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Introduction

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Eight years ago, Stephen Martin published a widely-cited volume of papers on arms trade offsets (Martin, 1996), part of a series of studies in defense economics, then published by Harwood Academic Publishers (now Routledge). Since then, much has changed in the global arms market. This is confirmed not only by Routledge's willingness to issue another volume on the topic but also by our contributors – many of whom had written for Martin's book – who were keen to take an updated look at various offset theory and policy issues, and to illustrate these with case studies.

We chose to include papers by a set of international authors, economists for the most part, of diverse intellectual and political persuasions. A good number of them work for military academies (e.g., in Australia, in Belgium, in the UK) or for military or civilian research institutes (e.g., in Germany, Sweden, and the USA), others hold appointments at a variety of universities across the globe. No attempt was made to select contributions whose results all may have fallen in a certain direction. Yet, surprisingly, among the authors there is near unanimous consensus that arms trade offsets do not work as advertised. Even where we can explain why offsets are used by arms procurement agencies (or their governments), neither economic theory nor extant empirical evidence suggests that offset arrangements yield net benefits for a country's economic development at large. Instead, it is generally acknowledged that arms deals with offsets are more expensive than arms deals without.

Logically, there are two extreme forms of arms acquisition. One is to design, produce, and purchase everything "at home" – an option that, realistically, only the United States can pursue; the other is to purchase everything "off-the-shelf" from elsewhere. In-between lie various possible levels of involvement, one of which includes the use of arms trade offsets. While governments are happy to highlight purported economic benefits, such as employment creation, they seem reluctant to evaluate them *ex-post*. Thus there is often very limited information available in the public domain, which is why it is important to produce a book that brings the available theory and evidence together.

What are arms trade offsets, and how are the presumed benefits advertised? The long answer is contained in the details of the chapters published in this book. The short answer runs something like this: A country that wishes to spend, say, $100 million to import arms from another country transfers $100 million worth of funds to the arms seller, the only value gained being the putative national security-value of

the imported arms. To increase the exchange value, the importing country may stipulate that the arms exporting firm must take some portion of its $100 million revenue to set up arms coproduction facilities in the arms purchasing country, or else to commit itself to any of a variety of other possible activities that would secure a *flow-back* of some of the $100 million to the arms importing country. If this flow-back is made part of the arms trade contract, we call this an offset. The advertised benefit is that the arms importing country not only obtains the arms it wishes to import but that some of the public funds expended on the arms purchase "remain" in the country and thus are expected to stimulate domestic economic development, just as if they had been spent domestically in the first place.

To be able to "double-dip" – to get the arms, and yet to keep the money at home – is seductive for politicians, especially in democracies, who must justify expenditure of public funds, usually in the face of crying social need.[1] The logic sounds so convincing: sign a contract that requires the arms selling party to use some or all of the expended funds to set up arms production facilities in the purchasing country or to make non-military purchases in or from the arms acquiring country. Moreover, since arms sellers do compete fiercely by "sweetening" arms deals with offset offers, it would appear that the buyers have the upper hand and can extract substantial rents and benefits.

Economists are skeptical, on theoretical and on empirical grounds. To us, the offset idea sounds like a variant of the "free lunch" idea. As a matter of pure logic, lunch may be free to those invited but the host still has to pay the bill. The chapters assembled in this book take a collective look at who this host is that pays the bill. The answer is not easy to ferret out – in part because of the dearth of data – and is usually case-specific. But that something is amiss may be gauged from the fact that the World Trade Organization's Agreement on Government Procurement generally forbids the use of offsets in government procurement. Exceptions are granted, in article 23, on account of reasons pertaining to national security and public health. The agreement, moreover, is "plurilateral," meaning that not all WTO members have acceded to its provisions and therefore are not bound by them (see www.wto.org).

