

# 1 Everything You Need To Know about Defence Offsets

## Ontology, History, Politics, and Trends

### Defence Offsets: Definitions, Types and Features

There is no universally accepted definition of defence offsets.<sup>1</sup> Instead, experts and academics have defined offsets in multiple ways. Bernard Udis and Keith E. Maskus define them as ‘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’.<sup>2</sup> Similarly, Grant T. Hammond defines them as ‘compensatory, reciprocal trade agreements arranged as a condition of the export sale of military materiel and support services’.<sup>3</sup> Peter Hall and Stefan Markowski see offsets as ‘simply goods and services which form elements of complex voluntary transactions negotiated between governments as purchasers and foreign suppliers’.<sup>4</sup> For Stephen Martin and Keith Hartley ‘offset occurs [sic] 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’.<sup>5</sup> By contrast, Alessandro R. Ungaro sees defence offsets as the

result of a defence deal [where] the foreign supplier has to conduct a number of additional investments, local projects into the domestic industrial base so that the recipient country can offset the cost of defence procurement, up to 100 per cent of the contract value – and even more.<sup>6</sup>

Finally, according to Kogi Balakrishnan, ‘offsets is a policy tool used by buyers to seek additional economic, industrial and technological benefits from sellers as part of international procurement’.<sup>7</sup>

Though they certainly contribute to the aim of conceptual clarity, the above definitions are, however, somewhat obscure about who the actors participating in the business of defence offsets are. More specifically, these definitions seem to suggest that the supplier is always and solely the defence company. In reality, defence companies’ home states<sup>8</sup> often play a role. To begin with, whether state- or privately owned, defence firms are always under some sort of government control.<sup>9</sup> Moreover, because of the *sui generis* nature of the defence market, the export of weapons ‘is not [only] treated as a matter of commerce but [also] as a matter of foreign policy’.<sup>10</sup> Governments can, for instance, place an embargo

on states that they consider adversaries, either entirely prohibiting the export of particularly sensitive weapon systems such as nuclear-capable missiles, or directly intervening in weapon sales and defence offsets negotiations.<sup>11</sup> While most governments offer diplomatic support as well as loans to encourage countries to buy weapons from national vendors, some, such as France, also help these vendors navigate defence offset requirements.<sup>12</sup> In the case of Russia, its state-controlled intermediary agency Rosoboronexport, which services dozens of Russian manufacturing entities and accounts for over 80 per cent of Russian exports of armament and military hardware, that directly engages in offset negotiations.<sup>13</sup> Rosoboronexport identifies potential offset projects that encompass the full spectrum of Russian economic sectors (e.g. banking, oil and gas, defence, space, etc.), stores these projects in an ‘innovative bank’, and then offers them to prospective buyer states.<sup>14</sup> Similarly, although buyer states are the actors imposing defence offsets, the recipients are usually their domestic defence firms. As such, the latter generally have a say in the very preparation of offset demands, as well as their negotiation.

Extant definitions also neglect the strategic benefits of offsets. Despite being only marginally mentioned in the relevant literature, offsets often include strategic benefits for both recipients as well as suppliers. For example, by requesting the construction of repair and overhaul facilities, as well as training,<sup>15</sup> recipients may further reduce their external dependence on the means to wage war – in other words, enhance their strategic autonomy – while suppliers may increase military operational preparedness and interoperability with allies and, therefore, increase power projection and deterrence.<sup>16</sup> The United States has long used offsets in such a way: in the early Cold War years, the United States boosted the Defence Technological and Industrial Base (DTIB) of its military allies in Western Europe and East Asia through copious licensing agreements of advanced weapons.<sup>17</sup> Washington deemed allies and friendly governments that could stand on their feet as a valuable and cost-effective check against Soviet aggression. Even today, when arms transfers are agreed upon through the US Foreign Military Sales (FMS) mechanism, it is the US Department of Defence (DoD), and not American companies, that negotiate defence offsets with its counterparts in client states.<sup>18</sup> In fact, in FMS, Washington even pays for offsets as American law ‘allows US contractors to recover, under FMS contracts [...] costs of any offsets that are associated with those contracts’.<sup>19</sup>

Hence, I hereafter define defence offsets as *compensatory measures or additional economic, industrial, technological, and strategic benefits negotiated between and contractually agreed upon by buyer states and foreign suppliers (either defence firms or their home states) for a value equal to a certain percentage of the price of the weapon system being transferred*.

In addition to the lack of a universally accepted definition, scholars also disagree on the very nature of defence offsets. Indeed, offsets are often confused with other kinds of trading arrangements such as bartering, counter-purchasing or outright corruption. According to several scholars, offsets increase the risk of corruption by ‘improperly’ influencing the need for an acquisition and the

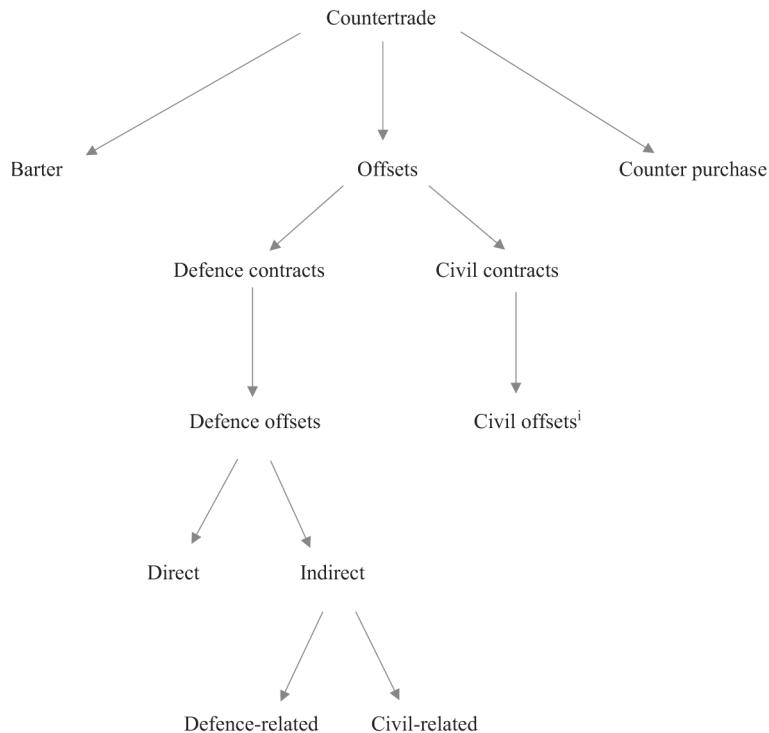
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award of a contract, while also serving as a coverup for bribes.<sup>20</sup> Rather than competing only on quality and price suppliers have to rely on offsets too, in order to win open tenders arms; and sometimes governments claim that offsets are the most important deciding factor.<sup>21</sup> In India and Kuwait, for example, it is the quality of technology transfer (a type of offset) that scores most highly when assessing competitive bids.<sup>22</sup> Therefore, although some authors claim that offsets represent a second-best solution for an already imperfect market, defence offsets are generally considered market distorting, culpable of trade diversion and misallocation of resources that will reduce national, as well as global, welfare – for instance, by imposing new global supply chains that are less efficient than the ones they replace.<sup>23</sup>

Yet influencing the need for an acquisition and the award of a contract is hardly corruption if this occurs through legal instruments such as offsets. And offsets are surely a legal feature of international arms procurement. Despite attempts to limit and regulate defence offsets, no international or supranational institution has banned them outright – not even the European Union, which instead charges its member states with the responsibility of demonstrating that offsets serve national security interests.<sup>24</sup> Defence offsets are officially regulated by governments, whether through laws or ministerial circulars.<sup>25</sup> Finally, arms suppliers are also increasingly regulating defence offsets through codes of conduct and by setting up specific offices to negotiate and manage offset arrangements.<sup>26</sup>

This, of course, does not mean that offsets cannot be used as a conduit for corruption.<sup>27</sup> However, rather than being a favourite ‘avenue for corruption’, offsets appear to be just one of the many stages of an international procurement process in which bribing and corruption can occur.<sup>28</sup> For example, in December 1998, Belgium’s Cour de Cassation found former economics minister Willi Claes and former defence minister Guy Coëme guilty of receiving bribes (around \$4 mil.) in connection to Belgium’s 1988/9 procurements of helicopters (Agusta) and military electronics upgrades (Electronique Serge Dassault) and sentenced them to three years and two years in prison, respectively.<sup>29</sup> According to the prosecutors, Agusta and ESD made large donations to the two Belgian socialist parties in exchange for an edge over their competitors. While monetary bribes were the focus of the investigation into the two scandals, preferential siting of offset investments was also part of the deal that Augusta, in particular, struck with the Belgian ministers. According to the prosecutors, Claes and Coëme knew that some of the offset offers were impractical.

