

Although Latin American states came late to the offset party, over the last decade they have enthusiastically embraced this controversial trading mechanism. This paper demonstrates important civil-military offset projects have led to the transfer of work packages, training and technological capabilities among a range of Latin American states. The overarching conclusion is that while Brazil, a major industrial 1st tier country, enjoys impressive offset-induced development, the offset experience of other 2nd and 3rd tier states, save for the exceptional case of Venezuela, is no less positive.

EVALUATING LATIN AMERICA'S CONTEMPORARY DEFENCE OFFSET EXPERIENCE



Aunque los estados latinoamericanos llegaron tarde a la fiesta de las offset o compensaciones, durante la última década han adoptado con entusiasmo este controvertido mecanismo comercial. Este documento demuestra que importantes proyectos de compensación civil-militar han llevado a la transferencia de paquetes de trabajo, capacitación y capacidades tecnológicas entre un serie de estados latinoamericanos. La conclusión general es que, si bien Brasil, un importante país industrial de primer nivel, disfruta de un impresionante desarrollo inducido por la compensación, la experiencia offset de otros estados de segundo y tercer nivel, salvo el caso excepcional de Venezuela, no es menos positiva.



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INTRODUCTION

Crudely put, offset represents a procuring nation's demand for reciprocal investment on the back of 'big ticket' weapon systems acquisition from offshore defence vendors. The process is unlikely to be smooth, with tensions invariably arising from the need for technology access from the offset recipient nations and the reluctance to comply from the foreign defence contractors. While this is a simplistic characterisation, it does signify that offset success is not automatic. Nevertheless, countries persist in the pursuit of offset in the search for opportunities to accelerate civil-military development. The emergence and impact of offset is arguably dependent on three factors. Firstly, military demand will fluctuate with the global defence business cycle, and the emergence of buyer markets invariably determine the requirement for weapons acquisition and associated offset programmes. Secondly, money talks, and the scale of high value defence procurement influences the quantity and quality of offset projects on offer. Thirdly, for meaningful offset to occur, it is essential that recipient nations possess a minimum critical mass of technological absorptive capacity. This comprises possession of local science, technology and engineering skill sets, supply chains, R&D infrastructure and institutional knowledge-driven capabilities. Technological absorptive capacity will define offset success, such that industrially advanced nations will not only attract higher level technology transfer but will also possess the technological depth to absorb and indigenously cultivate next-generation capabilities. The essentiality of offset-related absorptive capacity applies to all countries and has been much researched, but, for whatever reason, Latin America's offset experience has failed to attract the attention of scholars. This paper is a modest attempt to rectify this anomaly by examining selected Latin American countries' industrial progress through offset over the period 2014-2022. Three tiers of country offset importance have been determined by reference to 2021 levels of military expenditure (MILEX) on the assumption that this is a reasonable proxy of procurement and offset importance.

TIER 1: BRAZIL (C. US\$20BN)

Brazil's offset policy originated in 2002.¹ Until the early 2000s Brazil had separate Ministries for the Air Force, Navy and the Army. Since its creation,

¹ Countertrade and Offset, 'Brazil Harmonised Offset Policies for All Armed Forces – Indirect



Brazil's Ministry of Defence (MoD) has been trying to unify the way each service apply offsets.² As of 2022, the three branches of the Armed Forces continue to have their own rules, which makes it difficult for contractors to follow the different requirements.³ Brazil's national offset policy is known as PNAC, which also applies to public procurement in the civil sector.⁴ However, the PNAC remains work in progress, with political uncertainty blamed for delays in launching a revised national offset policy.⁵ In 2019, the Brazilian government did issue Decree N° 061, introducing the 'Technological, Industrial and Commercial Defence Compensation Policy' (PComTIC).⁶ The Decree strove to unite the service guidelines while raising the threshold from \$5m to \$50m and introducing countertrade options, including Buy Back, Counter-purchase, and Barter.⁷ The Air Force has been implementing the changes, but it is unclear whether the Navy and the Army will follow suit.⁸ In 2020, Brazil introduced the "Informatics Law," providing local and foreign companies with tax incentives and regional multipliers for investment in research and development in the IT sector while imposing penalties for not investing.⁹ Both defence and civil firms qualify for the tax incentive, and thus the penalties. Nevertheless, Brazil does not appear to suffer from offset non-compliance.¹⁰ If problems arise, the services endeavour to negotiate a solution with overseas' companies to avoid non-fulfilment penalties.¹¹

In the period 2014-2022, Brazil procured military equipment including fighter aircraft, ships, UAVs, space technology and armoured personnel vehicles. Foreign contractors agreed offset deals generally amounting to at least 100 percent of the contract value and typically involving localization, partnerships with domestic firms, transfer of technology and export promotion. The following summary of major procurements and associated offset programmes provides a sense of the compensation programmes. The 2013 \$5.4bn contract for 36 JAS-39 Gripen E multirole fighter aircraft between Brazil and Saab entered into effect in September 2015¹² is probably the most important in terms of both offset value as well as type. Saab's attractive offset package was a major reason, along with the aircraft's competitive price and performance, allowing the Swedish company to win Brazil's F-X2 competition.¹³ While the Swedish Credit Corporation Agency granted the South American country a \$4.6bn loan, Saab agreed to invest \$9.1bn or 175 percent of contract value (with multipliers of 3-4 for technology transfer, 3 for coproduction and 2 for training).¹⁴ Such investments include local production of 80% of the Gripen's airframe via a full assembly line and high-end technology transfer in the form of co-development of the Gripen NG - both single and double seat versions - by Saab and Brazil's national champion Embraer. Through this deal, Brazil will access all levels of te-

Redefined' (Vol. 26, No. 11, 9 June 2008).

2 Ibid

3 Countertrade & Offset, 'Brazil' (Quarterly Bulletin, July 2022).

4 See Countertrade & Offset, 'Brazil: A Civil Offset Policy Looks Increasingly Likely as Military Benefits Take Shape' (Vol. 31, No. 12, 24 June 2013); Countertrade & Offset, 'Brazil announces National Offset Policy' (Vol. 31, No. 19, 14 October 2013).

