Defense offsets and political leverage

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Abstract

Why do states agree to offset provisions when they purchase weapons, and what are the consequences of different types of offsets? This article takes a network approach to understanding the causes and consequences of offsets in the arms trade. It argues that offset clauses create network ties that affect a state's position and power in the global arms production network. This depends on the type of offset it pursues—only a small subset of states with advanced technological manufacturing capabilities can maintain a central and powerful position by leveraging direct offsets. Other states must pursue indirect offsets, which have the opposite effect and keep these states locked into peripheral positions of limited power. Through case studies of offset use in India and Malaysia, this article shows how difficult it is to achieve network interdependence (India), and the difficulties of using indirect offsets to achieve political goals (Malaysia).

In 2019, Turkey stunned its NATO allies by purchasing the Russian-made S-400 air defense system. While Turkey wanted air defense systems, it was equally interested in gaining access to technology and information that would benefit its domestic defense manufacturing. Turkey explained that non-NATO suppliers were more willing than NATO partners to transfer the technological knowhow that would help Turkey boost its indigenous defense production capabilities.[1] Turkey's desire to get more than just the weapon from arms purchases is not unique (in this case, technology and information). States have long been interested in countertrade and offsets through weapons procurement contracts. While most states are interested in the transfer of technology, states are increasingly looking at non-defense offsets when they buy arms. While non-defense offsets are not new,[2] states are being more systematic and thoughtful about their use of this type of offset. For example, Malaysia negotiated PhD placements in the U.K. when buying arms from British suppliers, so that Malaysian students would be able to return home with greater technical knowledge. It is clear that sales of major conventional weapons are more complicated and nuanced than a simple exchange of money for weapons.

Offsets are contractual clauses that require the selling state and/or company to undertake activities that "offset" the cost of purchasing a weapon. This could mean allowing a company in the purchasing state to produce components for the weapon, requiring the selling state to: buy something from the purchasing state and resell it; transfer technology; or to make exchanges, or other investments, outside the defense sector. While data on offsets is often shrouded in secrecy, data from U.S. firms indicate that offset requirements are common and high—between 2000 and 2021, U.S. firms agreed to offsets totaling USD 111.4bn. On average, contractors were required to offset 64% of the total purchase cost.[3] Offsets are puzzling from an economic perspective because scholarly literature suggests that,

1 Spindel (2019); Hacaoglu (2015); Sazak (2016).
2 In 1986, a US congressman noted "one major defense contractor may end up rivaling Gucci and Pappagallo as one of the world's foremost shoe marketers" due to offsets (Hammond,1987, p. 181).
3 US Bureau of Industry and Security (2023).

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despite their commonness, offset schemes are inefficient and often unsuccessful.[4] Additionally, the U.S. Government sees offsets as "economically inefficient and trade distorting," and the European Defence Agency is trying to encourage its members to move away from offset provisions.[5] As Hall and Markowski questioned, "If offset schemes are really so inefficient, why is it that they have persisted for so long and are so widespread?"[6]

Weapons sales have become increasingly complex and interdependent, with sales seeing increasing use of offsets. However, it is difficult to achieve desired lasting political or economic gains when employing offsets in weapons purchasing agreements. Without advanced technological manufacturing capabilities, direct offsets fail to deliver a central and powerful position within current the global weapons supply network. Similarly, indirect offsets serve to lock states into peripheral positions of limited power.

This article builds on the existing economic scholarship on offsets by shifting the focus to the political calculus states make when pursuing offsets during weapons procurement. Taking a network perspective, and drawing on fieldwork at weapons exhibitions and government documents, suggests that states pursue offsets because their political leaders believe there will be longer-term political benefits that result from joining the global weapons production network (despite little evidence of economic benefit). Leaders believe that offsets will create enduring political ties that will, in the long run, reshape the global arms network in a way that gives them greater political leverage and influence over the behavior of others.[7] The goal of offsets is not economic benefit, but political power through interdependence. However, this article also suggests that, for most states, this logic is wishful thinking; only a small subset of states with advanced technological manufacturing capabilities can take advantage of offsets to integrate into the global weapons production network. Other states must pursue a different type of offset, *indirect offsets*, that, ironically, have the opposite effect and keep these states locked into peripheral positions with limited leverage and power. By using case studies of offset use in India and Malaysia, this article shows how difficult it is to achieve network interdependence (India), and the difficulties of using indirect offsets to achieve political goals (Malaysia).

To explain the political interdependence logic of offsets, and why it is an unlikely pathway to power for most states, this article proceeds as follows. First, explaining what offsets are and why existing literature says that offsets are inefficient and often fail. Next, explaining the political logic of offsets, and showing the different types of relationships created by direct and indirect offsets. Then: offset policies in India and Malaysia are traced to demonstrate how ties are created; how offsets do (and do not) create political power are explored; and finally, the implications for scholarship and policymakers are described.

