Amendments of 1992 (Pub. L. 102-558, Title I, Part C, Sec. 123, 106 Stat. 4198): “the decision whether to engage in offsets, and the responsibility for negotiating and implementing offset arrangements, reside with the companies involved.” Quoted in U.S. Department of Commerce 2007a, 1-2.
3. According to the *New York Times* (Jeff Gerth, “Justice Dept. Scrutinizes McDonnell Douglas,” December 29, 1996) “...Northrop offered \$1.5 million to persuade a company in the United States to buy a \$50 million papermaking machine from Valmet Corporation, partly owned by the Government of Finland, rather than a Wisconsin company.”
4. The December 2007 report notes that “the actual value of offset transactions completed during 2006 was \$4.7 billion, the third highest level recorded (after 2004 and 2005) in the 1993-2006 period.” The report also notes that for the year 2006, “the percentage of the actual value of offset transactions attributed to indirect offset transactions rose to 63.6 percent compared to 61.8 percent in 2005.... Direct transactions correspondingly decreased from 53.4 percent of all transactions completed in 2004, to 38 percent in 2006” (U.S. Department of Commerce 2007b, Section 2-2).
5. According to the most recent U.S. Department of Commerce report, “Despite annual fluctuations of various degrees, the average offset percentage demanded by the 25 European countries involved in offset activity during the 14-year reporting period was 97.7 percent of the export contract values. These percentages reached a peak of 153.3 percent in 2003. In 2006, the European average offset percentage increased from 83.7 percent in 2005 to 85.5 percent. According to the most recent U.S. Department of Commerce report, “Despite annual fluctuations of various degrees, the average offset percentage demanded by the 25 European countries involved in offset activity during the 14-year reporting period was 97.7 percent of the export contract values. These percentages reached a peak of 153.3 percent in 2003. In 2006, the European average offset percentage increased from 83.7 percent in 2005 to 85.5 percent, after declining to its lowest point in 10 years at 63.9 percent in 2004” (U.S. Department of Commerce 2007b, Section 4-4).
6. As the *Twelfth Study* states: “...Subcontracts, Co-production, and Licensed Production may result in a U.S. supplier being displaced from participation in the manufacture and/or assembly of a U.S. defense system as well as its future maintenance requirements” (U.S. Department of Commerce 2007b, Section 5-6).
7. See the *IAM Survey of Displaced Aerospace Workers* (IAM 1996), applying to the commercial industry. Presumably this trend can equally apply to the defense industry.
8. Many of the quotes and summaries in this section were found in U.S. Department of Commerce 2005a, Appendix F, “Selected Legislation Concerning Offsets.”
9. Much of the information in this section contains direct passages that were presented by the author in his testimony before the U.S.-China Economic and Security Review Commission, January 13, 2005.
10. A good example is the European Aeronautic Defense and Space Company/Airbus.
11. See IAM comments before the U.S.-China Economic and Security Review Commission, August 2001, citing U.S. ITC (1998, 5-1), citing Symons (1987, 450).
12. See IAM comments.
13. This enormous capacity in aerospace appears to be consistent with China’s booming economy: “China’s current level of investment in new factories is unprecedented and will deliver an even greater supply shock to global industry in the next five years, producing even greater losses in U.S. manufacturing jobs.” (AFL-CIO 2004).
14. See GlobalSecurity.org, which lists the following: **airframe assembly:** *Shenyang Aircraft Corporation, Harbin Aircraft Manufacturing Corporation, Chengdu Aircraft Industrial Corporation, Xian Aircraft Company, Nanchang Aircraft Company; **engines:** *Harbin Dongan Engine Manufacturing Company, Guizhou Honglin Machinery Corporation, Guizhou Xinyi Machinery Factory, Zhohgnan Transmission Machinery Works, China National South Aeroengine Corporation, Guizhou Liyang Aeroengine Corporation; **components:** *Chuanjiang Instrument Plant, Qingan Group Corporation Ltd, Shanxi Qinling Aeroelectric Company, Pingyuan Machine Factory, Shenyang Xinhua Electric Appliance Factory, Huayang Electrical Factory, Shanghai Aero-Electrical Appliance Factory, Changchun Airborne Equipment Company, Yuxin Machinery Factory, Wanli Electro-Mechanic Factory, Chengdu Aero-Instrument Corporation, Changfeng Machinery Plant, Wuhan Instrument Factory, Guiyang Electrical Machinery Plant, Luoyang Nanfeng Machinery Factory, Taihang Instruments Factory, Beijing Qingyun Aviation Instrument Company, Jianghuai Aviation Instrument Factory, Jincheng Group Co., Ltd, Nanjing Hongyuan Airborne Equipment Factory, China Xingping Aircraft Wheel Corporation, Hongwei Machinery Factory, Sanjiang Machinery Works, Chuanxi Machinery plant, Jiangnan Aviation Lif-Support Instries, Luoyang Optoelectro Technology Development Center, China Leihua Electronic Technology Research Institute, China Research Institute of Aero-Accessories; **research institutes:** *China Flight Test Establishment, Luoyang Electro-Optical Equipment Research Institute, Chinese Aeronautical Radio****

Electronics, Flight Automatic Control Research Institute, Beijing Aviation Simulator Company, Qianshan Electronic Equipment Factory, Guiyang Aviation Hydraulic Components Factory, Hongyuan Aviation Forging & Casting Industry Co., China Aviation Industry Standard Plants Manufacturing Company, China Precision Engineering Institute for Aircraft Industry, Xian Aircraft Design & Research Institute, Beijing Institute of Aeronautical Manufacturing Technology Research Institute, Shenyang Aerodynamic Research Institute, China Aero-Information Center, Aviation Industry Press, Xian Aeronautics Computing Technique Research Institute, Beijing Greatwall Aeronautic Measurement and Control Technology Research Institute, China Aeronautical Project and Design Institute. The U.S. Department of Commerce reports that AVIC I and AVIC II “hold 134 large- and medium-sized industrial enterprises, including 31 research institutes and 20 specialized companies and institutions engaged in foreign trade, material supply, science technology, and product development” (U.S. Department of Commerce 2005b, 58).