5 Countertrade & Offset, 'Brazil's Unified Offset Policy Sees Further Delays' (Vol. 36, No. 22, 19 November 2018).

6 Countertrade & Offset, 'Brazil Adjusts Policy Guidelines: Introduces Countertrade, Raises Threshold' (Vol. 37, No. 7, 8 April 2019).

7 Countertrade & Offset, 'Official: Brazilian Air Force Already Implementing Revised but Incomplete Guidelines' (Vol. 37, No. 21, 4 November 2019).

8 Ibid

9 Countertrade & Offset, 'Brazil Introduces "Informatics Law" with Multipliers – Tax Breaks for Compliance, Penalties for Non-Compliance' (Vol 38, No. 3, 3 February 2020).

10 Countertrade & Offset, 'Brazil's Unified Offset Policy Sees Further Delays' (Vol. 36, No. 22, 19 November 2018).

11 Countertrade & Offset, 'Official: Brazilian Air Force Already Implementing Revised but Incomplete Guidelines' (Vol. 37, No. 21, 4 November 2019).

12 'Gripen NG Contract With Brazil Becomes Effective,' Saab Press Release, 10 September 2015, <https://www.saab.com/newsroom/press-releases/2015/gripen-ng-contract-with-brazil-becomes-effective>.

13 See Monica Herrera and Ron Matthews, 'Latin America in Step with Global Defence Offset Phenomenon,' *The RUSI Journal*, 159: 6 (2014), pp. 50-57, <https://doi.org/10.1080/03071847.2014.990815>; Countertrade & Offset, 'The Gripen Deal: Negotiations Commence on Brazil's Wide-Ranging Benefits' (Vol. 32, No. 1, 13 January 2014); Countertrade & Offset, 'Brazil: Saab Issues Progress Report on Gripen Offsets' (Vol. 37, No. 8, 22 April 2019).

14 Countertrade & Offsets, 'Saab Confirms Multipliers for Gripen Offsets' (Vol. 40, No. 2, 21 January 2022).



chnology including Gripen source codes, avionics, hardware integration, software and aircraft systems, while having 350-plus Brazilian engineers and other professionals trained in Sweden.¹⁵

In 2018, the Swedish Air Force decided to equip its Gripens with the WAD, the Head-Up Display (HUD) and the Helmet Mounted Display (HMD) developed by the Brazilian company AEL.¹⁶ In 2019, Saab reported progress in technology transfer to Brazil's Department of Aerospace Science and Technology (DCTA), including the design of the next-generation fighter aircraft, with 165 Brazilian engineers receiving training in Sweden.¹⁷ Furthermore, in 2020, Brazil began production of Gripen aerostructures.¹⁸ Saab and Brazil sought to market the Gripen to Argentina, Peru, Ecuador and Colombia, all countries aiming to replace aging systems.¹⁹ Argentina was interested in the Gripen, especially if Embraer offered component production, but Gripen's British content (about 30 percent, including key technologies such as ejection seats and radars) made the sale a non-starter.²⁰ Since the 1980's Falklands/Malvinas war, the UK maintains trade restrictions and transit control against Buenos Aires.²¹ More generally, Latin America's budget constraints limit procurement op-

portunities for expensive systems, such as combat aircraft.²² Colombia, for instance, considered buying Gripen E/F that would have included local content and be assembled in Brazil.²³ However, in May 2021, budget constraints forced Colombia to postpone its fighter competition, only reopened in September 2022 by President Gustavo Petro.²⁴ Besides the Gripen, there seems to be virtually no market cooperation between Brazil and Saab. In fact, since 2015, Saab has opened offices in other Latin American countries to directly promote sales.²⁵

An important maritime contract was agreed in March 2020 by the Brazil's Navy with the German ThyssenKrupp Marine Systems (TKMS) and local defence companies for the construction of four Tamandaré Class Frigates.²⁶ The \$1.6-2bn deal required the local build of four frigates and transfer of naval military engineering, as well as combat and platform management systems technology to the shipbuilder Aliança-Oceana, later acquired by TKMS itself.²⁷ TKMS would supply the naval technology of its MEKO Class defence vessel shipbuilding platform with assistance from Atlas Elektronik, a subsidiary that produces the CMS and sonar systems.²⁸ Local content is expected to exceed 30% for the first ves-

15 Luiz Pedone, 'Science, Technology, and Innovation for Defense in Brazil - An Analysis of Transfer of Technology and Challenges of Brazilian Defense Programs,' *Journal for Brazilian Studies*. 5:2 (2017).

16 Countertrade & Offset, 'Brazil: Saab Issues Progress Report on Gripen Offsets' (Vol. 37, No. 8, 22 April 2019).

17 Ibid

18 Countertrade & Offset, 'Brazil begins local production of Saab Gripen components' (Vol. 38, No. 15, 20 July 2020).

19 'F. Gustafson Saab "Hay buenas oportunidades para el Gripen NG en Latinoamérica" y2,' *Infodefensa.com*, 7 April 2016.

20 'Argentina: Analiza producción de aviones junto a Brasil,' ANSA - Spanish Service (BASP), 5 July 2016; Mariano De Vedia, 'Rossi denunció que Gran Bretaña frena el equipamiento militar de la Argentina,' *La Nación*, 14 June 2021.

21 Mariano De Vedia, 'Rossi denunció que Gran Bretaña frena el equipamiento militar de la Argentina,' *La Nación*, 14 June 2021.

22 Craig Hoyle, 'Latin American combat aircraft inventory has limited scope to grow,' *Flight International*, 24 March 2020.

23 See 'Colombia: Airforce considers Saab Gripen,' *Esmerk Latin American News*, 24 July 2019; Erich Saumeth, 'T. Lindén Saab "El sector local tiene potencial para ser socio de los programas que instalaríamos en Colombia con el Gripen"', *Infodefensa.com*, 8 July 2019; Roberto Valadares Caiafa, 'Saab plantea la posibilidad de suministrar su caza Gripen EF a Colombia desde Brasil,' *Infodefensa.com*, 17 March 2020; 'Colombia: Gripen testing for Colombians could happen in Brazil, says Saab,' *Valor Economico - SABI*, 12 March 2020.