Understanding offsets in defense contracts

In agreeing to an offset, the seller agrees to undertake "some reciprocal transaction over and above that associated with a purely cash transaction."[8] Some states have formal offset requirements, i.e., once a procurement contract reaches a certain value, there is a requirement that a specific percentage of the contract be offset. Other states have informal offset requirements where there is flexibility in offset percentage and type (even though there is still an expectation of offsets). For example, a state might have an offset requirement of 100%, which would mean the manufacturing company would have to create offset activities equal to the purchase price of the weapon. But the buying state might have a multiplier, which affects the credit accorded to different types of offset activities. A common multiplier is for the transfer of technology. Imagine a sale of $100 with an offset requirement of 100%. A

4 Brauer and Dunne (2004, p. 1); Martin (2014, p. 18); Behera (2015, p. 10); Transparency International (2010, p. 3). Additionally, offsets are often shrouded in secrecy, which makes evaluating their effects extremely difficult.
5 Behera (2015, p. 16); US Bureau of Industry and Security (2023, p. 3).
6 Hall and Markowski (1994, p. 174).
7 Farrell and Newman (2019).
8 Martin (2014, 15). See also Hammond (1990); Brauer and Dunne (2004).

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multiplier of 5 for technology transfer would mean that the seller manufacturer could offer $20 worth of technology, but would receive credit for $100 ($20 times the multiplier of 5). In practice, multipliers range from one to twenty, with higher numbers generally reserved for the transfer of technology.[9]

Most offsets are "direct" offsets, which result in the purchasing state producing a component which is sold to the primary supplier for the final weapons system. An oft-cited example is South Korea's direct offset agreement with the U.K. company AgustaWestland relating to the Lynx helicopter. Through direct offsets, South Korea produced the engine for the Lynx, which it then sold back to the U.K. The U.K. then assembled and sold the completed Lynx to South Korea and other states. Though AgustaWestland produced the final Lynx helicopter, it relied on engines produced in South Korea.[10]

Indirect offsets involve projects in non-defense sectors. Emerging and developing economies have been creative and innovative in their use of indirect offsets to try to jumpstart their overall level of development. Indirect offsets are attractive because they can make arms purchases more politically tolerable. As one defense expert observed, "they can spend their budgets on arms and along with it, upgrade their industries, both through developing their arms-related industries and other related and unrelated/ancillary industries."[11] Indirect offsets can make weapons purchases more politically tolerable by convincing the public that weapons procurement generates "some social 'return' in employment and technology."[12] As Matthews noted, many less developed countries view offsets as a catalyst for "deeper" industrialization.[13]

Why do selling states tolerate these offset clauses? First, most states need to export arms to keep their own production lines running.[14] If making a sale requires offsetting activities, then states will generally agree in order to secure the deal. Even U.S. firms, who can reliably count on purchases by the U.S. government, see offsets as a matter of routine policy.[15] In a report to investors, Raytheon noted that offsets "are designed to return economic value to the foreign country by requiring us to engage in activities supporting local defense or commercial industries, promoting a balance of trade, developing in-country technology capabilities or addressing other local development priorities."[16] Data collected by the U.S. Department of Commerce (DoC) shows that Raytheon is not alone. Figure 1 shows the percentage of procurement contracts required to be offset from 1993 to 2021. After falling from a peak in 2002, offset provisions are on the rise in the post-COVID period, with a 2021 average requirement of 72% of the price to be offset.[17] U.S. defense contractors entered into new offset agreements valued at USD 1.41bn in 2021, and fulfilled outstanding offset agreements with a value of USD 8.73bn. Between 2000 and 2021, U.S. defense contractors agreed to offsets valued at USD 111.4bn, at an average percentage rate of 64%.[18] The DoC explains, "US defense contractors generally see offsets as a reality of the marketplace for companies competing for international defense sales."[19]

9 United States Bureau of Industry and Security (2012, p. 28).
10 Fieldwork, DSEI, 2015.
11 Mehta (2015, p. 149).
12 Brauer (2004, p. 2).
13 Matthews (2004, p. 91). See also Transparency International (2010, p. 20).
14 Erickson (2015, p. 6); Catrina (1988, p. 74).
15 United States (2004, p. 3).
16 Raytheon (2016, p.72).
17 United States Bureau of Industry and Security (2023, p. 9).
18 Ibid.
19 Ibid, (p. 3)