Defence offsets are a form of countertrade in exactly the same way bartering and counter-purchasing are (Figure 1.1).<sup>30</sup> However, in contrast to bartering, defence offsets involve currency exchanges. Offsets are different from counter-purchasing, as the exporter does not commit to buying or finding a buyer for certain specific product(s) produced by the importer.<sup>31</sup> Indeed, as illustrated above, defence offsets are additional benefits negotiated and agreed on between buyer states and foreign suppliers for a value equal to a certain percentage of the price of the weapon system being transferred. When such additional benefits are linked to the weaponry purchased, defence offsets are *direct*.<sup>32</sup> By contrast, when the investment is not linked to the weaponry purchased,



*Figure 1.1 Countertrade typology.*

*Note:* These may be identical in substance to civil-related indirect offsets but must, nonetheless, be distinguished from the latter insofar as they are linked to civil contracts (i.e., contracts agreed in commercial sectors such as transport, telecommunication, healthcare etc.), whereas civil-related indirect offsets are linked to defence contracts.

*Sources:* Reworked from Matthews, (2002); and U.S. Department of Commerce Bureau of Industry and Security, accessed December 2, 2021, [www.bis.doc.gov/index.php/other-areas/strategic-industries-and-economic-security-sites/offsets-in-defense-trade/54-other-areas/strategic-industries-and-economic-security/181-offset-definitions](http://www.bis.doc.gov/index.php/other-areas/strategic-industries-and-economic-security-sites/offsets-in-defense-trade/54-other-areas/strategic-industries-and-economic-security/181-offset-definitions).

they are *indirect*. Here, American and European typologies start to diverge. While Americans consider indirect offsets as splitting into two categories – defence-related and civil-related<sup>33</sup> – Europeans consider indirect offsets as only defence-related, instead putting civil offsets<sup>34</sup> into a category of their own.<sup>35</sup> Hereafter I propose a synthesis of both typologies which acknowledges the most common use in business and, increasingly, in academia too.

Examples of direct offsets are co-production and sub-contracting agreements. Credit assistance, investment, licensed production, technology transfer, training and other forms of offsets can be either direct or indirect offsets depending on whether they are linked to the weaponry purchased. Hence, when buying a fighter aircraft, for instance, a state demanding direct offsets usually has one or more domestic firms co-producing the weapon system or entering the supply

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chain (e.g., by manufacturing small parts of the aeroplane such as fixed wings or avionics). Alternatively, or in addition, the recipient state may demand specific training for its pilots and engineers. It may also demand technology transfers that are related to fighter aircraft. By contrast, a state demanding indirect, defence-related offsets may have the offset fulfiller invest in domestic military research facilities or grant the licensed production of products not related to the fighter aircraft purchased (e.g., licensed production of helicopter tail rotors). Finally, a state demanding indirect civil or commercial offsets may have the foreign supplier invest in the domestic civil economy or transfer technology to domestic civil firms.

States may demand and receive offset packages that involve a mix of direct and indirect (defence- and/or civil-related) offsets. They may, for instance, demand subcontracting and investment in the domestic civil economy or, alternatively, they may demand the rights to the licensed production of both the weapon being transferred, as well as other products. States may also demand and get offsets packages along with other trade arrangements such as barter and counter-purchase, thus easing the terms of payments. Clearly, offset packages vary across time and space, and depend on the specific priorities of the buyers as well as bargaining power vis-à-vis vendors.

Indeed, buyer states have many economic, political and strategic incentives to pursue offsets, some of which have already been discussed, namely: military capability development, wider economic development through industrialisation and dual-use technology transfer, regional and cluster development, augmenting or retaining employment, improving trade imbalances and terms of payments, and increasing military operational preparedness and interoperability with allies.<sup>36</sup> Vendors also have several incentives to consent to offsets: entering markets, accessing specialized technology or cheaper labour and again, increasing military operational preparedness and interoperability with allies. There are, however, risks for both buyers and vendors as well. Most especially, for buyers, offsets may be more costly than off-the-shelf procurement because vendors usually incorporate the cost of offsets into the final price. Indeed, besides risking the disruption of traditional supply chains and thus endangering the security of supply, for vendors, offsets may be a considerable financial and organisational burden.<sup>37</sup> While these additional costs or cost premiums may be close to zero or even negative (for example in relation to sales deemed critical by the vendor),<sup>38</sup> they may also rise to almost one-third of the total cost of sale compared to off-the-shelf procurement.<sup>39</sup> This problem becomes particularly acute if offsets also fail to produce the expected results.

Furthermore, offsets may strain supplier-customer relationships and damage the reputation of vendors, especially if the offsets fail to deliver, or in case of allegations of corruption. However, what is very trying for the abovementioned relationship is also the attempt by vendors to claim investments that would occur anyway, and/or the buyer's suspicion thereof, as offsets.<sup>40</sup> In fact, since suppliers have a clear incentive to label as offsets both new investment into the buyer's DTIB, as well as follow-up orders to local sub-contractors that

they had previously and spontaneously planned, buyers' offset policies often include specific passages to guard against similar attempts.<sup>41</sup>

### **Origin, Evolution and Currency of Defence Offsets**

The origin of defence offsets has never been systematically investigated and remains disputed. Some claim they first appeared after the Second World War during the Dwight D. Eisenhower administration, whereas others suggest they go back to the 1870s, when Japan demanded compensation against the procurement of British warships.<sup>42</sup> Given the secrecy surrounding offsets, which greatly compounds the difficulties inherent in historical research, it is likely that a precise periodisation will never materialise. Taking into consideration the conditions under which defence offsets prosper will provide us with some guidance regarding where and when we can expect them to emerge, grow or decline.

Indeed, for offsets to emerge and prosper, three conditions are necessary. To begin with, there must be an inter-state arms trade. Secondly, there must be some capability differential or technological gap between buyers and vendors which provides incentive for the former to demand additional economic, industrial, technological and strategic benefits. Finally, buyers must enjoy some bargaining leverage over vendors or, to put it differently, there must be a buyer's market which compels the latter to give in to such additional requests.

An inter-state arms trade may occur either during war or peacetime. While weapons procured under the exigencies of warfare are not necessarily more sophisticated than those that, buyer states would be able to produce on their own over a period of time, weapons procured in peacetime are generally either more advanced or produced more cost-efficiently than domestic ones. It is, therefore, in the latter case that a technological gap necessarily exists and buyers demand defence offsets. However, for suppliers to give in to such requests, they must operate in a buyer's market, which occurs when supply exceeds demand and thus provides buyers with sufficient bargaining power to negotiate both price and compensation.

A cursory look at the historical patterns of arms production and trade over the last 2,500 years strongly suggests that defence offsets emerged in the second half of the 1800s, and grew in the build-up to the Great War before suddenly declining to a virtual stop.<sup>43</sup> Offsets re-emerged in the 1950s, grew steadily until the mid-1980s, and finally skyrocketed in the post-Cold War era through to the twenty-first century. Understanding where offsets come from and how they have changed over time will finally allow us to better understand current trends, including the 'metamorphosis' of offsets into strategic partnerships.

#### ***Greeks, Romans and the Middle Ages***

Beginning with the ancient Greeks is warranted by the fact that 'the first recorded arms transfers are probably those found in Thucydides' Peloponnesian War'.<sup>44</sup>

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Beyond just arms, however, the Greek polities also transferred men, supplies and ships. Moreover, transfers were part of alliances and treaties rather than the result of autonomous commerce. Though Greek city-states competed heavily among themselves to attract the best engineers, who were granted generous payment and high social status, ‘the technology, materials and skills necessary to build ships and arm men were relatively evenly distributed and widely known ... [thus] the ability to arm themselves depended only upon their wealth ... and not upon the import of key factors of production’.<sup>45</sup>

During the Roman period, chances for the emergence of defence offsets were even fewer because, purely and simply, no inter-state arms trade existed.<sup>46</sup> By contrast, after the collapse of the Roman Empire, arms transfers resurfaced across both Europe and the Mediterranean.<sup>47</sup> The scale of such arms transfers was significant enough to spur rulers like Charlemagne, the Doge of Venice, the Church and Edward III to forbid arms sales to actual or likely enemies. However, neither big technological gaps nor surplus production existed. In fact, the output of armourers was not large and most of the trade responded to orders from rulers rather than from markets seeking already-manufactured weapons. Hence, neither the material conditions nor the structural incentives for demanding additional benefits existed.