The use of offsets is by no means restricted to the field of arms trade, nor even to intra-government procurement. Offsets, and related forms of countertrade, constitute a vast, pervasive business practice – involving tens of thousands of people around the globe, reaching far beyond the market for military-related items – and is variously estimated at ranging between five and thirty percent of world trade.[2] There are plenty of offset-related conferences, and the literature numbers in the thousands of items, including those produced by academic specialists in international business, marketing, and economics (e.g., Hammond, 1990; Korth, 1987; Liesch, 1991; Martin, 1996). Nonetheless, much of the attention centers on the arms trade. Specialized trade publications, e.g., *Countertrade Outlook*, *Countertrade & Offsets*, and *BarterNews* are produced, publications such as *Aviation Week and Space Technology* and *Jane's Defense Weekly* take a natural interest in the subject matter, academic journals such as *Defence and Peace Economics* and *Defense Analysis* frequently carry articles on the offset topic, and there are a large number of companies specializing in facilitating offsets as lawyers, consultants, financiers, and brokers, in addition to the offset offices housed within many of the affected corporations and

government bureaus. At least one dedicated commercial web service exists solely to link offset-related buyers and sellers (www.e-offsets.com). In 1995/96, US taxpayers alone shouldered the pay of some 6,500 federal government employees in connection with US arms exports (Hartung, 1996, p. 12), much of this associated with offsets.

There exists an American Countertrade Association (the ACA; see www.countertrade.org) – countertrade here being used as a synonym for offsets – whose seven member executive committee includes high-level employees of Motorola, GE, and Boeing, and a Defense Industry Offset Association (DIOA) consisting, in 1998, of 65 member companies, representing nearly 100 percent of the US military-aerospace prime contractors. ACA and DIOA hold joint biannual conferences (1998, 2000, 2002), the last one 22-25 September 2002 in Tucson, Arizona. In addition, even a cursory Internet search finds an International Reciprocal Trade Association, a National Association of Trade Exchanges, a Corporate Barter Council and, for deals gone bad, an offset Investment Recovery Association.

In the US one finds steady government interest in the issue, especially with regard to arms trade offsets, culminating in the formation, in 1999, of a Presidential Commission on Offsets in International Trade (www.offsets.brtrc.net).[3] Prior to that, the US Congress has taken sporadic interest in offsets, resulting *inter alia* in a number of requests to the US General Accounting Office (GAO) to report on various aspects of arms trade offsets in particular (see references). Congress also mandates the production of an annual arms trade offsets report, furnished by the Department of Commerce's Bureau of Industry and Security.[4]

Furthermore, the United States National Research Council's Board of Science, Technology, and Economic Policy has produced two substantial conferences and reports (Wessner and Wolff, 1997; Wessner, 1999), the Federation of American Scientists (www.fas.org) has an ongoing interest in the issue inasmuch as it impinges on international arms sales, and so do numerous other interested and disinterested parties, including of course the foreign policy and military sectors. For instance, the US Department of State publishes *Defense Trade News*, and the US Department of Defense sponsors a quarterly journal published by the Defense Institute of Security Management Assistance (*The DISAM Journal*; http://disam.osd.mil/Journal.htm) which frequently publishes on arms trade offsets.

These observations would suggest that arms trade offsets are part of normal trade relations among arms sellers and arms buyers. Certainly, offsets are common. But are they "normal"? What is normal practice from a business point of view may not be normal from an economist's point of view. To help answer this question, inspect some examples of prevailing definitions of offsets.

> "Offsets, coproduction, barter, and countertrade are compensatory trade agreements – agreements that incorporate some method of reducing the amount of foreign exchange needed to buy a military item or some means of creating revenue to help pay for it" (Neuman, 1985, p. 183).
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> "... an offset is a contract imposing performance conditions on the seller of a good or service so that the purchasing government can recoup, or offset, some of its investment. In some way, reciprocity beyond that associated with normal

market exchange of goods and services is involved" (Udis and Maskus, 1991, p. 152).

"... an offset occurs when the supplier places work to an agreed value with firms in the buying country, over and above what it would have bought in the absence of the offset" (Martin and Hartley, 1995, p. 125); offsets "... are usually designed to achieve a relocation of economic activity from the country of the equipment supplier to the purchasing nation" (p. 127).

These definitions can be read, as many authors do, to hold in common some degree of *coercion*. In contrast, in an important article Peter Hall and Stefan Markowski (1994) argue that no seller can in fact be coerced to sell. One may lose a sale to a competitor, but one cannot be coerced to sell. The distinction between coerced and voluntary trade is important because in the former case, coerced trade leads to trade diversion and therefore to welfare losses, whereas in the latter case offsets are viewed as part of the negotiation over a complex package of goods and services which may include military and non-military items and may well be welfare enhancing, as all voluntary trade is (at least in pure international trade theory). For instance, if corporation S from country S offers to sell 50 military aircraft for three billion dollars to the government of B (the "primary contract"), but then on account of competition from another firm from another country offers a "compensating offset" purchase of $3 billion worth of agricultural products from country B, why indeed should the prospective buyer be prevented from extracting economic rent from among the competing would-be sellers?