24 Tim Martin, 'Gripen campaign losses leave Saab questioning Swedish government support,' *Shephard Media - Premium News*, 1 September 2022; Colombia has recently relaunched plans to buy fighter aircraft, see https://www.defensenews.com/global/the-americas/2022/09/19/colombia-relaunches-plan-to-buy-fighter-jets/?utm_source=sailthru&utm_medium=email&utm_campaign=dfn-dnr; Countertrade & Offset, 'South America revives aircraft requirements, but offsets are in question' (Vol. 40, No. 18, 30 September 2022).

25 Fredrik Gustafson Saab "Buscamos socios locales porque saben cómo moverse en la región", *Infodefensa.com*, 5 April 2016.

26 Countertrade & Offset, 'TKMS Selected to Build Brazilian Corvettes with 40 Percent Local Content' (Vol. 37, No. 8, 22 April 2019); Countertrade & Offset, 'Thyssenkrupp Agrees Local Build for Brazilian Corvettes' (Vol. 38, No. 6, 23 March 2020).

27 Countertrade & Offset, 'TKMS Acquires Brazilian Shipyard to Cover Domestic Build Commitment' (Vol. 38, No. 11, 8 June 2020).

28 Countertrade & Offset, 'Thyssenkrupp Agrees L partial delivery or even abandonment ocal Build for Brazilian Corvettes' (Vol. 38, No. 6, 23 March 2020).



sel and more than 40% for the remaining three. The German naval alliance with Brazil's Embraer Defence and Security could eventually lead to naval exports to other regional countries.²⁹ Finally, in the Land Systems field, Brazil's relatively smaller 2019 \$16m deal for 32 Italian Iveco Light Military Vehicles involved local assembly of 31 of them.³⁰

TIER 2: COLOMBIA, MEXICO AND CHILE (C. US\$6-10BN)

Colombia

Defence Offset legislation commenced in Colombia in 2004, when it was agreed that proposals enabling economies of scale would be prioritised. In 2005 Colombia signed an offset agreement for the purchase of Super Tucano tactical combat aircraft from Embraer, and subsequently there was pressure on the Bogota government to formalise an offset policy. However, government approval had to wait until 2008.³¹ The offset policy underwent minor changes in 2011 before, in 2020, 'Colombia Productiva'³² requested a revised policy design that would allow the use of offset in sectors other than Defence. The proposal was included in the National Development Plan, which, in effect, charged 'Colombia Productiva' with designing a policy for offset use in civil sectors and the GSED with updating the current offset poli-

cy.³³ The thrust of the revised offset policy shifted the foci of effort towards supporting the production capacity of state-owned defence entities and opening-up the policy to private companies.³⁴ However, the new directive looks to be on hold due to the recent change of government. In fact, the new government under Gustavo Petro - the country's first leftist President, halted the US\$3bn plan to strengthen the Armed Forces, as well as defence contract processes and planning in light of changing geopolitical scenarios.³⁵

Colombia continues to employ offset linked to major defence acquisition programmes from the US, but also other states. For example, over several years ending in 2015, 11 updated Israeli KFIR C-7 fighters were delivered, and in the same year, linked to a contract to modernise French built FS-1500 frigates,³⁶ an offset deal was signed by the Colombian and French Governments and (DCNS and Thales) for two simulators. The offset deal also incorporated the Israeli supplier, SimiGon, signing a technical support agreement providing Codaltec with its SIMbox training and simulation platform.³⁷ In 2016, Colombia reportedly signed 57 framework agreements, with 12 countries, that led to 66 projects, and offset credits worth US\$3bn.³⁸ For example, Airbus, had three offset projects engaged in aircraft certification, and Elbit, Motorola and Harris

29 See Countertrade & Offset, 'Thyssenkrupp Agrees Local Build for Brazilian Corvettes' (Vol. 38, No. 6, 23 March 2020); Countertrade & Offset, 'TKMS Acquires Brazilian Shipyard to Cover Domestic Build Commitment' (Vol. 38, No. 11, 8 June 2020).

30 Sipri Arms Transfer Database.

31 CONPES 3522 (2008). Lineamientos generales para la implementación de acuerdos de cooperación industrial y social offsets relacionados con adquisiciones en materia de defensa en Colombia. https://www.mindefensa.gov.co/irj/go/km/docs/Mindefensa/Documentos/descargas/normatividad/EstrategiaPlaneacion/CienciaYTecnologia/CooperacionIndustrialYSocial/7289_CONPES_3528.pdf

32 Colombia Productiva is an entity created by the Ministry of Commerce, Industry and Trade in 2008, with the aim to promote productivity and competitiveness in the industry and comply with the challenges of the Competitive and Productivity National Policy.

33 <https://www.colombiaproductiva.com/PTP/media/documentos/convocatorias/RFI-ProntoPago/18032021-RFI-Sello-Pronto-Pago-COLPRODUCTIVA.pdf>. GSED is the Social and Business Group of the Defence Sector, an organization of the Colombian Ministry of Defense that comprises 18 entities supporting the mission of the Colombian Armed Forces and Police.

34 Countertrade and Offset, 'Colombia's Offset Policy is Under Review' (Vol.38, No. 12, 22 June 2020).

35 Erich Saumeth, 'Petro frena los proyectos de Defensa para revisar los contratos secretos de Duque', Infodefensa.com, 19 July 2022. Available at <https://www.infodefensa.com/texto-diario/mostrars/3828571/144-primicia-gustavo-petro-pone-freno-sistema-integral-defensa-nacional-colombiano>, accessed 29 August 2022.

36 Thales Group, 3 August 2015. Available at <https://www.thalesgroup.com/en/latin-america/event/thales-delivers-simulators-modernize-colombian-padilla-frigates>, accessed 15 August 2022

37 Countertrade and Offset, 'Israeli Offset Project Delivered to Colombia' (Vol. 33, No. 13, 13 July 2015). Codaltec is a leading Colombian high technology corporation.