### *Early Modern Europe*

The technological leap that characterizes early modern Europe is often referred to as the military revolution.<sup>48</sup> The concept, which was first used by Michael Roberts in 1955 to describe the staggering advance in military technology that occurred in 1560–1660 Northern Europe has been widely discussed. Some disagree on the periodisation, placing the timeframe one century before or after the advance identified by Roberts.<sup>49</sup> Some disagree on the geography, arguing that it was Southern and not Northern Europe to kick off this revolution. And some others disagree on the numbers, if any, of military revolutions (one, three, five or none). Military revolution(s) or not, since the introduction of gunpowder in Europe and the advent of the *trace italienne*, military technology saw an acceleration unknown to the previous centuries, which justifies the use of the wording ‘technological leap’ in association with early modern Europe. Such a technological leap also brought about a technological gap between the powers who first acquired or produced the most advanced weapons and those that lagged behind.

Especially after the Thirty Years War (1618–1648), early modern Europe saw the rise of ‘great urban centres (for arms production) with multinational reach, and ... controlled by an elite of merchant-financiers’.<sup>50</sup> Genoa, Hamburg and Amsterdam expanded to become the three greatest international military-provisioning centres of the time.<sup>51</sup> These centres were followed closely by a plethora of second-rank ones such as, to mention just a few, Augsburg, Nuremberg, Cologne, London, Liege, Brescia and Milan. All these centres and the military entrepreneurs running them produced and sold weapons to foreign

rulers and foreign states. Whereas France relied on arms imports from Italian and German privateers, Italian and Dutch privateers provided Spain with the bulk of its military requirements.<sup>52</sup>

During the Netherland Wars, Liege sold impartially to both the Dutch and the Spaniards. In the 1620s, a Dutch family (Trip) produced and marketed English and Swedish iron cannons throughout Europe.<sup>53</sup> As in the past, rulers did attempt to limit exports (now more out of fear of strengthening their adversaries rather than because of insufficient domestic production) by imposing licensing systems but, partly because of ineffective controls (though some states were more effective than others) and partly because licenses were not that difficult to obtain, the arms trade flourished.<sup>54</sup> In 1542, for instance, Brescia (a Venetian dominion) was granted a license to export 7,800 muskets and arquebuses. By 1562, Brescia was exporting 25,000 guns per year.<sup>55</sup>

Rulers of this period did not limit themselves to the purchasing of weapons and the forbidding of export but also ‘attempted to foster indigenous arms industry by acquiring the necessary technologies and infrastructures’.<sup>56</sup> States’ policies not only aimed at attracting migrant workers with advanced technology know-how, but measures were also taken to make sure that such know-how would percolate through and stay with the rest of society. Throughout most of the fifteenth century, French kings encouraged foreign armourers and gun founders, mainly Italian, to settle in Tours so as to develop the city as an important centre for arms production.<sup>57</sup> In 1515, England imported foreign armourers and gun founders (this time from France and the Low Countries) to form schools for the production of war material.<sup>58</sup> Italian craftsmen imported by Russia between the fifteenth and the sixteenth century had to train locals ‘in the new techniques for manufacturing bronze cannons’.<sup>59</sup> Moreover, ‘in 1632, a Dutch-run arms plant was established near Tula to manufacture the new cast-iron guns ... and to train Russian workers’.<sup>60</sup> Spain too tried to develop its own ‘defence industrial base’ through the importation of (Italian, German and Dutch) armorers and gun founders.<sup>61</sup>

Although arms production and trade had increased remarkably, there is little doubt that the bargaining power of early modern European states – which were almost always at war – had not increased that much vis-à-vis military entrepreneurs.<sup>62</sup> No state could keep up with the peaks of weapon demands during periods of war, ‘or do so with the speed required by the exigencies of warfare’.<sup>63</sup> Apparently, then, the commercialisation of war failed to create one of the three prerequisites of defence offsets, namely a buyer’s market. Furthermore, while it can be doubted that the foreign weapons procured in wartime were more advanced than those domestically produced, the technological leap and therefore the gap, however significant it was, was probably insufficient for providing the necessary strategic incentives. Migrant workers, industrial espionage and reverse engineering, rather than blueprints and licensed production were seemingly good enough for acquiring and reproducing new technologies and techniques.<sup>64</sup>

***And the Rest of the World?***

Some may dispute the centrality of Europe in military history. After all, Asian powers preceded Europe in military innovations such as gunpowder and firearms.<sup>65</sup> Though the Mongols already used rudimentary forms of firearms such as fire-lances and bombs, purportedly, it was the early Ming Dynasty (1368–1450) that first employed metal-barrelled handguns and cannons on a regular and significant basis. And it was also the early Ming rulers that first spread firearms throughout Southeast Asia, rather than the Portuguese after the 1511 sacking of Malacca, as previously thought. However, Chinese firearms were not very sophisticated, and being less effective and accurate than their European equivalents made them even easier to copy than the European models; indeed, the Vietnamese proved capable of replicating the design. Most importantly, the spread of Chinese firearms throughout Southeast Asia did not seem to have occurred as a result of weapon sales (except maybe for sales through smuggling) but rather through a mixture of desertion and capture during major battles.<sup>66</sup> In 1397, for instance, ‘Han Chinese soldiers … deserted to the Maw Shan and helped them manufacture cannon and hand-guns’.<sup>67</sup> In Đại Việt then, between 1418 and 1425, Vietnamese resistance to the Ming occupation allowed the former to capture a remarkable number of Chinese weapons.<sup>68</sup>

One can still wonder whether, after the (in)famous Vasco da Gama voyage at the end of the fifteenth century, the flow into Asia of more advanced European weapons changed anything. It did so to the extent that Asian rulers attempted to adopt and imitate them.<sup>69</sup> For instance, ‘as early as 1505 Milanese and Venetian workers were casting iron guns in Calicut for use against the Portuguese’.<sup>70</sup> In the late sixteenth century, the Dutch were building foundries in Japan so as to increase their influence. But, once again, no evidence exists that such arrangements were linked to the sale of weapons. On the contrary, there is evidence that Europeans were quite wary of giving away their technological superiority via trade.<sup>71</sup> Furthermore, as with Ming China, many arms were acquired not through purchasing but as war booty.

Though Asia preceded Europe in military innovations, Africa and the Americas entered modern military history much later. The available records strongly suggest that arms trade became somewhat significant in these regions in the second half of the nineteenth century.<sup>72</sup> However, such arms trade often occurred through smuggling, not legal sales. Furthermore, while sometimes involving the transfer of second-hand weapons, the arms trade in nineteenth-century Africa and the Americas was mostly limited to small arms like pistols, guns and rifles.

***From the Industrial Revolution to the Second World War***

Steam power and other technological innovations developed during the Industrial Revolution (from the late 1700s to the mid-1800s) caused, in the

second half of the nineteenth century, changes in European armaments that were as revolutionary as the development of gunpowder and cannons had been beforehand.<sup>73</sup> Ships, once made of wood and powered by the wind, were now made in iron (and then steel) and were steam-powered, whereas rifles and cannons enormously increased their accuracy and range.<sup>74</sup>

The leap forward in military technology however also meant that the costs to design and produce ever more advanced weapons such as steel guns skyrocketed. As domestic procurement was insufficient, private companies in the first-to-industrialise states (Britain, Germany and on a smaller scale France) had to increasingly resort to exports in order to augment production and thus achieve the necessary economies of scale they needed to survive.<sup>75</sup> British Armstrong and Vickers, German Krupp and French Schneider thus sold a big chunk of their output to industrial latecomers that were unable to autonomously produce state-of-the-art weapons. Competition among sellers was intense. Arms trade records from the period clearly show that virtually no state, except for colonies, relied on a single vendor for its own arms procurement.<sup>76</sup>

In fact, the multiplicity of vendors for each state strongly suggests that, in the second half of the nineteenth century, the former operated in a buyer's market. Similar to Renaissance times, buyers were very much interested in creating indigenous arms industries, and even more so as, by that time, there was ample scope for spillovers from the military to the civil economy.<sup>77</sup> Moreover, from the industrial revolution, or more precisely from the 1870s onwards, communities and guilds, who were once intractably possessive of their technologies, began to relax their opposition to the dissemination of their secrets.<sup>78</sup>

Reportedly, Japan was the first to try to leapfrog industrial and technological development through offsets.<sup>79</sup> But those who lagged behind, such as Italy, Spain, and Russia, among others, all entered *license production, co-production, subcontracting or joint venture deals* with the major firms of the time.<sup>80</sup> In 1884, for instance, Italy 'induced Britain's Armstrong to establish a joint venture by threatening to cut off ship-building contracts'.<sup>81</sup> In 1904 and 1906, new joint ventures between Italian companies and both Armstrong and Vickers were agreed upon, with British major companies binding themselves to transfer all their experience and design to the new companies. Around the same time, Spain also entered a series of co-production technology transfers with these British companies, most notably Vickers, which were bound by contract to transfer the most advanced patents and designs, provide intensive training for local personnel, as well as encourage linkages with the local economy.<sup>82</sup> Between 1900 and 1913, after unsuccessfully trying to outright buy the plants of both the Krupp and Armstrong companies, Russia signed deals for the direct transfer of production techniques with several firms from Germany, Britain, and France.<sup>83</sup> Such transfers included patents and technology, local sub-contracting, or the training of Russian engineers in England and France. All of the above were clearly *compensatory measures* that arms vendors *contractually bound* themselves to in order to compete in the international market.