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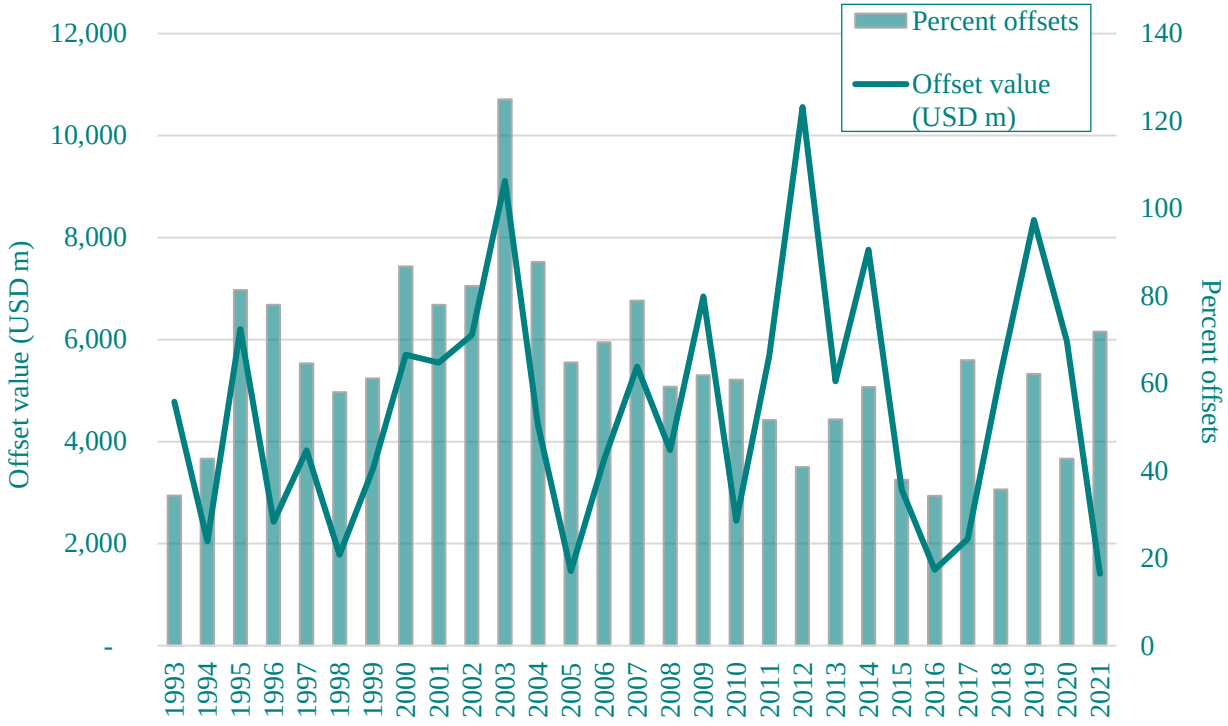

Figure 1: U.S. firms' offset obligations, 1993–2021.
Source: United States. Bureau of Industry and Security (2023).

The lower value of offsets in 2021 is unsurprising given the shutdowns related to the COVID-19 pandemic. As states resume regular patterns of arms purchases (especially in the context of the ongoing war in Ukraine), this value should once again increase.

The political logic of offsets

Economic inefficiencies, long used to explain the problems of offsets, are actually a feature of offsets, not a bug. Take, for example, the Eurofighter Typhoon, the fighter jet jointly produced by more than 400 companies in the U.K., Germany, Spain, and Italy.[20] Matthews and Al-Saadi critique the Eurofighter for its economic inefficiencies, noting the "arbitrary inclusion into the supply chain of relatively inefficient companies simply to achieve pre-agreed national work quotas."[21] These pre-agreed national work quotas are, in fact, the political point of offsets—being involved in the production supply chain can give states political leverage. For most states for most of the time, securing political leverage is worth some economic inefficiencies.

Why are states willing to tolerate economic inefficiencies? Part of the problem is the deeply hierarchical nature of the arms trade. It is incredibly difficult to become a new supplier of conventional arms. The top three arms-producing states (U.S., Russia, France) account for 67% of all arms exports, and the top ten (U.S., Russia, France, China, Germany, Italy, U.K., Spain, South Korea, and Israel) account for 90% of all arms exports.[22] How is a state interested

20 Eurofighter Typhoon (2023)
21 Matthews and Al-Saadi (2023, p. 240)
22 Wezeman, Gadon and Wezeman (2023, p. 2).

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in producing full weapons systems supposed to break into this monopoly? One way is to use direct offsets to force their way in and become a crucial link in the weapons supply network.

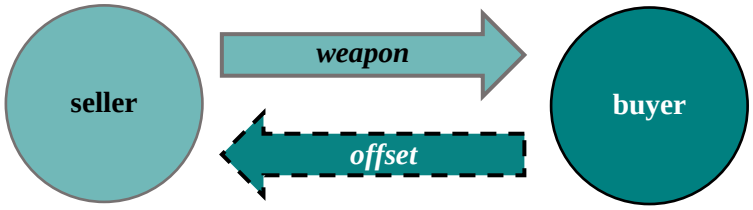

Figure 2: Direct offsets.

Economic inefficiencies are the price to pay for interdependence. Offset agreements create network ties between buyer/seller and producer/sub-producer, that in turn effects the shape and structure of the global weapons network.[23] However, not all ties are the same; while some ties may create a relationship of relative equality between actors, other ties emphasize and deepen asymmetries.[24] Applying this to offsets, direct offsets create reciprocal ties that lead to mutual dependencies, yoking the two together and further integrating the weapons buyer into the global weapons supply network (see Figure 2). This is politically desirable because of the network structure they create—with the mutual dependencies pulling the two actors closer together.[25] These ties generate *rich-get-richer* dynamics because of their reciprocal nature. Direct offsets are essentially an invitation to join the club, and successful execution of a direct offset project serves as proof that the buyer belongs in the club. Membership in the club is beneficial, as Farrell and Newman describe, "central nodes in networks have access to more information and relationships than do other members of the network."[26] Direct offsets help states *integrate* into global weapons supply networks by becoming a crucial link in the chain. From a network power perspective, direct offsets are the gold standard. However, direct offsets are only an option for states that possess a robust science and technology infrastructure, and industrial skill base.[27]

Mutual dependencies created by direct offsets are politically desirable because they create situations of leverage and political power. Political leverage can come in multiple forms. One is the ability to shape the behavior of others without having to engage in coercive means. By that standard, states with advanced production capacity can use direct offsets successfully. For example, the United Kingdom used a formal policy of direct offsets throughout the early 2000s to demand work be done in the U.K. by U.K. subcontractors. This resulted in new and increased production lines.[28] The U.K. was then able to abandon its formal policy of offsets in 2012, because major arms manufacturing companies like Boeing, L-3 Communications, Rheinmetall, and Airbus already had work taking place there.[29] Even though they are no longer required to undertake their offset work within U.K. borders, it is more expensive for these companies to relocate their production lines elsewhere. They are tied to the U.K., and the U.K. is tied to them. This U.K. policy is articulated as reciprocal offsets that strengthen bilateral relations, and will help the U.K. keep its position as the second-largest global defense exporter.[30] Direct offsets, in this case, allowed the U.K. to transition to a less coercive and informal offset policy, while still guaranteeing that companies locate work in the U.K.