38 Countertrade and Offset, 'Colombia Revises its Approach to Offsets' (Vol. 34, No.11, 6 June 2016).



were involved in maintenance projects for the army communication laboratories.³⁹ In 2017, The Colombian Air Force (CAF) ordered its second advanced nanosatellite from the Danish GomSpace group. The CAF will receive a spacecraft platform and an associated capacity building and technology transfer programme, creating a local nanosatellite integration laboratory and operations centre at the Cali Air Force base. Additionally, Thales has renewed its partnership agreement with Cotecmar to oversee modernisation of Colombian Frigates,⁴⁰ and Saab has been seeking to enter Colombia's defence market with the sale of Gripen E/F aircraft, along with offset that fully complies with the requirement of 100% contract value compensation.⁴¹

Looking to the future, Colombia has opted for the French howitzer as its future self-propelled artillery system, and an appropriate offset package was in the process of being negotiated, but again, political change in Colombia may affect this decision.⁴² In terms of defence suppliers, the US continues to enjoy a privileged relationship with Colombia.⁴³ However, competitors from France, Korea, Canada, Switzerland, Russia, Israel, Italy and the United Kingdom are gaining market share. Colombia continues to modernise its equipment, including upgrades, parts and support for the Blackhawk, Huey and Airbus helicopter fleets, spare parts and technical publications for the Bell, Cessna, ATR, CN 235 and

ATR-42 aircraft, as well as tactical and survival equipment.⁴⁴ Military fixed wing acquisitions represent the biggest segment in Colombia's defence market, followed by military infrastructure and logistics.⁴⁵

Mexico

To foster development of the country's aerospace industry, the Mexican government in 2011 announced the launch of an offset policy to provide benefits for both the defence and civil sectors.⁴⁶ In particular, the government's trade and investment agency, ProMéxico, lamented that government aircraft procurement neglected provision of local MRO services, though this was partially due to Mexico's shortage of qualified workers.⁴⁷ After suffering continuous delays, the offset policy was suspended in 2014.⁴⁸ Nonetheless, across the period 2014-2022, Mexico signed procurement and linked offset projects for both military and civil equipment, including railways, helicopters and frigates. For instance, in 2014, China's CSR Sifang partnered with Mexican construction companies GIA, Prodomex, and Teya to design, build, operate and maintain the country's first high-speed train line, connecting Queretaro to Mexico City.⁴⁹ The \$3.75bn deal would be financed by China's Eximbank, but was cancelled after the discovery that President Peña Nieto's mansion - known as the White House - was owned by Teya.⁵⁰ In 2015, Mexico procured 50H225M Caracal helicopters⁵¹

39 Ibid

40 Countertrade and Offset, 'Thales Renews Support for Colombia' (Vol. 35 No. 24, 25 December 2017).

41 <https://www.saab.com/es/markets/colombia/gripen-blog/2021/cuales-son-los-beneficios-para-colombia-de-un-acuerdo-offset>
42 Erich Saumeth, 'Nexter aprovecha el escaparaté de Ucrania para ofrecer su obús Caesar NG a Latinoamérica', Infodefensa.com, 20 June 2022. Available at <https://www.infodefensa.com/texto-diario/mostrar/3797685/131-colombia-nexter-ofrece-nuevo-obus-caesar-ng-latinoamerica>, accessed 3 September 2022

43 The US was the largest supplier of arms to Colombia during 2016-2020 with a share of over 35%.

44 Colombia-Country Commercial Guide (Nov 2021). Available at: <https://www.trade.gov/country-commercial-guides/colombia-defense>, accessed 1 September 2022

45 GlobalData, 'Colombia Defense Market Size and Trends, Budget, Allocation, Regulations, Key acquisitions, Competitive Landscape and Forecast, 2021-2026' (29 Oct 2021).

46 Countertrade & Offset, 'Mexico's Offset Road Map' (Vol. 29, No. 13, 11 July 2011).

47 See Countertrade & Offset, 'Mexico's Offset Road Map' (Vol. 29, No. 13, 11 July 2011); 'Mexico: Queretaro aeronautical labour demands not being met,' El Financiero – SABI, 14 March 2014.

48 See Countertrade & Offset, 'Mexico's Offset Initiative Suspended' (Vol. 31, No. 2, 28 January 2013); Countertrade & Offsets, 'Mexican Love Affairs Hits the Rocks – Offset Initiative Suspended' (Vol. 32, No. 3, 10 February 2014).

49 Countertrade & Offsets, 'China Secures Railway Presence in Argentina and Mexico' (Vol. 32, No. 22, 24 November 2014).

50 See 'No bad fifth?' CE Noticias Financieras, 18 September 2022; Jo Tuckman, 'Mexican president Enrique Peña Nieto faces outcry over £4.4m mansion,' The Guardian, 10 November 2014, <https://www.theguardian.com/world/2014/nov/10/mexico-president-enrique-pena-nieto-mansion-explain>.

51 Most recent reports confirm the purchase but it is not clear whether the number of helicopters procured is indeed fifty, see for



from European Airbus in exchange for technology transfer and local component production.⁵² Then, in mid-2019, tied to the procurement of Ansat type civilian helicopters, Russia's Rostec company agreed to supply technology, open a MRO facility in Guadalajara and train local engineers.⁵³ The facility, which is operated jointly with Mexican company Craft Avia Center, began services in late 2020.⁵⁴ Mexico's aerospace sector has also managed to attract investment unrelated to offset agreements. Mexico's attraction is due to low labour cost and membership of the US-Mexico-Canada Agreement (USMCA - the NAFTA successor)⁵⁵ leading, for instance, to US Bell helicopter sales in Canada containing 60% Mexican content.⁵⁶ Finally, in 2016, the Mexican Navy agreed to buy one Dutch Frigate SIGMA-105 to be built in a local yard,⁵⁷ with contracts to local companies for supplies and assistance. In early 2020, the Dutch shipbuilder Damen delivered the warship to the Mexican Navy, arguing that construction had involved both technology transfer and 70% local labour participation.⁵⁸