In spite of the attempts to limit arms proliferation, during the interwar period (1918–1939), there was an intense arms race among the major powers as well as continued inter-state arms trade.<sup>84</sup> Along with weapons, buyers again requested technology transfer and know-how. For example, the Soviet Union – which was very much interested in building up its navy and catching up to the rest in regard to naval technology – sought and obtained technology transfers from France, Germany and Italy.<sup>85</sup> However, some studies have noted how the interwar period was characterized by a government-led armaments diplomacy which was in stark contrast with the more independent role of the commercial arms firms before 1914.<sup>86</sup> This might explain why it is indeed harder to find evidence of offset-like agreements during the period. Nonetheless, rather than the first defence offset ever, as the US-West Germany offset contract of the late 1950s has been referred to, this deal was at best the first after a years-long break.<sup>87</sup>

#### ***From the Early Cold War to the Present***

The period from the early Cold War to the present has been characterized by the further sophistication of military technology, and thus increasingly costly research and development (R&D), as well as an ever-more competitive international market.<sup>88</sup> Not surprisingly, defence offsets now proliferate widely, roughly accounting to half a trillion US dollars of total value or about half of the arms transfer business.<sup>89</sup> This trend, however, only became visible a couple of decades after the Second World War, the time it took Europe to recover from the material devastation of the conflict.<sup>90</sup>

With Europe momentarily in recovery, the early years after the Second World War saw the United States and the Soviet Union as the absolute dominant arms producers and arms exporters. American arms transfers were initially carried out under the Military Assistance Program (MAP), a grant program meant to strengthen allies in the face of Soviet military threats.<sup>91</sup> France, Italy, West Germany and Japan were all great beneficiaries of MAP.<sup>92</sup> However, as Europeans started to rebuild their DTIB, the MAP was progressively sidelined and, as soon as 1968, most sales were carried out under the Foreign Military Sales program.<sup>93</sup> In turn, as grant aid declined, Europeans (and other American clients, most notably Japan) began to demand transfers of American technology through co-production and licensed production deals.<sup>94</sup> Therefore, ‘by 1977, the US was involved in 30 major co-production projects and up to 400 licensed production arrangements’.<sup>95</sup>

By the late 1980s, the defence market was already extremely competitive, as several European states had finally become able to satisfy part of their military needs while also beginning to export. US major defence companies now had to compete with European firms within as well as outside the continent.<sup>96</sup> Interestingly, European companies soon surpassed American and Soviet companies in the number of co-production and licensed production agreements with developing countries.<sup>97</sup> France, Britain, West Germany, and Italy alone

were ‘responsible for about 50 per cent of all licensed production and co-production deals’, thus almost doubling the combined effort of the US and the Soviet Union.<sup>98</sup> The smaller scale economies of European companies evidently made export much more important for survival than it was for the US and Soviet Russia (often motivated by strategic goals rather than purely commercial ones) and forced them to give away more technology, as well as other kinds of compensation. Increasing competition on the international market reverberated through the volume of defence offsets which went from a 10 to 30 per cent average in the late 1950s–early 1960s to hovering at around 100 per cent in the following decades; the first offset to go over 100 per cent reportedly occurred in 1982 when Canada bought a weapon system from the US company McDonnell Douglas/Northrop and demanded an offset to the value of 130 per cent of the purchase.<sup>99</sup>

The end of the Cold War has only accentuated the trend illustrated thus far. Indeed, the demise of the Soviet Union and the beginning of the so-called ‘peace dividend’ have determined sizable reductions in domestic procurement and thus forced European defence companies to further increase their reliance on exports.<sup>100</sup> The latter has, in turn, increased competition and, therefore, the bargaining power of buyers whose political, strategic, and economic aspirations naturally turn to ever-more onerous offset demands. Purportedly originating in 1870s Japan, offsets have spread globally and now more than one hundred states have official and published offset policies;<sup>101</sup> and those that do not often demand offsets or semantic equivalents.<sup>102</sup> These are regulations that serve foreign suppliers by allowing them to devise appealing offset packages and instructing them on the processes for submitting their proposals. Although offset policies vary widely across countries and sometimes adopt different terminologies, they typically contain information on the country’s offset authorities, on whether there are thresholds that trigger offset requirements, penalties for failing to fulfil them or multipliers that may reduce or increase the actual value of the offset transaction.<sup>103</sup> Most importantly, offset policies show the desired value and type of compensation that the country seeks.

For instance, in Turkey, the offset authority is the Presidency of Defence Industries (SSB), which manages both offsets related to military, as well as civil procurement.<sup>104</sup> Indeed, Turkey is not a signatory of GPA and can, therefore, demand compensation when purchasing civil transport, telecommunication systems, medical equipment etc. from foreign suppliers. Furthermore, Turkey demands offsets from both foreign prime contractors, as well as foreign sub-contractors of Turkish primes.<sup>105</sup> Oddly, Ankara refers to direct offsets as ‘industrial participation’ whereas with ‘offsets’ it refers to indirect defence and civil benefits.<sup>106</sup> Foreign suppliers must offer industrial participation (IP) and offsets if they want to sell goods that cost more than five million US dollars. Turkey demands at least 70 per cent of the supply contract value, of which 30 per cent or more must be IP-or local content. The rest is to be split between export promotion of defence-related items and technology transfer and investment. Multipliers range from 1 to 5. Foreign suppliers can benefit from

a multiplier of 2 if Turkish SMEs receive design and engineering activities. OEMs can instead get a multiplier of 5 if they promote the export of Turkish air platforms, rockets, missiles and satellite systems. If foreign suppliers fail to fulfil their offset obligations, they may incur penalties equal to 6 per cent of the contract value, the payment of which does not extinguish the obligation.

By contrast, Peru's offset authority is the General Directorate for Industrial and Social Compensation, which responds to the Directorate for Defence Material Resources, part of the Ministry of Defence.<sup>107</sup> Lima considers direct offsets as those that are defence-related, whereas non-defence projects are referred to as indirect and may be for industrial sectors, health, environment, or education. Peru demands offsets for any defence equipment that costs five million US dollars or more and invites foreign suppliers to discharge from a minimum of 60 per cent to 100 per cent of the contract value through both direct and indirect benefits. Multipliers range from 0.5 to 2. Indeed, negative multipliers (0.5–1) may apply to work packages agreed upon by the foreign supplier and the local recipient for export promotion or import substitution. At the same time, Peru may grant a *bonus* from 2 to 3 for MRO of dual-use technology and export promotion. The fulfilment period is ten years, while penalties may reach 10 per cent of the contract value. Peru then permits offset banking for both pre-performance and over-achievement, that is, the possibility for foreign suppliers to exact offset credits for past or excessive investments. OEMs may exact offset credits for up to 50 per cent of the obligation acquired as a result of a new contract.

Lastly, in Taiwan, the offset authority is known as the Industrial Cooperation Steering Committee.<sup>108</sup> The Ministry of National Defence and the Ministry of Economic Affairs jointly control the Committee. Offsets are due for procurement above thirty million US dollars. They are typically worth forty per cent of the contract value, although may go up to 50 per cent. Offsets should be sixty per cent direct, and for the remaining 40 per cent, indirect-commercial. The latter can be negotiated only after defence-related benefits have been agreed on. In fact, industrial cooperation projects are half defence-related and half civil-related. Multipliers range from 0.25 for local procurement to 10 for research and development, and high-end technology transfer. Penalties for non-fulfilment amount to 3 to 5 per cent of contract value and may result in the blacklisting of the obligor which may compromise their chances of winning future acquisition programs from Taipei. Although once permitted, offset banking has now been discontinued.