Consequently, Hall and Markowski offer this definition:

"Offsets are simply goods and services which form elements of complex voluntary transactions negotiated between governments as purchasers and foreign suppliers ... they are those goods and services on which a government chooses to place the label 'offsets' ... " (Hall and Markowski, 1994, p. 179).

The jab – that offsets are "those goods and services on which a government chooses to place the label 'offsets' " – is correct in that there is no logical difference between a $3 billion primary aircraft contract with a compensating agricultural offset valued at $3 billion and a $3 billion primary agricultural contract with a compensating aircraft offset valued at $3 billion. That which we call the "primary contract" and that which we call the "compensating offset" is arbitrary and therefore interchangeable. "All that can really be said is that a joint purchase of two different elements is being made" (Hall and Markowski, 1994, p. 178). A big buyer demands respect. Wal-Mart purchases millions of items from thousands of suppliers, but it also purchases changes in its suppliers' operations. It purchases not only stationary and toys, but also demands supply-chain management changes. It purchases multiple products in one complex deal.

If we agree with this conceptualization of offsets as normal trade, then we might as well push it to its logical extremes. At one extreme, a weapon system's R&D, testing, and production take place entirely in the US, say, and it is then transferred elsewhere in exchange for monetary compensation. At the other extreme, only the

R&D is conducted in the US and everything else is outsourced to the buying country. (The offset here consists of licensed production.) In that case, the US sells military blueprints, and the buyer produces. The US sells, in a word, deadly ideas others wish to buy. Within the realm of pure economics, this is not unlike trade in endangered species and child pornography. Economists are not immoral, but economic science is amoral: a trade is merely a trade, and what is important is the efficiency, not the morality, of the trade. Accordingly, the starting point for Hall and Markowski is whether arms trade offsets are voluntary or mandated. If mandated – if purchasing governments *insist* on a particular offset percentage, be it 50 or 100 or 150 percent of the value of the underlying arms trade contract – then Hall and Markowski agree that there will be trade diversion, trade distortion, and welfare-diminishing effects. In chapter 3, they review their own argument, first made ten years ago, and place it on a firm theoretical base. Grouping offsets into three categories – countertrade, local content requirements, and bundling – their conclusion is straightforward and sound: mandatory offsets are not welfare-enhancing, but voluntarily agreed offsets might be.

Why do governments resort to offsets in the first place, whether mandatory or otherwise? Travis Taylor, in chapter 2, provides a new theoretical framework, based on transaction cost analysis, that not only explains at least a part of the puzzle but also provides a handy guideline for procurement officials of when to ask for what type of offset, if any. As it turns out, mandatory offsets are rarely advised. But even if voluntary offsets could be welfare-enhancing, at least in principle, Lloyd J. Dumas argues in chapter 1 that they are, nonetheless, antithetical to economic development. Offsets, even if welfare-enhancing in a narrow sense, do not, Dumas argues, overcome the welfare-diminishing effects of military expenditure that finances the arms trade in the first place. At best, although he doubts even that, offsets are one step forward after military expenditure on arms took the economy two steps backward. In chapter 4, Jurgen Brauer, reviews the variety of economic theories of offsets, the offset players, and the empirical evidence. Like Markowski, Hall, and Taylor, Brauer finds that while positive economic development effects from arms trade offset deals are not impossible, they are theoretically implausible and empirically improbable, especially for the case of developing states. Indeed, an unambiguous economy-wide net benefit has yet to be demonstrated for any offset deal ever concluded. Of course, data availability is in short supply, and Brauer closes his chapter with a call for states to establish *arms offset audit teams* to publicly account for the costs and benefits these deals involve.

Ann Markusen, a member of the US Presidential Commission on arms trade offsets discusses, in chapter 5, arms trade as illiberal trade. Her chapter explores "why the arms trade should remain illiberal, why it needs reinvigorated oversight, and why commercial interests must be subordinated to security concerns, including a return of lead responsibility for arms trade regulation from [the US] Defense and Commerce to the State Department." In contrast, Ron Matthews, in chapter 6, attends to the practicalities of arms trade offsets. In this context, he identifies recent offset trends. In particular he notes that while offset agreements used to be struck between military firms – from military vendor to military buyer and coproducer – offset agreements then moved toward defense-civil offsets, i.e., military offset obligations were fulfilled by purchases from or investments in the civilian sector of the arms

buying state. This eventually led to an increasing number of civil-civil offset agreements, and now, Matthews writes, we increasingly observe civil-defense offset agreements, contracts by which sellers of *civilian* products and technology are asked to "reinvest" in the *defense* industry of the buying country.