Another form of political leverage involves direct coercion or threats. This is again a type of power that states can find from effective use of offsets. After the Saudi murder of journalist Jamal Khashoggi in Turkey in October 2018, many European states imposed an arms embargo on Saudi Arabia. However, disagreements soon emerged about how

23 Podolny (2001, pp. 33–34); Hafner-Burton and Montgomery (2006, p. 560).
24 Keohane and Nye (2011); Farrell and Newman (2019, p. 48).
25 The actors being nodes in network parlance.
26 Farrell and Newman (2019, p. 51); See also Oatley et al. (2013).
27 Brauer (2004, p. 53); Balakrishnan and Matthews (2009, p. 356); Mitra (2009, p. 48).
28 Matthews (2014, pp, 1, 67)
29 Ibid., 87.
30 United Kingdom Ministry of Defence (2012, p. 31); United Kingdom Department for International Trade (2017) .

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long an embargo should last, with the U.K. and France interested in lifting the embargo to resume exports, while Germany wanted to keep the embargo in place as punishment for Saudi Arabia's behavior.[31] The interconnected nature of the European arms industry meant that Germany had an outsized influence on the U.K. and France derived from Germany producing components for arms that they sell. This has meant that a German arms embargo effectively also held up U.K. and French sales.[32] One of the effected weapons systems was the Eurofighter Typhoon, which relied on advanced components made by German producers. The German embargo meant that the U.K. could not complete sales of the Eurofighter to Saudi Arabia.[33] This form of weaponized interdependence is created by the reciprocal ties of direct offsets and is what grants political power. Similarly, South Korea could threaten to stop producing engines for the Lynx helicopter unless the U.K. altered its behavior or did something that South Korea wanted. Re-sourcing an engine producer would hamper the U.K.'s ability to complete helicopter sales and would entail significant costs. However, South Korea also had a vested interest in continued production and sale of the Lynx, and therefore had to carefully calculate its threats so that it did not look like an unreliable partner.[34]

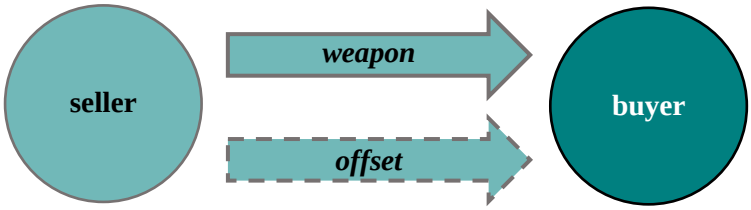

Figure 3: Indirect offsets.

The theory, then, is that offset use will allow states to create mutual dependencies, and that these dependencies create their own internal political incentives, *and* give states levers to try to shape the behavior of others. However, not all states have the option to jump in as nodes in the global weapons network. Doing so requires substantial domestic production capacity, technological know-how, and often a track record of prior production abilities. States are unlikely to pursue reciprocal ties with a new or untested supplier. As a result, only states that already have advanced industrial manufacturing capabilities will be able to pursue direct offsets and benefit from reciprocal ties.

For states *without* substantial industrial production capabilities, direct offsets are not a viable option. They instead pursue indirect offsets, which leaders use as the first step in a long chain toward successfully using direct offsets. The logic is that there needs to be a society-wide jump start of manufacturing, technological know-how, and capacity, which leaders believe can be achieved through indirect offset use. Indirect offsets are not as a rule, as leaders hope, a pathway to future direct offsets. Instead, indirect offsets create asymmetric ties that actually undermine the seller's political power and leverage, pushing them further to the periphery of the global weapons network.

One of the problems with indirect offsets is that they often result in the buyer relying on the seller for weapons *and* something else. Rather than serving as a pathway to direct offsets, indirect offsets deepen dependencies by perpetuating a hub and spoke configuration that keeps actors on the periphery. Over time, it becomes increasingly difficult for these outsiders to break into the centralized network and become a core part of the global weapons supply network.[35] As Farrell and Newman described, these ties result in "specific, tangible, and enduring configurations of power imbalance."[36] Figure 3 represents this network configuration.

In contrast to direct offsets, the ties for indirect offsets flow in the *same* direction. Rather than pull the seller and buyer closer together, this pushes the buyer further away; it does not create mutual dependencies. The result is an

31 Noack (2018); Spindel (2019); Bisaccio (2020).
32 Noack (2019); Sprenger (2019).
33 Wintour (2019); Deutsche Welle (2019).
34 Bitzinger (2004, p. 258).
35 Faul (2015, p. 4); Farrell and Newman (2019, p. 53)
36 Farrell and Newman (2019, p. 49).