While defying easy correlations, many developing countries seem to prefer indirect offsets such as investments aimed at broader economic development.<sup>109</sup> However, most states, particularly advanced states and increasingly, emerging economies, prioritise direct offsets and technology transfers to boost local defence industrialisation and thus move up the ladder in terms of arms production capabilities.<sup>110</sup>

Similarly, advanced and emerging economies seem to be those demanding the highest offsets (see Table 1.1). Interestingly, many states demand *at least*

*Table 1.1* Defence offset desired value by country

Defence Offset Quotas	30–50% of contract value	50–70% of contract value	70–100% of contract value	100–200% of contract value
Countries	Taiwan, Indonesia, Saudi Arabia, Czech Republic, India, Kenya, Pakistan, South Africa	Bahrain, Netherlands, UAE, Israel, South Korea, Oman, Philippines, Morocco	Argentina, Brazil, Canada, Colombia, Croatia, Luxembourg, Malaysia, Norway, Peru, Sweden, Switzerland, Romania, Italy, Turkey, Denmark, Finland, Spain	Austria

Source: Countertrade & Offset – Quarterly Bulletin; “Appendix E: Country Offset Policies”, United States Department of Commerce, Bureau of Industry and Security, 2001, accessed July 11, 2023; Market Reports, Jane’s Defence Industry and Markets Intelligence Centre.

100 per cent of the contract value, which means that for large procurements and highly complex systems, they may demand more. In fact, as we shall see in the following chapters, offsets linked to the procurement of fighter aircraft not rarely exceed 100 per cent.

But types and values are not the only criteria used to classify offsets. For example, Ron Matthews groups states’ offset policies and requirements according to whether they are mandatory, rigid, or flexible.<sup>111</sup> Government-mandated offsets are by far the most common and they can either show a high degree of competitiveness and flexibility or be more rigid and rules-based. In the first instance, arms suppliers would be free to choose offset recipients according to their expertise and competitiveness, whereas, in the second scenario, it is the buyer state that lawfully identifies the type of offset. More flexible offset policies are typical of the most advanced states such as the United Kingdom. By contrast, less developed states usually opt for rigid and rules-based policies. Because of their small DTIB, less industrialised states indeed fear that suppliers would struggle to identify offset recipients while also risking the selection of recipients that do not meet government goals. Finally, between these two extremes, there are states which adopt a case-by-case approach, such as Japan and Singapore. Non-mandatory offset approaches are instead adopted by the United States and Australia.<sup>112</sup>

### National, International and Supranational Responses to Defence Offsets

This upward trend in defence offsets has not gone unnoticed among states and international institutions but has, in fact, generated considerable

political tension, with vendor and buyer states taking antagonistic stances toward each other. Since 1990, the United States has viewed defence offsets as inefficient and market-distorting. Consequently, the US government does not ‘encourage, enter directly into, or commit US firms to any offset arrangement’.<sup>113</sup> President George H. W. Bush also stated his intention to address the issue with other nations with the goal of limiting the negative effects of offsets in defence procurement. This view aligns with those of the International Monetary Fund (IMF), the World Trade Organisation (WTO), other governments – most especially the United Kingdom – and, more recently, with those of the European Commission.<sup>114</sup> Through Directive 2009/81/EC on defence and sensitive security procurement, the European Commission has indeed tried to limit member states’ right (under art. 346 of the Treaty on the Functioning of the European Union, TFEU) to exempt defence offsets from the free-market rules operating within the Union for reasons of national security.

Every effort at limiting and/or regulating offsets, whether at a national, international, or European level seems however to have failed thus far.<sup>115</sup> First of all, although US policy considers offsets ‘market-distorting’, the United States takes a pragmatic approach. The North Atlantic Treaty Organisation’s (NATO) Airborne Early Warning and Control Program Management Organisation (NAPMO) is continuing to follow a policy on behalf of its members that requires industrial returns in recognition of those nations’ contributions to the program.<sup>116</sup> NAPMO’s policy is to provide a return on investment to contributing nations through direct work first, if reasonably possible. If not, then offsets are used.<sup>117</sup> Typically, for each modernisation project, NAPMO develops a workshare plan for direct work that is approved by the member nations’ governing body. The prime contractor will commit to fulfilling the remainder of the nations’ established objectives through offsets, but in essence, a high level of the workshare and offsets are agreed upon together. The execution is then handled by each nation individually with oversight and progress reports until completion.

By contrast, the US-led Joint Strike Fighter F-35 (JSF) program was conceived as a new form of international collaboration that would overcome both the usual and inefficient ‘fair return’<sup>118</sup> principles, as well as offsets. Workshare among the states joining the program would be agreed upon by the development stage and, most importantly, according to ‘best value for money’ principles.<sup>119</sup> However, third states buying F-35 fighter aircraft through the FMS mechanism did manage to get defence offsets, which pushed partner states to demand and seemingly obtain defence offsets too.<sup>120</sup>

Similarly, besides article 346, six additional exclusions may be used to circumvent the European Commission Directive, namely: national research and development (R&D) via bilateral and multilateral programs; NATO and OCCAR procurement involving one or more European state(s); disclosure of sensitive information compromising national security; intelligence activities;

contract awards in third countries during, for example, military operations; and government to government (G2G) sales.<sup>121</sup> Furthermore, a reluctance to fully comply with the EC Directive is evident years after its official implementation. In 2018, the Commission launched infringement procedures against Denmark and the Netherlands for having imposed unjustified offset requirements on non-national defence suppliers.<sup>122</sup> A 2020 European Parliament Report then noted that offset continues to be widely used across EU members, especially through exemptions for complex systems, such as the renewal of jet fighter fleets but also, as we have already seen, via G2G procurement under FMS.<sup>123</sup> Finally, in March 2021, the European Parliament's Committee on the Internal Market and Consumer Protection produced a study of the Procurement Directive whereby it deplored 'the widespread use of exemptions and the persistence of offset requirements'.<sup>124</sup>

Interestingly, the EC's already unsuccessful attempt to expunge offsets from intra-European defence procurement has been further weakened by Russia's invasion of Ukraine, which has prompted countries such as Poland and the Czech Republic to relax the provisions for justifying procurement as 'essential' for national security, thus effectively bypassing the EC Directive's limitation on offsets.<sup>125</sup>

### **From One-Off Defence Offsets to Long-Term Partnerships?**

Defence offsets are, therefore, here to stay. The short explanation for the resilience of offsets depends on the structure of the advanced weapons market; a buyer's market where supply (still) exceeds demand and confers a strong bargaining power vis-à-vis wealth-maximiser vendors on purchasing states looking to enhance capabilities. As we have seen, however, offsets or offset-like arrangements have evolved throughout time and space, changing in terms of type, value as well as government involvement; and they are likely to keep evolving in the future. In fact, industry representatives have noted that, in the past decade or so, offsets have been moving away from 'one-off' arrangements – traditionally ending with the delivery of the last platform batch –and towards long-term, strategic partnerships between foreign suppliers and local recipients.<sup>126</sup>

This trend has not been lost on defence economic scholars. Balakrishnan has noted that '[technological collaboration] has become more popular than other modes of technology transfer due to its emphasis on long-term partnerships as well as the sharing of management responsibilities amongst partners'.<sup>127</sup> According to Balakrishnan, '[t]his mode of transfer includes collaboration in product development, manufacture and marketing that spans across national boundaries, is not based on arms-length transactions and includes substantial and continual contributions of capital, technology and other assets'.<sup>128</sup> Finally, and importantly, she argues that such long-term partnerships require 'strategic alliances and cooperation from every angle, including sometimes the

involvement of the governments of both transferor and transferee country'.<sup>129</sup> Similarly, according to Matthews,

there exists modest beginnings of what looks like an emerging trend towards non-mandated partnerships between vendors and customers, and going beyond that to include governments, also... The means and ends of partnership are the same as offset, but the former is likely to be more effective based on greater flexibility, trust and the pursuit of a mutually advantageous long-term strategic vision.<sup>130</sup>