Chile

While Chile has no formal offset regulations,⁵⁹ it does demand MRO as part of the procurement

package, and reportedly, the state-owned companies ENAER, FaMaE, and Asmar have developed significant MRO capabilities, providing MRO services to several countries in the region.⁶⁰ 'Pre-offset', such as local content, partnership with state-owned companies and technology transfer are still used by foreign bidders to increase their chances of penetrating the Chilean market. In late 2016, for instance, Airbus Defence and Space and Empresa Nacional de Aeronáutica de Chile (ENAER) signed a deal covering manufacturing and maintenance for future projects on military aircraft and space development.⁶¹ In 2018, after opening a commercial office in Chile, Italian major Leonardo announced it was looking for local partners, preferably state-owned companies, to be recipients of technology transfer.⁶² This led to local company Aerocardal developing expertise in helicopter maintenance and repair services.⁶³ In the same year, Saab offered technology transfer to Chile's MoD and in the following year made an unsolicited offer to supply its Gripen MS20, an upgrade of the JAS 39 Gripen C/D.⁶⁴ More recently, Indian companies have offered weapons system co-production and co-development.⁶⁵ Indeed, in 2020, India based MKU Ltd agreed joint manufacture of electro optic devices and armour products with state-owned Fábricas y Maestranzas del Ejército de Chile (FaMaE).⁶⁶

instance 'France,Kuwait : Kuwait Ministry of Defence orders 30 H225M Caracal helicopters, Sudan Tribune, 11 August 2016. No report confirming the offset agreement could be found.

52 'Peña Nieto visita Airbus Helicopters para ultimar la compra de 50 H225M Caracal,' Infodefensa.com, 21 July 2015.

53 Countertrade & Offset, 'Russia Extends Offset Footprint from India to South America' (Vol. 37, No. 9, 6 May 2019).

54 'Ansat flights in Mexico,' Vayu Aerospace & Defence Review, 14 October 2020.

55 About USMCA, see for instance 'Mexico seeks to expand military roles as defence budget increases,' Naval Technology, 2 September 2022, available at <https://www.naval-technology.com/analysis/mexico-seeks-to-expand-military-roles-as-defence-budget-expands/>.

56 'Mexico: Mexican contribution to North American aircraft augments,' EL Economista – SABI, 26 October 2016.

57 See 'Sea trials of Damen Mexican Navy frigate complete,' SP's MAI, 27 December 2019; Sipri Arms Transfer Database.

58 See 'Sea trials of Damen Mexican Navy frigate complete,' SP's MAI, 27 December 2019; 'Damen delivers Long Range Ocean Patrol Vessel to the Mexican Navy,' Port News, 11 February 2020.

59 Countertrade & Offset, 'Chile,' July 2022.

60 'La industria chilena se capacitó durante todo el año para sostener el equipamiento de las Fuerzas Armadas,' Infodefensa.com, 28 December 2017.

61 Countertrade & Offset, 'Chile/Airbus Deal Agreed' (Vol. 34, No 23, 5 December 2016).

62 See 'Chile: Leonardo Co seeks local partners,' El Diario -SABI, 25 July 2018; 'Firma aeronáutica italiana impulsará desde Santiago expansión en la región, Diario Financiero, 25 July 2018.

63 See 'Chile: Leonardo Co seeks local partners,' El Diario -SABI, 25 July 2018; 'Firma aeronáutica italiana impulsará desde Santiago expansión en la región, Diario Financiero, 25 July 2018.

64 'Saab presenta las capacidades del Gripen a la Subsecretaría de Defensa de Chile,' Infodefensa.com, 3 January 2022.

65 See 'Webinar with Chile on Defence Industry Global Outreach for Collaborative Partnership,' Orissa Diary, 25 March 2021; Huma Siddiqui, 'India reaches out to Chile for defence exports,' Financial Express Online, 26 March 2021; Óscar E. Aránguiz, 'Chile e India impulsan la cooperación de sus industrias de Defensa,' Infodefensa.com, 29 March 2021.

66 Huma Siddiqui, 'India reaches out to Chile for defence exports,' Financial Express Online, 26 March 2021.



Across 2014-2022, Chile engaged in several major weapons systems procurements. For example, in late 2016, US Sikorsky sold six Black Hawk helicopters to Chile's Air Force for \$180m.⁶⁷ Sikorsky did not offer local content, as the helicopters were to be produced by the Polish aerospace company PZL Mielec. Logistical support, technical assistance, spare parts, pilot and engineers training were agreed, however, but not as offset but rather as part of the procurement package. PZL Mielec commenced development of service facilities and training personnel in 2017.⁶⁸ Also in the aerospace field, Chile's 2017 procurement of six Super Tucano training aircraft from Brazil's Embraer, led to Brazil and Ecuador transferring technical, logistic and operational information.⁶⁹ The aircraft were delivered by Embraer in 2018,⁷⁰ and since then, the Chilean company, ENAER, has developed support capacity for the trainers' engines, propellers and accessories.⁷¹ Also in 2017, Chile selected Lockheed Martin Canada to modernise its Type 23 ASW frigates.⁷² LM Canada worked with Chile's state-owned Astileros y Maestranzas de la Armada (Asmar) on a modernisation plan, reported to be the most complex in Asmar's history, including a

new combat management system, anti-aircraft and anti-missile systems, as well as radar.⁷³

TIER 3: ARGENTINA, PERU AND VENEZUELA⁷⁴ (C. US\$2-2.5BN)

Argentina

Although Buenos Aires has long demanded offset, it was not until 2014 that it announced the launch of a formal offset policy;⁷⁵ yet, its implementation is still awaited.⁷⁶ However, in 2018, Argentina did pass the 'Buy Argentinean and Suppliers Development Law No. 27,437,' mandating local content for both the defence and civil sectors.⁷⁷ The law gives preference to 'goods in which 50% or more of the used material is of national origin, and where the imported input cost does not exceed 40% of its gross production value.'⁷⁸ Furthermore, at least 20% of contract value must be discharged through local goods and services.⁷⁹ In September 2021, President Alberto Fernandez presented draft law "Buy Argentine, Supplier Development and Purchasing for Innovation," which aims to modify Law 27.437 while increasing compliance.⁸⁰ The bill has not

67 Countertrade & Offset, 'Polish Industry Benefits from Sikorsky Contract with Chile' (Vol. 34, No. 24, 19 December 2016); 'Chile se prepara para recibir helicópteros 'Black Hawk' y actualiza su flota de entrenamiento,' Infodefensa.com, 27 December 2017.