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asymmetric relationship, in which the buyer is relying on the seller for the weapon and something else. Because indirect offsets can be scattered throughout different economic sectors, states rarely develop independent expertise and, as a result, only increase their dependence on the state that is providing the goods or services. Even when indirect offsets build infrastructure, states often don't receive the technology transfer or skill enhancement that come from direct offsets.[37] Indirect offsets can provide short-term developmental gains to countries, but in the long-run reproduce hierarchies of power.[38] In the short-term, leaders may think they are getting a quick boost to a specific sector or need, but in the long-term states do not achieve mutual dependence and instead are locked into a peripheral position.

Why then do states continue to pursue indirect offsets? One reason is wishful thinking, with leaders hoping that they can model their programs on other successful ones. Malaysia's offset program, for example, explicitly builds on similar programs in South Korea, Japan, and Turkey.[39] There is also an enduring belief that offsets are ways to build industrial capacity.[40] Many states see offsets as a way to "double dip"—they justify their military expenditures by pointing to economic or social benefits they receive through indirect offsets.[41] As previously described, offsets provide political cover for military purchases by allowing leaders to say they are getting some other social or economic benefit as a result of arms procurement. Though scholars know this is an overly rosy picture, it is a simple and attractive narrative to justify arms purchases.

Offsets in Malaysia and India

To demonstrate the different network relationships caused by offsets, and the difficulties of using offsets to become part of the global weapons supply network, offset policies in Malaysia and India are traced. The cases illustrate the wide variety of offset use, with Malaysia using primarily indirect offsets and India trying to secure direct offsets. They also highlight the political logic of offsets with Malaysia focusing offsets on knowledge and skills-based transfers, including green technologies and education, to transform from a commodity-based to a knowledge-based economy. These offset ties have been unidirectional, and as a result Malaysia has remained politically peripheral. However, India wants to gain political power from integration into the weapons production network, and sees direct offsets as its pathway for doing so. Yet India's experience with offsets illustrates the difficulties of successfully using direct offsets for political power—India does not have sufficient advanced production capacity, and has struggled to domestically produce its own weapons. Officials from the Indian government have even admitted their reluctance to buy arms as simple as rifles from Indian producers.[42]

Much of the case analysis draws on fieldwork conducted at the Defense & Security Equipment International Exhibition (DSEI) in London in 2015. Seminars offered by government and military representatives from various countries were attended, and documents and brochures relating to weapons sales and decision-making within governments were collected. The case analysis that follows builds on information and evidence collected at DSEI supplemented by official government procurement documents.

Malaysia: Indirect offsets at the periphery

Malaysia is a good example of a state using indirect offsets for short-term economic gains, even though it will realize limited, if any, longer-term economic or political benefits from offset use. Malaysia has been a creative user of indirect offsets to pursue a range of economic development projects across the state and in different sectors. One difference with the Malaysian offset program compared to other states is that it organizes offset policies through the

37 Hammond (1990, 151).
38 Brauer (2004, p. 58).
39 Abdullah and Safari (2018, p. 160).
40 Transparency International (2010, p. 3).
41 Brauer and Dunne (2004, p. 2); Singh (2014, p. 13).
42 Fieldwork, DSEI 2015.

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Ministry of Finance, rather than the Ministry of Defense. Nonetheless, Malaysia's offset policy has not brought it economic gains. As Balakrishnan and Matthews noted, nearly forty percent of Malaysian offset recipients continue to rely on "foreign sources of technology, components, parts, and process machinery."[43] Malaysia's indirect offset trajectory stands as a clear example of how indirect offsets, even when creatively implemented, create and sustain asymmetric dependencies.

Though the government first decided to set an offset policy in 2005, it took until 2011 for an official policy to be promulgated. In its desire to transition from a commodity-based to a knowledge-based economy, Malaysia's general goal is to use offsets to assist infrastructure development and to jumpstart an indigenous aerospace program.[44] Malaysia's office that manages offset programs explained that "indirect offset offers a bigger potential to provide more economic impact" compared to direct offsets.[45] This belief has led Malaysia to pursue weapons purchases that include indirect offsets in green and cyber technology, healthcare, and education.[46] The Malaysian government has explicitly explained offsets as "a policy to strengthen the country's socio-economic achievement," and to help local industry participate in the global, non-defense, supply chain.[47]

When government officials describe Malaysia's offset policy, they repeat the expected narrative about economic benefits leading to political benefits. For example, in 2019 the Prime Minister's Office released a national defense policy document explaining Malaysia's view of defense projects. The description is a perfect explanation of the logic of indirect offsets, "The defence industry contributes towards job creation, savings in foreign exchange, technology transfer, foreign direct investment, dual-use technology, and developing downstream industries for other economic sectors."[48] Specifically in reference to the offset program, the document frames offsets as a way to develop strong reciprocal ties through "international strategic partnerships that could contribute towards industrial enhancement."[49] The Minister's office also sees offsets as a way to promote "Human resource development and local expertise and skills enhancement."[50] This hope that offsets could jumpstart the entire domestic economy has animated Malaysia's official offset usage.