Balakrishnan claims that offsets evolving into long-term partnerships result from vendors' growing appreciation that capabilities differentials between 'developed' and 'developing' countries are more constructed than real.<sup>131</sup> By contrast, Matthews claims that strategic alliances often derive from defence firms' search for scale, scope and innovational benefits.<sup>132</sup> Hence, both scholars seem to suggest that the current trend of offsets morphing into strategic partnerships is fundamentally supply-driven. However, there is some reason to believe that, as for traditional offsets, strategic partnerships are, in fact, demand-driven. Indeed, in the past, many countries have introduced wording such as 'strategic partnership' and 'long-term cooperation' in their offset policies.<sup>133</sup> For example, at least since 2019, the United Arab Emirates (UAE) has sought strategic partnerships by which offset recipients become integrated into the foreign partner's global supply chain.<sup>134</sup> Foreign partners are encouraged to co-develop intellectual property and co-manufacture some products within the UAE, and then assist in its marketing abroad.<sup>135</sup> Also in 2019, Luxembourg established an offset division with the goal to form 'long-term relationships' between local and foreign suppliers.<sup>136</sup> Furthermore, in May 2017, India issued the 'Strategic Partnership Model in Defence Acquisition',<sup>137</sup> which aims to encourage partnership between foreign suppliers and Indian private companies, facilitate the transfer of technology, and thus ultimately enhance the country's self-reliance on catering for the needs of the Armed Forces.<sup>138</sup>

Clearly, strategic partnerships agreed as compensatory measures between foreign suppliers and local recipients differ from those spontaneously established between peers seeking to improve their future competitive position.<sup>139</sup> While commenting on South Korea's requests for technological collaboration in connection to its F-X3 fighter aircraft competition, Northrop Grumman's Director of International Policy and Campaigns, Rick Weir, once noted: 'it's a false cooperative programme if you look at an offset as a true partnership ... Could a Korean company partner with an American firm to develop defence or dual-use equipment in an open, broad and global market?'<sup>140</sup>

### **Summary**

This chapter has discussed the most authoritative definitions of defence offsets while also noting their limits, namely their lack of appreciation for the actors

involved in the offset business, as well as their neglect of the strategic benefits that offsets may bring. Accordingly, this chapter has stressed the role of home states in arms sales and defence offsets, defining the latter as additional economic, technological, industrial, and strategic benefits to states that buy foreign weapons, before then distinguishing them from other trade arrangements with which they are often confused. Furthermore, following what is already the most common use in business and, increasingly more, in academia too, this chapter has offered a workable synthesis of the American and European offset typologies, thus clarifying the inevitable confusion caused by their uncommunicative coexistence. At the same time, it has shown that for offsets to emerge and prosper three conditions are necessary: an inter-state arms trade, some capability gaps between vendors and buyers and a buyer's market.

In addition, consistent with the above conditions, this chapter has shown that offsets emerged in the second half of the nineteenth century, grew steadily up until the Great War before they almost disappeared, then resurged in the 1950s and grew steadily again until the mid-1980s before they finally skyrocketed in the post-Cold War era and through to the twenty-first century. Moreover, this chapter has illustrated the politics of defence offsets and how state, international, and supranational organisations concerned with defence offsets have made various but thus far failed attempts to limit or regulate the phenomenon. Lastly, while discussing the recent trend of offsets evolving into strategic partnerships, the chapter has shown how this is, in fact, a demand-driven phenomenon where the compelling logic of compensation still applies. Hence, this chapter has laid down the conceptual tools necessary to develop a theory of defence offsets, a task that the next chapter will take on.

## Notes

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- 2 Bernard Udis and Keith E. Maskus, “Offsets as Industrial Policy: Lessons from Aerospace”, *Defence Economics* 2, no. 2 (1991): 151–164, 152, <https://doi.org/10.1080/10430719108404687>.
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- 4 Peter Hall and Stephen Markowski, “On the Normality and Abnormality of Offsets Obligations”, *Defence and Peace Economics* 5, no. 3 (2007), 173–188, 179, <https://doi.org/10.1080/10430719408404791>.
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- 7 Kogy Balakrishnan, *Technology Offsets in International Defence Procurement* (Routledge Studies in Innovation, Organizations and Technology, 2018), 3, <https://doi.org/10.4324/9781351258005>.
- 8 With ‘home state’, I refer to the defence firm’s state of residence. Indeed, while companies have been internationalised in terms of markets and their supply chains, they seem loyal to their home base. See Paul Dunne, ‘Developments in the Global Arms Industry from the End of the Cold War to the mid-2000’, in *The Modern Defense Industry: Political, Economic, and Technological Issues*, ed. Richard Bitzinger (Santa Barbara, CA: Praeger Security International, 2009), 13–37.
- 9 Firms with 51 per cent or more of their shares belonging to the state are state-owned. Even those that are not are, nonetheless, state-controlled either through minority shares (the so-called golden share) or through other juridical footholds by which governments can ban technology transfers or veto board decisions such as mergers and acquisitions. See, for example, John H. Dunning and Sarianna M. Lundsgaard, *Multinational Enterprises and the Global Economy* (Edward Elgar Publishing, 2008); Peter Dicken, *Global Shift: Mapping the Changing Contours of the World Economy* (Sage Publications Ltd, 2015).
- 10 Stanley Sienkiewicz, “Technology Transfer Policy and Export Control Practice”, in *Global Arms Production: Policy Dilemmas for the 1990s*, ed. Ethan B. Kapstein (Lanham, MD: University Press of America, 1992), 221–238, 226.
- 11 Of course, government support for negotiations of offsets does not apply to every case. It is, for example, a feature of the United Kingdom, but not of Germany. See Michael Brzoska and Jocelyn Mawdsley. “Comparing British and German Offset Strategies”, in *Arms Trade and Economic Development: Theory, Policy and Cases in Arms Trade Offsets*, ed. Jurgen Brauer and Paul Dunne, (Routledge, 2004), 104–116.
- 12 Lucie Béraud-Sudreau. Director of the Military Expenditure and Arms Production Programme, SIPRI, email to author. April 28, 2023.
- 13 See Rosoboronexport: Russian Defence Export, “Corporate Strategy”, accessed April 27, 2023, <http://roe.ru/eng/rosoboronexport/strategy/>; and “Rosoboronexport Pulls Back the Curtain to Reveal Russia’s Offset Process”, *Countertrade & Offset* 28, no. 3 (2010), 3.
- 14 “800 Offset Projects at the Ready”, *Countertrade & Offset* 27, no. 10 (2009), 2.
- 15 As we shall see in the next chapters, MRO and training can either be agreed on as part of the procurement package or negotiated as additional benefits.
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- 17 Keith Krause, *Arms and the State: Patterns of Military Production and Trade* (Cambridge, NY: Cambridge University Press, 1992).
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- 21 See Brauer and Dunne, eds., *Arms Trade and Economic Development: Theory, Policy and Cases in Arms Trade Offsets*; Matthews, “The Rise and Demise of Government-Mandated Offset Policy”.
- 22 See “India”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 116; and “Kuwait”, Countertrade & Offset – Quarterly Bulletin, January 2023 edition, 156.
- 23 Daniel E. Schoeni, “Second-Best Markets: On the Hidden Efficiency of Defense Offsets”, *Public Contract Law Journal* 44, no. 3 (Spring 2015), 369–415.
- 24 See “Commission Staff Working Document: Evaluation of Directive 2009/81/EC on Public Procurement in the Fields of Defence and Security (2016)”, European Commission, accessed July 11, 2023, <https://ec.europa.eu/docsroom/documents/20376>; and “Report from the Commission to the European Parliament and the Council on the Implementation of Directive 2009/81/EC on Public Procurement in the Fields of Defence and Security, to comply with Article 73(2) of that Directive (2016)”, European Commission, accessed July 11, 2023, <https://ec.europa.eu/docsroom/documents/20376>.
- 25 For a compendium of offset guidelines for more than eighty-five countries worldwide, see Countertrade & Offset – Quarterly Bulletin, [www.cto-offset.com/archive-qb/](http://www.cto-offset.com/archive-qb/).
- 26 See Balakrishnan, *Technology Offsets in International Defence Procurement*; and Matthews, “The Rise and Demise of Government-Mandated Offset Policy”.
- 27 According to Jodi Vittori, Professor of Practice and co-chair of the Global Politics and Security programme at Georgetown University, the biggest risk for corruption centres around indirect civil offsets because of the absence of price standards and beneficial ownership rules, see “Experts calls for United States to monitor foreign offsets”, *Countertrade & Offset* 40, no. 8 (2022), 5.
- 28 Balakrishnan, *Technology Offsets in International Defence Procurement*.
- 29 Stephen Castle, “Ex-Nato chief guilty of corruption”, *The Independent*, December 2, 1998, [www.independent.co.uk/news/exnato-chief-guilty-of-corruption-1194176.html](http://www.independent.co.uk/news/exnato-chief-guilty-of-corruption-1194176.html).
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- 32 See Matthews, “Saudi Arabia: Defense Offsets and Development”; and “Offset Definitions”. U.S. Department of Commerce Bureau of Industry and Security, accessed December 2, 2021, [www.bis.doc.gov/index.php/other-areas/strategic-industries-and-economic-security-sies/offsets-in-defense-trade/54-other-areas/strategic-industries-and-economic-security/181-offset-definitions](http://www.bis.doc.gov/index.php/other-areas/strategic-industries-and-economic-security-sies/offsets-in-defense-trade/54-other-areas/strategic-industries-and-economic-security/181-offset-definitions).
- 33 Ibid.