68 'Chile se prepara para recibir helicópteros 'Black Hawk' y actualiza su flota de entrenamiento,' Infodefensa.com, 27 December 2017.

69 Sipri Arms Transfer Database.

70 See Sipri Arms Transfer Database; 'Embraer entrega cuatro A-29B Super Tucano a la Fuerza Aérea de Chile Embraer A-29B de la FACH en el aeropuerto internacional de Foz do Iguacu,' Infodefensa.com, 24 December 2018; 'Embraer entrega dos Super Tucano a la Fuerza Aérea de Chile,' Infodefensa.com, 12 March 2018.

71 Óscar E. Aránguiz, 'Enaer continúa aplicando un nuevo esquema a los Super Tucano de la FACH,' Infodefensa.com, 13 May 2020.

72 'Chile llega a diciembre con el proceso de modernización de las fragatas type 23 en marcha,' Infodefensa.com, 26 December 2017.

73 'La industria chilena se capacitó durante todo el año para sostener el equipamiento de las Fuerzas Armadas,' Infodefensa.com, 28 December 2017.

74 The last official MILEX data for Venezuela was the 2017 figure of US\$2.2mn; more recent data show substantial reductions in the budget but the figures are highly speculative.

75 Countertrade & Offset, 'Argentina Will Introduce a Formal Offset Policy Within the Next Few Months' (Vol. 32, No. 20, 27 October 2014).

76 Countertrade & Offset, 'Argentina Sets Up Defence Fund – Emphasises Import Substitution, Allocates 80 Percent for Domestic Production' (Vol. 38, No. 19, 5 October 2020); also see: https://deyseg.com/post/106?art=Compensaciones%20en%20el%20%C3%A1rea%20de%20la%20defensa,%20una%20herramienta%20de%20progreso%20econ%C3%B3mico&cover=cover_835416262-06668693.jpeg&desc=true

77 Countertrade & Offset, 'New Argentinean Local Content Regulations Permit Credit Banking, Introduce Stiff Penalties' (Vol. 36, No. 18, 24 September 2018); European Commission, 'Preference for national goods in public procurement,' 11 April 2022, see https://trade.ec.europa.eu/access-to-markets/en/barriers/details?isSps=false&barrier_id=10863.

78 Countertrade & Offset, 'New Argentinean Local Content Regulations Permit Credit Banking, Introduce Stiff Penalties' (Vol. 36, No. 18, 24 September 2018).

79 Ibid

80 Countertrade & Offset, 'Argentina' (Quarterly Bulletin, October 2022).



yet been voted on by the Chamber of Deputies. The opposition argues that the law would disproportionately benefit big companies at the expense of SMEs.⁸¹ In 2020, a National Defence Fund (FONDEF) was established to boost local production.⁸² Contractors can use the fund as long as 80% of funding is directed toward domestic SME manufacturing and/or state-owned companies, such as Tandanor shipyard and the FAdeA. The remaining 20% is available for equipment unable to be locally produced.

In the period 2014-2022, Argentina signed deals and associated offset projects for both military and civil equipment, ranging from wind turbines to anti-aircraft artillery. For instance, in 2015, the Army signed a \$111mn co-production deal with Israel to upgrade 74 TAM tanks, originally designed and made in Argentina.⁸³ The deal included in-country assembly and local component manufacture, as well as technical assistance, tools and training to ensure Argentina can conduct its own technology upgrades. In early 2022, Argentina purchased from Saab the portable anti-aircraft artillery system MANPADS for use by all three services.⁸⁴ Besides the launchers and the missiles, Saab agreed an offset package that includes training, technical assistance as well as Maintenance, Repair and Overhaul (MRO) capabilities. In civil sector, in exchange for selling renewable energy projects with an annual capacity of 600 MW, Germany's Nordex signed a 2018 agreement with FAdeA to facilitate diversification into the energy sector by building a wind turbine assembly line in Cordoba.⁸⁵ The assembly line includes two concrete tower production plants that brings local content to 36 percent, creating 300 local jobs.

Peru

In mid-2010, Peru's MoD launched General Directive 021, establishing the norms and procedures of the country's first offset approach. The MoD would become the Offset Authority, with policy requirements triggered when acquisitions exceeded US\$7mn. In September 2020, after a long period of stasis, the threshold was updated, such that offset would apply when contractual value equalled or exceeded US\$5mn, with the obligation value set at 60-100% of contract value. The importance of dual-use offset programmes for both military and civil application was also highlighted. Subsequently, it was confirmed that offset credits could be banked for use against future sales and associated offset liabilities.⁸⁶ A second General Directive, No.013-2021 created new evaluation criteria for offset-related economic and social benefits arising throughout a project's life cycle.⁸⁷ These recent policy developments suggest that Peru is seeking to continuously tighten its offset approach. Key defence sectors attracting offset cover naval vessels and surface combatants, submarines, military infrastructure and logistics. Other prominent sectors include military land vehicles, fixed-wing aircraft, electronic warfare, tactical communications, underwater warfare systems, military radar, simulation and training. The principal Peruvian defence companies are SIMA Callao Shipyard, Metal Shark Boats, the Mil Moscow-Kazan Helicopter Plant, Enstrom Helicopter Corp, Rostec Corp, Autoespar SA (Toyota), Euroshop SA (Volkswagen), Fast Lane SAC (Honda), Leonardo SpA, De Havilland, Aviation Global, Korea Aerospace Industries Ltd. (KAI), Lockheed Martin, and STX Offs-

81 Ibid.

82 Countertrade & Offset, 'Argentina Sets Up Defence Fund – Emphasises Import Substitution, Allocates 80 Percent for Domestic Production' (Vol. 38, No. 19, 5 October 2020).

83 Countertrade & Offset, 'Argentina Agrees Terms for Israel to Upgrade Tanks', (Vol. 33, No. 13, 13 July 2015).

84 'Comienzo adquisición de nuevos sistemas de defensa antiaérea portátiles,' Telama, 7 January 2022.