Malaysia has an extremely low offset threshold, requiring offsets of 100% for all contracts above USD 15.8m.[51] This means nearly every weapon purchased by the Malaysian government required manufacturers to invest a similar amount in the country. Malaysia prioritizes aerospace, automotive, rail, maritime, and energy projects as offsets, which the Malaysian government explains as giving priority to "activities that provide an active platform for local industry participation in selected sectors contributing to the national aspiration towards achieving developed country status."[52] In other words, offsets are designed to affect a variety of domestic sectors to push Malaysia toward higher development. To systematize these knowledge gains, in 2013, Malaysia added higher learning placement programs.[53] The formal offset policy has resulted in offset obligations of USD 6.72bn from procurement contracts of USD 10.34bn between 2010 and 2020.[54]

What is particularly innovative about the Malaysian use of offsets is that the government has deliberately connected defense offsets to all areas of government procurement. Thus, even when seeking Airbus A380 aircraft for

43 Balakrishnan and Matthews (2009, p. 351).
44 Matthews and Yip (2013).
45 Abdullah and Safari (2017, p. 169).
46 Fieldwork, DSEI, 2015.
47 Malaysia Ministry of Finance (2013, p. 3-1); Global Supply Chain panel, DSEI, 16 September 2016.
48 Malaysia Prime Minister's Office (2019, p. 29).
49 Ibid, p. 30.
50 Ibid.
51 Matthews and Yip (2013).
52 Malaysia Ministry of Finance (2013, p. 2).
53 Malaysia Ministry of Finance (2013, p. 3-1).
54 Mahadzir (2022). Offset obligations were of RM31.278 billion from RM48.09 billion.

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Malaysian Airlines, the government insisted Rolls-Royce give offsets to help develop the Malaysian aerospace industry.[55] Under this scheme, defense procurement is treated as just another type of government economic activity, not something unique to the military or defense.

The Malaysian government lists six objectives for its offset program, the first of which is to "develop and strengthen the expertise, capabilities, capacity and marketing, and export potential of Malaysia's industries."[56] In pursuit of this goal, Malaysia has applied offsets to a wide range of sectors and projects, including green technology, nanotechnology, and human capital development.[57] For example, a domestic green technologies developer GreenTech Malaysia is supported by a number of different offset arrangements that have provided technology to the company.[58] Malaysia also prioritizes investing in higher education initiatives.[59] Officials at DSEI joked that the Malaysian government's purchase of tanks would fund a new generation of PhD. students, both those studying within Malaysia as well those sent abroad for further education. Through offsets related to Malaysia's purchase of naval guns, U.K. arms manufacturer BAE is sponsoring a new post-graduate program in Cyber Security at the National Defence University of Malaysia.[60]

While Malaysia does get short-term economic investments from its arms procurement, it has not been able to translate these into economic or political gains. As Balakrishnan and Matthews summarized, most of Malaysia's offset projects "have involved low-level 'metal-bashing' and build-to-print activities" rather than higher-level skills development or advanced manufacturing projects.[61] So, contrary to Malaysia's political aims, but in line with the political logic, its reliance on indirect offsets has created ties all running in the same direction, *from* the seller *to* Malaysia. Expansive indirect offsets have not helped Malaysia build and sustain domestic manufacturing at a level needed to become a key node in the weapons supply network. As such, Malaysia will have limited, if any, opportunities to gain more political power or exercise leverage over other states (beyond whatever it has been able to extract from the weapons contract itself); nor has it been able to use indirect offsets to jumpstart its economy to a point where it could transition to direct offsets. As the existing literature on the economics of offsets clearly shows, there are limited, if any, long-term economic benefits to indirect offsets.

India: The limits of direct offsets

Despite coordinated efforts to employ direct offsets to become a central node in the weapons supply network, India has not yet realized any economic or political gains. It is a useful example of the limits of direct offsets, and India's experiences suggest that the ability to gain political power through network closeness is limited to states with existing advanced production capabilities. India's experience also suggests that there was a window during which states could use direct offsets to build their domestic production capabilities, which fed back into their ability to use direct offsets. Given the relative stability of the weapons production network, it is difficult for new producers to break into the network. However, India's experience provides a different type of network blueprint for states looking to leverage arms production for political power.

Indian weapons acquisition policies are determined by the Ministry of Defense, detailed in Defense Procurement Procedure (DPP) manuals. The guiding principles, as explained in these manuals, is to "use offset[s] as a route to amalgamate into global defense supply chains, in addition to self-sustenance of the Indian Armed Forces."[62] From

55 Fieldwork, DSEI, 2015.
56 Malaysia Ministry of Finance (2011, p. 3).
57 Malaysia Industry-Government Group for High Technology (2015).
58 Fieldwork, DSEI, 2015.
59 Malaysia Ministry of Finance (2011, p. 3).
60 BAE Systems (2015).
61 Balakrishnan and Matthews (2009, p. 351).
62 Fieldwork, DSEI, 2015.