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- 34 It is worth noting that in regard to *civil* offsets, these authors are referring to investment linked to a primary defence contract that is directed toward the civil economy. They are, therefore, different from offsets common in civil sectors such as, for example, telecommunications, healthcare and transport.
- 35 Matthews, “Saudi Arabia”.
- 36 See Frank S. Petty, *Defense Offsets: A Strategic Military Perspective*; Jurgen Brauer and Paul Dunne, “Arms Trade Offsets: What Do We Know?” In *The Handbook on the Political Economy of War*, eds. Christopher J. Coyne and Rachel L. Mathers (Edward Elgar Publishing Limited, 2011); Udis, “Offsets and International Industrial Participation”; Balakrishnan, *Technology Offsets in International Defence Procurement*; Matthews, “The Rise and Demise of Government-Mandated Offset Policy”.
- 37 Matthew R. H Uttley and Benedict Wilkinson, “A Spin of the Wheel? Defence Procurement and Defence Industries in the Brexit Debates”, *International Affairs* 92, no. 3 (2016), 569–86, <https://doi.org/10.1111/1468-2346.12605>.
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- 40 A famous example is connected to London’s procurement of Boeing’s Airborne Early Warning and Control Systems (AWACS) in the late 1980s. Before winning the 1.3 billion-dollar contract for the six planes, Boeing had already invested \$1 billion into the British industry. After signing the contract, the American company requested that follow-up orders be counted toward fulfilment of the 130 per cent offset requirement. To the discontent of the British technological and industrial base which had hoped that offsets would all result in brand-new work, the UK MoD eventually recognized follow-up orders as discharging 60 per cent offsets. See Martin, *Economics of Offsets*, 340.
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- 42 See Carola Hoyos, Katie Carnie, and Tom Pearson, “The History of Defence Offsets”, *Financial Times*, October 9, 2016, [www.ft.com/content/3d602e04-2c24-11e3-acf4-00144feab7de](http://www.ft.com/content/3d602e04-2c24-11e3-acf4-00144feab7de); Hammond, “The Role of Offsets in Arms Collaboration”, 207; Michael Porter, *The Competitive Advantage: Creating and Sustaining Superior Performance* (Free Press, 1985), 72; John Curtis Perry, “Great Britain and the Emergence of Japan as a Naval Power”, *Monumenta Nipponica*, 21, no. 3 / 4 (1966), 305–321.
- 43 I adopt Scott F. Abramson’s definition of states as quasi-monopolists of violence. For example, according to this minimal definition, which excludes the requisite of juridical statehood, Greek polities, the Roman Empire and Italian city-states are all states. See Scott F. Abramson, “The Economic Origins of the Territorial State”, *International Organization* 71, no. 1 (Winter 2017), 97–130, <https://doi.org/10.1017/S0020818316000308>.
- 44 Krause, *Arms and the State*, 34.
- 45 Ibid.
- 46 Ibid., 35.
- 47 Ibid.

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- 50 David Parrott, *The Business of War: Military Enterprise and Military Revolution in Early Modern Europe* (Cambridge University Press, 2012), 212.
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- 52 See John R. Hale, *War and Society in Renaissance Europe, 1450–1620* (Leicester University Press, in association with Fontana Paperbacks, 1985), 223; Krause, *Arms and the State*.
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- 54 See Hale, *War and Society in Renaissance Europe, 1450–1620*, 227; Krause, *Arms and the State*, 41.
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- 59 Ibid., 46.
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- 63 Rafael Torres-Sánchez, Pepijn Brandon, and Marjolein’t Hart, “War and Economy. Rediscovering the Eighteenth-Century Military Entrepreneur”, *Business History* 60, no. 1 (2018), 4–22, 13, <https://doi.org/10.1080/00076791.2017.1379507>.
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- 66 Ibid., 509.
- 67 Ibid., 501.
- 68 Ibid., 509.
- 69 Krause, *Arms and the State*, 50.
- 70 Ibid.
- 71 Ibid., 51.
- 72 See, for instance, R. W. Beachey, “The Arms Trade in East Africa in the Late Nineteenth Century”, *The Journal of African History* 3, no. 3 (1962), 451–467, [www.jstor.org/stable/180076](http://www.jstor.org/stable/180076); James J. Cooke, “Anglo-French Diplomacy and the Contraband Arms Trade in Colonial Africa, 1894–1897”, *African Studies Review* 17, no. 1 (April 1974), 27–41, [www.jstor.org/stable/523575](http://www.jstor.org/stable/523575); Donald J. Stocker and Jonathan A. Grant, *Girding for Battle: The Arms Trade in a Global Perspective, 1815–1940* (Greenwood Publishing Group, 2003); Jonathan A. Grant, *Rulers, Guns, and Money: The Global Arms Trade in the Age of Imperialism* (Cambridge, MA: Harvard University Press, 2007).
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- 77 Clive Trebilcock, *The Industrialization of Continental Powers, 1780–1914* (London: Longman Group, 1981), 282.
- 78 See Cipolla “The Diffusion of Innovations in Early Modern Europe”, 48; Dunning and Lundberg, *Multinational Enterprises and the Global Economy*, 155.
- 79 Porter, *The Competitive Advantage*, 72; Perry, “Great Britain and the Emergence of Japan as a Naval Power”.
- 80 Krause, *Arms and the State*, 66.
- 81 Ibid.
- 82 Ibid.
- 83 Ibid.
- 84 See, for instance, Thomas Mahnken, Joseph Maiolo, and David Stevenson, eds., *Arms Races in International Politics: From the Nineteenth to the Twenty-First Century* (Oxford, 2016; online ed., Oxford Academic, 2016), <https://doi.org/10.1093/acprof:oso/9780198735267.001.0001>; and Stocker and Grant, *Girding for Battle*.
- 85 Mahnken, Maiolo, and Stevenson (eds), *Arms Races in International Politics*.
- 86 Stocker and Grant, *Girding for Battle*.
- 87 Hoyos, Carnie, and Pearson, “History of Defence Offsets”.
- 88 The cost of producing weapons has been on an upward trend for decades, especially with regard to fighter aircraft. See Norman Augustine, *Augustine's Laws* (London: Penguin, 1987); David Kirkpatrick, “Trends in the Costs of Weapon Systems and the Consequences”, *Defence and Peace Economics* 15, no. 3 (2004), 259–273, <https://doi.org/10.1080/1024269032000123203>; Emilio Esposito, “Strategic Alliances and Internationalisation in the Aircraft Manufacturing Industry”, *Technological Forecasting and Social Change* 71, no. 5 (2004), 443–468, [https://doi.org/10.1016/S0040-1625\(03\)00002-7](https://doi.org/10.1016/S0040-1625(03)00002-7); Keith Hartley, “Rising Costs: Augustine Revisited”, *Defence and Peace Economics* 31, no. 4 (February 2020), 434–442, <https://doi.org/10.1080/10242694.2020.1725849>.
- 89 Matthews, “Rise and Demise of Government-Mandated Offset Policy”, 149; Balakrishnan, *Technology Offsets in International Defence Procurement*.
- 90 Krause, *Arms and the State*, 128.
- 91 United States Department of Defense, Defense Security Assistance Agency, “Fiscal Year Series”, 1990, accessed July 11, 2023.
- 92 Ibid.
- 93 Paul Hammond, David Louscher, Michael Salomone, and Norman Graham, *The Reluctant Supplier: U.S. Decision Making for Arms Sales* (Cambridge, Mass.: Oelgeschlager, Gunn and Hain, 1983), 45, 47, 48.
- 94 See David Louscher and Michael Salomone, *Technology Transfer and U.S. Security Assistance: The Impact of Licensed Production* (Boulder: Westview Press, 1987), 39–63; Fabrizio Battistelli, *Armi: Nuovo modello di sviluppo?* (Turin: Giulio Einaudi Editore, 1980), 126–42; *Arming our Allies: Cooperation and Competition in Defense Technology* (Washington, DC: Office of Technology Assessment, May 1990), 61–72; Reinhard Drifte, *Arms Production in Japan* (Boulder: Westview Press, 1986), 10–13.
- 95 Krause, *Arms and the State*, 103.
- 96 Ibid., 131.
- 97 Ibid., 177.