15. Citing NTI Research Library (<http://www.nti.org/db/china/avic1.htm>); it also notes that “these conglomerates are widely diversified across multiple manufacturing sectors.”
16. The IAM has decried the use of offsets for many years. As it has stated on many occasions, offsets mandating the transfer of technology and/or production in return for market access are increasing at an alarming rate. Offsets have resulted in a growing, global competition, as well as overcapacity, which in turn have resulted in the loss of U.S. jobs directly and indirectly. The IAM also argues that offsets lead to threats to national security, as illustrated by the China National Aero-Technology Import and Export Corporation issue of the mid-1990s involving technology transfer and military equipment (see U.S. GAO 1996).
17. “China’s Price for Market Entry, Give Us Your Technology, Too,” February 26, 2004. It should be noted that this quote was not directly in reference to the aerospace industry. As also explained in the article, “China officially agreed to phase out many tariffs and technology-transfer requirements as part of its entry in December 2001 to the World Trade Organization. But China didn’t sign a key piece of the WTO agreement that would have prohibited its top planning agency from making such demands, and government negotiators have continued to ask foreign companies to transfer technology to local partners or to set up research centers to train local engineers.” The article further explains, “Trade experts say China isn’t alone among developing countries in pushing for foreign technology, but the size of its new markets give Chinese negotiators enormous leverage.” The article also provides a warning: “Japan demanded similar transfers in the 1960’s and 1970’s when it was rebuilding industries after World War II. The exchanges helped forge the economic and

political alliance between the U.S. and Japan, but later haunted some U.S. companies when Japanese rivals went on to outpace their American partners in electronics and other industries.”

18. “China Orders 150 Airbus Jets,” *New York Times*, December 5, 2005.
19. “China Strikes 1.3 Bln Dlr Aviation Deals With Rolls-Royce and Airbus,” *AFP*, November 9, 2005.
20. “China Orders 150 Airbus Jets.”
21. “China Orders 150 Airbus Jets,” referring to a report in “the official *China Daily* newspaper.”
22. Reuters, CNN.com, “China Makes Links With Eurocopter,” November 21, 2003; *Financial Times*, “China Plans to Challenge Boeing With New Airliner,” March 20, 2007.
23. USAToday.com, “China Studies Building Its Own Large Aircraft,” March 15, 2004.
24. “Beijing Forges Ahead With Building Its Own Industry,” *Financial Times*, June 18, 2007.
25. “China Reveals New Stealth Fighter Project,” *Jane’s Defence Weekly*, December 11, 2002.
26. The prisoner’s dilemma is described on Wikipedia (http://en.wikipedia.org/wiki/Prisoner’s_dilemma) as follows:

Two suspects, A and B, are arrested by the police. The police have insufficient evidence for a conviction, and, having separated both prisoners, visit each of them to offer the same deal: if one testifies for the prosecution against the other and the other remains silent, the betrayer goes free and the silent accomplice receives the full 10-year sentence. If both remain silent, both prisoners are sentenced to only six months in jail for a minor charge. If each betrays the other, each receives a five-year sentence. Each prisoner must make the choice of whether to betray the other or to remain silent. However, neither prisoner knows for sure what choice the other prisoner will make. So this dilemma poses the question: How should the prisoners act?
27. The GATT requirement also contains an exception for national security, leaving more room for escaping coverage.
28. Offset-like activities include pseudo state-run enterprises. They also include private entities that are “influenced” or encouraged by their governments to engage in offset practices.
29. The charter of the Export-Import Bank is available at <http://www.exim.gov/about/charter/index.cfm>.
30. See comments of Owen E. Herrstadt regarding “Proposed Revisions to the Export-Import Bank of the United States Economic Impact Procedures,” 2002, available from the author.

31. These policies raise significant questions concerning how the bank handles sales of airplanes, which represent a majority, in dollar value, of the bank's activities. Since aerospace in the defense industry also represents the majority of all offset deals involving the transfer of technology and production, it can be presumed that the same is true for offsets in the commercial aerospace industry.
32. For example, only four economic impact notices are posted on the bank's Web site for the entire 2005 period, three for 2006, and six for 2007; see <http://www.exim.gov/products/policies/noticeindex.cfm>.
33. See Pub. L. 106-113 and Office of the President 2000.
34. As noted in U.S. Department of Commerce (2005a), "On August 6, 2004, the President formally established the Team with the Department of Defense as Chair."
35. For example, the report relies on an analysis that is similar to that of the Bureau of Industry and Security in determining the number of jobs "created" by offsets. That analysis is criticized elsewhere in this paper. The report also attempts to analogize offset policies of other countries with the U.S. Buy American Act. Such an analogy is seriously flawed. The Buy American Act is directed at preserving vital production in the United States, not in pursuing production that already occurs elsewhere. Further, the act has been criticized for its large loopholes and for its lack of enforcement.
36. Input from representatives of labor was limited to a questionnaire and one meeting with representatives from the interagency team.

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