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2005 to 2017, the DPP manuals showcased India's learning process and the evolution of an offset policy spurred by the anticipation of massive weapons purchases to replace its aging arsenal.[63] India began with an offset requirement of 30 percent, which remained steady through 2015.[64] Offsets were designed to encourage foreign investors to enter meaningful, long-term relationships with private domestic industries.[65] In 2008, India allowed foreign weapons manufacturers to use foreign direct investment in Indian defense industries as a way to fulfill their offset requirements.[66] Even so, it was not until 2011 that the DPP had a clear objective for offsets, "The key objective of the Defense Offset Policy is to leverage capital acquisitions to develop Indian defense industry by (i) fostering development of internationally competitive enterprises (ii) augmenting capacity for Research, Design, and Development related to defense products and services and (iii) encouraging development of synergistic sectors like civil aerospace and internal engineering."[67] Also in 2011, India began to incentivize the transfer of technology through the use of multipliers. In 2013, India finally incorporated offsets into the regular 15-year defense planning cycle, meaning that projects to be accomplished through offsets could be planned and scheduled into the future.[68]

India's learning process through offsets is best seen through its threshold for offset requirements. Initially, it required the 30 percent offset to be applied to all contracts greater than USD 45m, and did not incentivize one type of offset compared to the other. As a result, nearly every weapon purchased by the Indian government automatically required offsets, which led to logistical and bureaucratic complexity as India tried to manage and monitor these offset projects. In April 2016, India raised the offset threshold to purchases greater than USD 305m, and incentivized direct offsets (the transfer of technology and manufacturing of weapons components), rather than having factories or railways built through offsets.[69] In the most recent DPP of 2020, India explains the avenues for meeting these offset requirements, and explicitly excludes "civil infrastructure and related equipment."[70] The guidelines emphasize "co-production, co-development and production or licensed production of defense products," and allows for a multiplier of 3 or 4 to be applied when critical technology is transferred as the offset—thus demonstrating India's prioritization of direct offsets.[71] Also included is a clear list of exclusively defense-related "products eligible for discharge of offset obligations" such as small arms, naval platforms, aircraft including unmanned aerial vehicles, and electronics and communications equipment.[72] In this way India's offset policy evolution has mirrored that of countries such as the U.K.

India tried to ensure that its direct offsets were effective through a "Make in India" campaign, which was developed in 2014 to encourage investment in, and government procurement from, Indian manufacturers. The Make in India policy, which was given center stage at DSEI, privileges domestic content in weapons purchased by the Indian government. The campaign was described as trying to create a hub and spoke program that would build and sustain domestic production capabilities.[73] Make in India uses direct offsets to create reciprocal ties that the Indian government believes will pull it closer to the center of the global arms production network. However, Make in India has encountered a number of obstacles, and the 2020 manual notes that there needs to be more done to build domestic capabilities.[74] Without these capabilities, India cannot successfully be part of the hub and spoke weapons production

63 Narasimhan (2015, p. 39); India Department of Defense Production (2017).
64 Verma (2009, pp. 10-11).
65 Ibid., 21.
66 India (2013).
67 India (2011).
68 Sodhi and Bhargava (2015, p. 33).
69 Fieldwork, DSEI, 2015.
70 India Ministry of Defence (2020, p. 109, 112)
71 India Ministry of Defence (2020, p. 109)
72 India Ministry of Defence (2020, p. 126-127)
73 Government of India, The Lion in on the Move, Reinvigorating the Indian Economy 2014-2015, material collected from DSEI.
74 India Ministry of Defence (2020, p. 321)

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network.

India's struggles can be seen through incomplete and paused weapons production deals over the past decade. After the 2014 Make in India campaign and DPP 2016, foreign manufacturers including Raytheon, BAE, Lockheed Martin, Rafael, Airbus, and Dassault all announced they would work with Indian companies to manufacture weapons.[75] Despite this rhetoric, India has not completed these deals. Boeing and Lockheed Martin were "aggressively pursuing" opportunities to establish manufacturing lines in India for the F-16 and F-18 fighter jets, both to sell to India, and for exports to third parties.[76] Lockheed Martin has offered India exclusive rights to produce Block 70/72 F-16 jets, and has said India will be allowed to veto sales to countries including Pakistan.[77] However, U.S. manufacturers and India have disagreed about technology transfer and Indian production capabilities, which has significantly delayed the project.[78] Additionally, the U.S. has expressed concerns that India's track record with producing sophisticated aircraft could hamper F-16 production, even if technology transfer were to occur.[79] Notably in 2015, after four of Ecuador's fleet of seven Indian-made Dhruv helicopters crashed, it grounded the remaining and canceled its contract to buy more.[80]

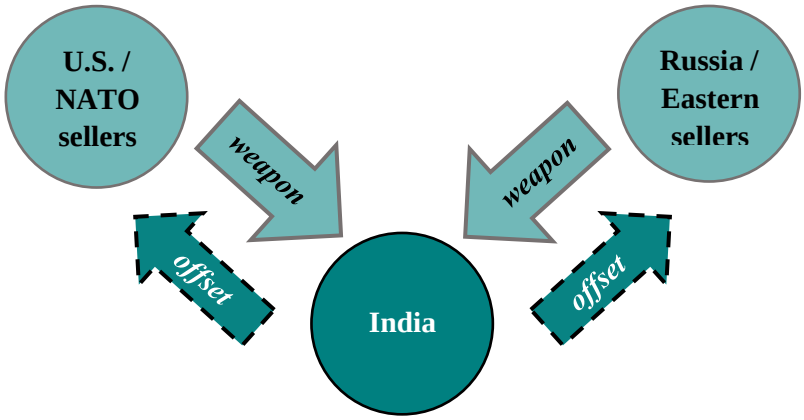

Figure 4: Structural power position for India.