85 See Countertrade & Offset, 'Nordex To Localise Wind Turbine Manufacturing in Argentina' (Vol. 37, No. 1, 7 January 2019); 'Nordex colaborates with Fábrica Argentina de Aviones to set up local manufacturing capacity in Argentina', Nordex Press Release, 28 December 2018, <https://www.nordex-online.com/en/2018/12/nordex-collaborates-with-fabrica-argentina-de-aviones-to-set-up-local-manufacturing-capacity-in-argentina/>.

86 Directiva General No. 012-2021 MINDEF/VRD-DGRRMM. Directiva General que norma la gestión de los proyectos que conforman el Banco de Proyectos de Compensaciones Industriales y Sociales-OFFSET. Available at <https://cdn.www.gob.pe/uploads/document/file/2669518/Anexo%20de%20la%20RM%201180-2021-DE.pdf> Accessed 17 July 2022

87 Countertrade and Offset, 'Peru Updates Offset Process – To Evaluate Social and Economic Benefits Separately' (Vol. 40 No.2, 21 January 2022).



hore and Shipbuilding.⁸⁸ Foreign ownership of these defence facilities is self-evident.

Peru's defence acquisition and linked offset programmes took off in 2012, including deals with Brazil, Spain, South Korea, the United Kingdom, China, among others.⁸⁹ More recently, Russia's Rosobornexport agreed terms for the delivery of 24 Mil Mi-171Sh military transport helicopters built by Rostec's Russian Helicopters Holding. The contract stipulated that in 2016 Russia would open a centre to service and repair helicopters in Peru.⁹⁰ There have also been arms contracts with Israel. For example, in 2012, the Peruvian Army procured from Rafael Advanced Defense Systems Ltd., a total of 720 Spike anti-tank missiles. The associated offset created a Combat Laboratory Battle Lab, aimed at evaluating new concepts and operating methods in 3D virtual scenarios, an Artillery School Training and Simulation Center, along with potential development of cyber-intelligence capacities. In August 2021, Peru also signed two offset agreements with Israel linked to the 209/1200 Submarine Modernisation Program.⁹¹ Subsequently, in December 2021, Peru acquired US\$122mn worth of C-27J Spartan multi-role military transport aircraft from Leonardo, negotiating a US\$57mn offset, enabling Peru's Air Defense Group to develop diagnosis and repair technical capacities for Early Warning Radar Systems, shooting control and surveillance, and also communication systems operated by the Peruvian Air Force. Leonardo, through Diagnosys Ferndown - UK, will also provide technology transfer linked to dedicated training courses.⁹²

Venezuela

Venezuelan defence policy has been opaque since Chávez (1999-2013) and then Maduro (2013-) came to power. Indeed, from 2005, defence procurement has lacked implementation uniformity and consistency, with each contract negotiated on an ad hoc basis. The framing of a formal offset policy was expected to break the mould by adopting a standardised approach, but there is uncertainty as to whether the policy was even launched.⁹³ This 'closed' government approach is reflected by the 2009 law, approved by the Venezuela National Assembly, stipulating that military agreements with Russia and Belarus must be kept secret, reinforcing the lack of transparency and formal regulation.⁹⁴ One of the first measures taken by Chávez was to terminate existing ties between the Venezuelan Armed Forces and the US, and military procurement from the latter was also abandoned.⁹⁵ By contrast, Venezuela has strengthened its commercial and military relations with countries at the other end of the ideological and foreign policy spectrum, including Russia, Belarus, China and Iran. This has fostered insecurity regarding existing Western compensation agreements in the Venezuelan hydrocarbon, electricity and mining sectors.⁹⁶ However, it has also created market-entry opportunities for replacement arms suppliers. For example, in 2009, China and Venezuela signed an oil agreement for joint extraction of 1mn barrels of oil per day from the Orinoco belt.⁹⁷ A year later, Russia's Rosneft reached an agreement with state-

88 GlobalData, 'Peru Defense Market – Attractiveness, Competitive Landscape and Forecast 2022-2027' (28 June 2022)

89 Ibid., 2022

90 Countertrade and Offset, 'Peru: Russia to Support Helicopter Contract with Domestic Repair Center' (Vol.32, No.1, 13 January 2014)

91 Alejo Marchessini, 'Logros y perspectivas del Programa de Compensaciones Industriales en las compras de armamento de las Fuerzas Armadas de Perú', Defensa.com, 31 October 2021. Available at: <https://www.defensa.com/sitdef-2021/logros-perspectivas-programa-compensaciones-industriales-compras>, accessed 25 August 2022

92 La Razón, 'Perú acuerda offset vinculado a los Leonardo C-27J Spartan' 30 December 2021, Available at <https://larazon.pe/peru-acuerda-offset-vinculado-a-los-leonardo-c-27j-spartan/>, accessed 25 August 2022

93 Countertrade and Offsets, 'Special Report-Venezuela' (Vol.23, No.17, 12 September 2005).

94 Reuters, 'Acuerdos militares Venezuela – Rusia serán secretos: Asamblea' (25 September 2009). Available at: <https://www.reuters.com/article/latinoamerica-seguridad-venezuela-rusia-idLTASIE58O1BX20090925>, accessed (1 September 2022).