The remaining chapters of the book consist of case studies on Britain and Germany (chapter 7), Britain and the Netherlands (8), the Nordic countries (9), Finland and Sweden (10), Belgium (11), Poland (12), Brazil (13), Argentina (14), India (15), Japan, South Korea, and Taiwan (16), Indonesia and Singapore (17), Australia and New Zealand (18), and South Africa (19 and 20).

The main ideas of the studies is captured in the abstracts supplied hereunder.

Abstracts

Chapter 1: Do offsets mitigate or magnify the military burden?
by Lloyd J. Dumas

The offer of an offset package as part of a weapons procurement deal is intended primarily as a marketing tool, not as a means of encouraging development. But whatever the motive for offering such a package, it is important to ask what effects, positive and negative, intended or unintended, the offsets are likely to have on the process of economic development in the procuring nation. Keeping in mind the important distinction between economic growth and economic development, we begin by considering the economic impacts of military spending (and military production) on the latter. The analysis then turns to the political economy of offsets in general, and their impact on development in particular. The likely impact on development of indirect offsets is compared to that of direct offsets. Finally, in light of the preceding analysis, we consider how the availability and design of offsets should be taken into account in the process of military procurement, from the point of view of achieving economic development goals.

Chapter 2: Using offsets in procurement as an economic development strategy
by Travis Taylor

In the conclusion of Udis and Maskus (1991, p. 163), the authors "recommend a serious effort to...distinguish between beneficial offsets and detrimental offsets before attempts at international control of the phenomenon are mounted." This chapter develops a criterion to determine when an offset is an appropriate policy instrument for government procurement. It presents a policy matrix that offers general guidelines to government officials considering offsets as part of a broader procurement and development strategy. The matrix permits us to assess the comparative efficiency of offsets and other contracts under alternative settings. Using transaction cost theory grounded in the capabilities view of the firm, the chapter explains how offset efficiency hinges on the exchange setting and the institutions of the purchasing economy.

Chapter 3: Mandatory defense offsets – conceptual foundations
by Stefan Markowski and Peter Hall

Defense offsets in the form of mandatory countertrade, local content requirements, and other compensatory arrangements, are widely used by government procurement agencies around the world. But there remains considerable confusion about what mandated offsets requirements can and do achieve. This chapter classifies offsets into three broad categories – countertrade, local content requirements, and bundling – and discusses conceptual issues underpinning their use. The approach is then applied in a discussion of Australia's and New Zealand's experience of defense procurement as a means of achieving trade and industry development objectives (see chapter 18) and also used to discuss recent Polish attempts to use offsets to transform its Soviet-style, defense-related enterprises into a more economically viable and strategically relevant industrial sector (see chapter 12).

Chapter 4: Economic aspects of arms trade offsets
by Jurgen Brauer

The chapter addresses three sets of questions. First, why are arms trade offsets agreed to? What economic theory (or theories) would explain offsets? What are the economic rationales of the players involved? Second, are arms trade offset agreements economically efficient? Is social welfare maximized? What is the benefit, net of cost, for whom? In a word, what is the empirical evidence? And third, what, if anything, should be done about arms trade offsets? Among the conclusions is a call for countries to establish *arms trade offset audits* whose task it would be to measure the full economic cost of each proposed and concluded deal (also see chapter 10 on the limited experience with offset audits in Finland and Sweden).

Chapter 5: The arms trade as illiberal trade
by Ann Markusen

The chapter charts the proliferation and changing nature of relationships involved in international weapons trade, and postulates a set of economic and security outcomes that appear linked to illiberal arms trade practices and to the phenomenon of offsets in particular. These include national hyper-specialization, competitive disadvantages for the non-arms sector, the transformation of defense contractors into trading companies, faster weapons proliferation, and an exacerbation of the one-team arms race, world over-spending on arms, and the rise of an international military-industrial cartel. The chapter pays particular attention to the role of offsets in the arms trade, because they reveal the failings of a system that is both illiberal and one in which security concerns are subordinate to commercial aspirations. The damage from these forms of illiberal arms trade practices, in tandem with lax security oversight, is underestimated, severe, and increasing. Concerted multilateral and unilateral actions to curtail such practices by major market participants are in order.