In light of these production concerns, Lockheed Martin floated the potential of India making wings for the F-16 rather than the full plane. Making a component and selling it back to the producer would have been a textbook way for India to become a crucial node in the weapons supply chain.[81] But doubts about India's production capabilities continued to dog the project; as of March 2023, there is only a Memorandum of Understanding between Lockheed Martin and Indian producer Tata to build 29 fighter wing shipsets starting in 2025.

Despite India's policy of direct offsets and incentives for transfer of technology, it has not been successful in developing reciprocal ties to bolster its political power. Had the deal with Lockheed Martin gone through, India's ability to veto F-16 sales to Pakistan would have been a clear example of how states can use offsets to gain political power. But the questions about India's production capabilities have prevented it from capitalizing on its direct offset policies and from becoming a central node in the global weapons supply network. India has not yet cracked the list of the top 25 arms exporters despite being the top importer of arms (with the accompanying huge direct offset opportunities to become a major supplier)—in the periods 2013–2017 and 2019–2023, India was the largest importer of conventional arms in the world.[82]

India has not met its goal of using offsets to become a producer of weapons components. But its struggles and

75 Ibid.
76 Smith and Werman (2016)
77 Lam (2016)
78 Insinna (2016)
79 Ibid.
80 Som (2015)
81 Economic Times (2018)
82 Wezeman, Gadon and Wezeman (2023, p. 2, 6)

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limited successes do offer a *different* model for how offset ties can create political power. India has an opportunity to carve a niche as a refurbisher for both U.S. and Russian-made systems, making it one of the few states with a tie to both production blocs. As one analyst reflected on the deal with Lockheed Martin, "The deal opens the door for India to be the only vendor in the world that can acquire the expertise and infrastructure to integrate and upgrade existing Russian, European, and American platforms."[83] India already has joint production ventures with Russia (the Brahmos missiles), so securing even wingset production agreements would put India in a unique structural position, as illustrated in Figure 4.[84]

Note in this figure that the ties are weighted differently; while the ties run in both directions (to *and* from India), the ties from India to the U.S./Russia are much weaker than the ties from the U.S./Russia to India. This reflects India's likely status as a net importer of conventional weapons, and represents a more limited tie in the reverse direction. Unlike the U.K., Germany, or Italy, which have ties of roughly equivalent strength, India's ties are unequal. Even if it can move into this structural position, it is not one of equality with the major weapons producers. However, this type of brokerage position can carry with it political power, especially if India can become the go-to state for repairs and refurbishing of older weapons systems.

India would be smart to pursue this broker model of political power, rather than try to use direct offsets to become a node in U.S. or Russia supply chains. India's experience suggests that there is limited opportunity to use direct offsets to create reciprocal ties for states who are *outside* of the global weapons production network. Even if India had been able to address the manufacturing capability concerns, the weapons exports move fast enough that most established companies can't wait ten years for a state to commission new factories—especially just to produce a legacy weapon. Direct offsets may be the privilege of states that have existing advanced weapons production capabilities, meaning that the central states will deepen their ties over time, making it harder and harder for those on the periphery to break into the core.[85]

Conclusion

The secrecy involved in weapons procurement contracts and offsets means that an important first step is simply understanding the new ways that offsets are being used today. While direct offsets have been used in the past, they are now ubiquitous and are one of the ways that arms sales have wider economic effects. Indirect offsets are a newer way of obtaining an economic benefit, though in the long term they create asymmetric dependencies that deepen global inequalities and power hierarchies, as seen in the case of Malaysia. The case of India demonstrates the limits of direct offsets, and shows how states with limited advanced production capabilities struggle to secure and make use of direct offsets. Despite India's multi-decade effort, it has not been able to use offsets to become a key node in the global weapons supply network, and must therefore pursue alternate structural positions to gain political power.

For scholars, this article suggests that states have a more holistic view of military power. Buying arms remains an important activity, but, following the example of Malaysia, arms purchases can also be means to an economic end. Future work should more closely examine the economic dynamics of the global arms trade. Although many predicted that the end of the Cold War would result in a "buyer's market" and a general opening of the arms trade network, we have instead seen the consolidation of power and production in the hands of a few central states, with limited ability for new producers to break into the network.[86] The asymmetric dependencies created by offsets partially explain this outcome, and future research can investigate additional domestic economic decisions that help keep the arms market centralized.

83 Ibid.
84 Reuters 2023
85 Farrell and Newman (2019, p. 51)
86 Klare (1996)

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For policymakers, this article shows how complex and interdependent weapons sales have become. While agreeing to direct offsets might secure a sale, it has long-term implications for the manufacturer's relationships with partners overseas. Indirect offsets, rather than bolstering a state's production capabilities, can actually increase dependencies and lock states into asymmetric power relationships.

Future research could investigate how different types of direct offsets result in mutual dependencies. For example, do co-production agreements create more durable mutual dependencies compared to licensed production? Do direct offsets tend to aggregate over time, such that once two states enter into a direct offset agreement, all other arms sales between the two are likely to include direct offsets? This more fine-grained analysis of offsets would help scholars and policymakers better understand the long-term consequences of direct offsets. Similarly, are there conditions under which a state has been able to successfully transition from indirect to direct offsets? Future research can analyze the factors (likely unrelated to arms transfers) that enable a state to increase its domestic manufacturing capability so that it can successfully participate in direct offsets.

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