95 Control Ciudadano (2013). 'Venezuela: Adquisiciones de Sistemas de Armas y Material Militar 2005-2012. Un proceso completamente opaco para el país'. Available at <http://controlciudadano.org/web/wp-content/uploads/INFORME-ADQUISICION-DE-ARMAS.pdf>, accessed 31 August 2022

96 Ibid.

97 Charles Giuseppe Castillo, 'China y Venezuela: Cooperación Económica y otras Alianzas Bilaterales Durante la Era Chávez'. Revista



owned PDVSA to also exploit Venezuela's oil and gas reserves. Russia has also signed contracts to mine strategic minerals, including gold, coltan, iron, bauxite and diamonds, in a region called 'El Arco Minero del Orinoco'.⁹⁸

Similar turbulence was also experienced in Venezuela's weapons acquisition process. This can be characterised by reference to three stages. The first (2005-12), witnessed Russia becoming the main supplier of all types of weapons, leading to an offset-sponsored plant assembling an array of transport, attack and multipurpose helicopters, fighters and tanks.⁹⁹ In parallel, China supplied radar systems and supplies.¹⁰⁰ Other Venezuelan agreements included Iranian technology transfer to support acquisition and construction of 20 Iranian Fajr 3 type Unmanned Aerial Vehicles.¹⁰¹ In 2010, a consortium of Russian oil companies agreed to invest US\$18bn in developing the Orinoco strip, taking 40% of the project's equity.¹⁰² Then in 2011, Spain's Navantia delivered the fifth of eight coastal and patrol vessels to the Venezuelan Navy, along with provision of technology transfer to support domestic shipbuilding.¹⁰³ The second stage (2013-16) was characterised by only minimal defence acquisition due to Venezuela's acute economic crisis, causing military acquisition to fall between 2013-14 and 2015-16 by a huge 90%,¹⁰⁴ with Russia losing

ground to China, measured in volume of military equipment sales to the National Armed Forces.¹⁰⁵ The third and final stage (2017-21) witnessed the partial delivery and even abandonment of Chinese, German, Dutch and Russian aircraft and warship procurement contracts due to Venezuelan non-payment.¹⁰⁶

The Venezuelan defence market has three major sectors: Military Fixed-Wing Aircraft, Armored Vehicles, and Electronic Warfare, and the principal companies are JSC, China North Industries, Group Corp Ltd. (Norinco), JSC Uralvagonzavod and Dornier GmbH.¹⁰⁷ The MoD has acquired a broad spectrum of military capability, including the Shannxi Y-8 transport aircraft, Norinco VN-4 armored vehicles, T-72BIV tanks, BTR-80 armoured vehicles, S-125 Pechora-2M SAM systems, Sukhoi fighter jets, 2S23 Nona-SVK self-propelled guns, Stan Patrol offshore patrol and coastal patrol vessels, Enstrom 480 helicopters, and Diamond Aircraft DA40NG Star trainers. Future opportunities for equipment suppliers are expected to arise in multi-role aircraft, naval vessels, missile systems, surveillance systems and UAVs.¹⁰⁸

CONCLUSIONS

This paper's survey of selected Latin American states demonstrates the regional push for offset

Tempo do Mundo No. 24, December 2020. Available at: <https://www.ipea.gov.br/revistas/index.php/rtm/issue/view/23>

98 Rosa Luxemburg Stiftung (2020). 'Informe Especial, Relación Bilateral Rusia – Venezuela en el Proceso Bolivariano: Armas, hidrocarburos y geopolítica latinoamericana'. Available at <https://rosalux.org.ec/pdfs/DossierRelacionRusiaVenezuela.pdf>, pag.38, accessed 30 August 2022.

99 Rosa Luxemburg Stiftung (2020). 'Informe Especial, Relación Bilateral Rusia – Venezuela en el Proceso Bolivariano: Armas, hidrocarburos y geopolítica latinoamericana'. Available at <https://rosalux.org.ec/pdfs/DossierRelacionRusiaVenezuela.pdf>, pag.38, accessed 30 August 2022.

100 Control Ciudadano (2013). 'Venezuela: Adquisiciones de Sistemas de Armas y Material Militar 2005-2012. Un proceso completamente opaco para el país'. Available at <http://controlciudadano.org/web/wp-content/uploads/INFORME-ADQUISICION-DE-ARMAS.pdf>, accessed 31 August 2022

101 Countertrade and Offsets, 'Iran to Provide Venezuela with UAV Technology Transfer' (Vol.25, No.6, 26 March 2007).

102 Countertrade and Offsets, 'Russia Secures Foothold in Latin America' (Vol.28, No.8, 26 April 2010).

103 Countertrade and Offsets, 'Venezuela Botches Technology Transfer from Navantia' (Vol.29, No.16, 22 August 2011).

104 Control Ciudadano (2017). 'Venezuela – Informe sobre Adquisiciones de Sistemas de Armas y Material Militar periodo 2012-2016'. Available at <http://www.controlciudadano.org/web/wp-content/uploads/6-Venezuela-Informe-de-Adquisicion-de-Armas-2013-2016.pdf>, accessed 31 August 2022

105 Ibid.

106 Control Ciudadano (2021). 'Informe Fuerza Armada Nacional Bolivariana – Adquisición, Recepción e Incorporación de Armamento y Material Militar, periodo 2017-2021. Available at <https://www.controlciudadano.org/web/wp-content/uploads/FANB-Adquisicio%CC%81n-Armas.pdf>, accessed 31 August 2022

107 GlobalData, 'Venezuela Defense Market – Attractiveness, Competitive Landscape and Forecasts to 2025' (Dec 2020)

108 GlobalData, 'Future of the Venezuelan Defense Industry – Market Attractiveness, Competitive Landscape and Forecasts to 2022' (12 December 2017).



linked to major procurement programs. The stand out defense-industrial player, of course, is Brazil. Although a benign regional power, with no natural enemies, and thus a relatively low level of defense expenditure, it has implemented offset projects that have leveraged frontier technology activities. It possesses impressive technological absorptive capacity that acts as an 'enabler' for joint collaborative offset engagement with offshore defense contractors, such as Saab. The reverse logic applies to the tier 2 and 3 development states, which, in the absence of substantive industrial and technological architecture, necessarily receives lower order offset packages. Peru, however, appears to be 'punching above its weight', attracting offset projects that reflect a broad spectrum of industrial capacities. Overall, this study's findings suggest that offset has facilitated strong injections of investment directed towards capacity building, training and capability development in the strategic aerospace, maritime and land system sectors. Across all three country tiers, there is evidence of civil-military applicability, and the importance of this development-defence nexus is reinforced by the fact that much of the offset transferred to these nations lies in the system and subsystem dual-use domains. These positive outcomes are the more remarkable given that only Brazil and Peru have functioning formal offset policies, with the remaining states possessing a rag-tag of policy positions: Chile is absent a formal offset policy, Argentina and Venezuela's policies have seemingly not been implemented, Colombia's revised policy is in abeyance and Mexico's has been suspended.

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