- 98 Ibid., 177.
- 99 Hammond, “Role of Offsets in Arms Collaboration”, 209.
- 100 Keith Hartley, “Defence Economics and the Industrial Base”, (Working Paper, 2000), [www.researchgate.net/publication/248625297\\_Defence\\_Economics\\_and\\_the\\_Industrial\\_Base](http://www.researchgate.net/publication/248625297_Defence_Economics_and_the_Industrial_Base).
- 101 See Laxman Behera, New Delhi: Institute for Defence Studies and Analyses, *Defence Offsets: International Best Practices and Lessons for India* (first ed.), 2015; Balakrishnan, *Technology Offsets in International Defence Procurement*; Aleksandar Jovovic, Alexis Strang, and Riley White, “Defense Offsets Expectations are Considerable, but Implementation Is Uneven”, *Avascent*, February 23, 2021 [www.avascent.com/news-insights/perspectives/defense-offsets-expectations-are-considerable-but-implementation-is-uneven/](http://www.avascent.com/news-insights/perspectives/defense-offsets-expectations-are-considerable-but-implementation-is-uneven/); Countertrade & Offset – Quarterly Bulletin.
- 102 Whereas neither the United States nor Australia officially mandate offsets, no foreign defence firm can hope to enter the US market without partnering with an American major or sell to Canberra without subcontracting to Australian companies. In fact, Washington’s ‘Buy American Act’ and Australia’s ‘Defence Industry Participation Policy’ are semantic equivalents of offsets. See “The Buy American Act”, United States Government Accountability Office (GAO), accessed July 11, 2023, [www.gao.gov/products/105519](http://www.gao.gov/products/105519); “Defence Policy for Industry Participation”, Australian Government, Department of Defence, accessed July 11, 2023. [www1.defence.gov.au/business-industry/programs/defence-policy-industry-participation](http://www1.defence.gov.au/business-industry/programs/defence-policy-industry-participation).
- 103 For definitions of the above terminology, see Glossary, this book.
- 104 “Turkey”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 308.
- 105 This is also typical of Norway, see “Norway”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 183.
- 106 “Turkey”, 308.
- 107 “Peru”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 200.
- 108 “Taiwan”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 295.
- 109 See Brauer and Dunne, eds., *Arms Trade and Economic Development*; Udis, “Offsets and International Industrial Participation”; Matthews, “Rise and Demise of Government-Mandated Offset Policy”.
- 110 See “Offsets in Defense Trade: Tenth Study”, United States Department of Commerce, Bureau of Industry and Security, 2005, accessed July 11, 2023; Krause, *Arms and the State: Patterns of Military Production and Trade*; Matthews, “Rise and Demise of Government-Mandated Offset Policy”.
- 111 Matthews, “Rise and Demise of Government-Mandated Offset Policy”.
- 112 See also note 102 about offset semantic equivalents.
- 113 Hammond, “The Role of Offsets in Arms Collaboration”.
- 114 Moritz Weiss and Michael Blauberger, “Judicialized Law-Making and Opportunistic Enforcement: Explaining the EU’s Challenge of National Defence Offsets”, *JCMS: Journal of Common Market Studies* 54, no. 2 (2016), 444–462, <https://doi.org/10.1111/jcms.12290>.
- 115 See Uttley and Wilkinson, “A Spin of the Wheel?”
- 116 Countertrade & Offset – Quarterly Bulletin, 174.
- 117 Derek D. Bonenclark, Chief of Contracting & Industrial Returns at NATO’s Airborne Early Warning and Control Programme Management Organisation (NAPMO), email to author, July 21, 2021.

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- 118 In international arms collaboration programs, fair return or *just retour* refers to workshare allocation proportionate to the number of units each state purchases. States that purchase more units will be allocated a larger share of work and will produce modules and components that other states may have produced more cost-efficiently.
- 119 Bitzinger, ed., *Modern Defense Industry*.
- 120 Udis, “Offsets and International Industrial Participation”; the Italian Ministry of Defence’s former officials, interviewed on condition of anonymity, confirmed that F-35 partner states did demand and obtain defence offsets.
- 121 Ron Matthews, Jonata Anicetti, “Offset in a Post-Brexit World”, *The RUSI Journal* 166, no. 5, 2021, 50–62, 52, <https://doi.org/10.1080/03071847.2021.2017592>.
- 122 “Defence Procurement: Commission Opens Infringement Procedures Against 5 Member States”, European Commission Press Release, January 25, 2018, accessed May 2, 2023, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_18\\_357](https://ec.europa.eu/commission/presscorner/detail/en/IP_18_357).
- 123 “EU Defence Package: Defence Procurement and Intra-Community Transfers Directive”, European Parliament Think Tank, October 19, 2020, accessed May 2, 2023, 104, 109, 146, [www.europarl.europa.eu/thinktank/en/document/EPRS\\_STU\(2020\)654171](http://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2020)654171)
- 124 Andreas Schwab, “Report on the Implementation Of Directive 2009/81/EC, Concerning Procurement in the Fields Of Defence and Security, and of Directive 2009/43/EC, Concerning the Transfer of Defence-Related Products”, Committee on the Internal Market and Consumer Protection, March 8, 2021, accessed May 2, 2023, [www.europarl.europa.eu/doceo/document/A-9-2021-0025\\_EN.html](http://www.europarl.europa.eu/doceo/document/A-9-2021-0025_EN.html)
- 125 See “Commission Staff Working Document: Evaluation of Directive 2009/81/EC on Public Procurement in the Fields of Defence and Security”, 24; “Poland Amends Procurement Law, Paves Way for More Offsets Under Article 346”, *Countertrade & Offset* 40, no. 5 (2022), 1; “As War in Ukraine Persists, Czech Republic Races to Amend Procurement Policy”, *Countertrade & Offset* 40, no. 6 (2022), 1.
- 126 See “Offset Has Evolved Into ‘Partnership’, Say Industry Leaders”, *Countertrade & Offset* 32, no. 14 (2014), 7; “Brave New World: Emerging Trends in Offset”, *Countertrade & Offset* 40, no. 22 (2022), 2.
- 127 Balakrishnan, *Technology Offsets in International Defence Procurement*.
- 128 Ibid.
- 129 Ibid.
- 130 Matthews, “Rise and Demise of Government-Mandated Offset Policy”.
- 131 Balakrishnan, *Technology Offsets in International Defence Procurement*.
- 132 See Ron Matthews and Curie Maharani, “The Defense Iron Triangle Revisited”, in Richard Bitzinger, ed., *The Modern Defense Industry: Political, Economy, and Technological Issues* (Santa Barbara, CA: Praeger Security International, 2009), 38–59; Matthews; “Rise and Demise of Government-Mandated Offset Policy”.
- 133 It is worth noting that implementing changes in published offset policies tend to be a lengthy process, often taking several years from initial conception to realisation.
- 134 “UAE”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 318.
- 135 Ibid.
- 136 “Luxembourg”, Countertrade & Offset – Quarterly Bulletin, April 2023 edition, 159.
- 137 “Strategic Partnership Model in Defence Acquisition”, Press Information Bureau Government of India Ministry of Defence, March 12, 2018, accessed May 3, 2023, <https://pib.gov.in/newsite/PrintRelease.aspx?relid=177295>.

- 138 “India”, 130.
- 139 For a discussion on ‘spontaneous’ strategic partnerships, see Lynn K. Mytelka, *Strategic Partnerships: States, Firms, and International Competition* (Fairleigh Dickinson University Press, 1991); Dunning and Lund, *Multinational Enterprises and the Global Economy*; Dicken, *Global Shift*.
- 140 “DAPA Tells Washington it Will Continue to Ask for Offsets—Washington Tells DAPA They Are Never Beneficial to Either Side”, *Countertrade & Offset* 34, no. 23 (2016), 3.

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