

A Qualitative Analysis on Impact of Offsets in Indian Defence Procurement

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Abstract. Offset is an unconventional trade-financing tool, commonly used in international defence contracts by countries making defence purchases to obtain industrial and technological benefits from countries selling them. Offsets however, elicit a mixed response. For some, offsets act as catalysts, enabling leapfrogging of a nation's technological and industrial capability, while for some others, it is trade-distorting, comes at a cost and is prone to corruption. The reality lies somewhere in between and is dependent on the strength of the offset policy and its effective implementation. India, being one of the largest importers of defence equipment, promulgated a formal defence offset policy in 2005, and has been constantly refining the defence offset policy since then. This paper aims to analyse the Indian defence offset policy, its effectiveness and impact on the Indian defence industry.

Keywords. Comptroller and Auditor General (CAG), Defence Exports, Defence Offsets, Defence Procurement Procedure (DPP), Foreign Direct Investment (FDI), Foreign Military Sales (FMS), Government 2 Government (G2G), Industrial License, Indian Offset Partner (IOP), Intergovernmental Agreements (IGA), Multiplier, Offset Threshold, Technology Transfer.

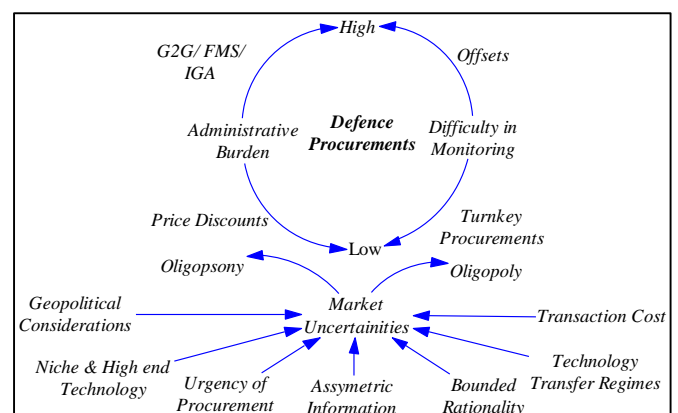
JEL Codes. D43, F13, H8, H56.

I. INTRODUCTION

Geopolitical considerations, closely guarded, niche and high end defence technologies, technology sharing regimes, urgency of procurement, and bounded rationality are some of the factors which make defence markets to be uncertain and vacillating between oligopsony and oligopoly. Fierce competition among arms sellers gives rise to a perceived sense of oligopsony in defence markets. Increasing costs, limited budgets, long gestation periods for indigenous development with uncertain outcomes, domestic economic development, and a perceived oligopsony in defence markets have encouraged many countries to give up on indigenous development and adopt procurement of off the shelf defence equipment using alternative procurement methodologies such as offsets, in order to benefit the domestic economy. On the face of it, it may appear that buyers have the upper hand by being able to buy arms and yet to keep the money at home, justifying the expenditure of public funds.

Offsets are provisions in an import agreement, which mandates the exporter to undertake activities like business investments and purchases in addition to the exporter's main transaction and is viewed as a means to mitigate the negative impact of military spending. Offsets are of two types; direct offsets which require investment in or

partnerships with a local firm/ company in the same sector as the main contract and indirect offsets, which involves investments with general economic or social goals in any other agreed sector. Needless to say, offsets call for higher administrative burden in terms of monitoring mechanisms to achieve the desired benefits. A diagrammatic representation of offsets in defence procurements is at figure-1.



Source: Author's Representation

Figure -1 (Offsets in Defence Procurements)

The F-16 program of the US aircraft industry, is considered as the quintessence of defence offset transactions, almost every country which procured this

aircraft made efforts to develop its indigenous aircraft industry [1]. Brazil's Embraer aircraft industry is globally cited as a successful experiment in offset implementation. Today, while offsets are sought by developing countries to enhance their defence industry and research and development (R&D) capabilities, developed nations are using offsets for promoting joint development projects to share costs, work and risks.

II. LITERATURE REVIEW

The economic impact of defence offsets, which fall under the umbrella term of counter trade, remain shrouded in mystery. Most governments are happy to highlight the purported economic benefits of offsets while being reluctant to evaluate them post execution. Thus, there is very limited information available in the public domain on the effectiveness of an offset agreement. Offsets, on one hand are accepted as a tool for economic development, technological and industrial growth etc, on the other hand, offsets are viewed to encourage corrupt practices, be against free market, distort markets and result in cost inefficiency.

Empirical studies however bring out that, defence procurements with offset deals are costlier than procurements without offsets and do not appear to substantially contribute towards the general economic development. More than about 130 countries in the world have some sort of offset guidelines or policies in defence procurements, however only a handful among them, notably, United States, Israel, Saudi Arabia, Japan, Spain, Brazil, South Korea, Canada, Turkey and Malaysia have been able to intelligently use offsets to stimulate their domestic industry [2]. There are very few examples of offsets resulting in any significant technology transfers [3]. A survey by M/s Avascent estimated the defence offset market to be 367 billion US\$ between 2010 and 2020 worldwide and has indicated that there was significant room for improvement in the Indian defence offset policy [4]. Defence offsets are also viewed to be disturbingly non transparent with very high corruption risks [5].

Indian defence offset policy with all its revisions and amendments is available on the website of the Ministry of Defence (MoD). Due to the sensitivity of the topic and limited data available, there are very few papers and articles on the impact of India's defence offset policy. Most of the articles and papers are by the Manohar Parrikar Institute for Defence Studies and Analysis. (MP-IDSA), notable among them are papers viz; 'Refining Draft Defence Offset Guidelines', 'Indian Defence Offset Policy: An Impact Analysis', 'Defence Offsets: International Best Practices and Lessons for India' by LK Behera [6], 'Should MoD Persist with Defence Offsets', 'Draft DPP 2020- Legacy Issues in Offset guidelines' by Amit Cowshish [7], 'Designing Sound Defence Offset Policies' and 'A Level Playing Field that Isn't' by Sandeep Verma [8]. Studies by MP-IDSA and observations by Comptroller and Auditor

General of India (CAG) on defence offsets have also greatly contributed in making of this paper.

III. INDIAN DEFENCE OFFSET POLICY

Indian offset requirements in defence procurements, prior to the introduction of a formal offset policy in 2005 were mainly limited to licensed production, which, was essentially transfer of drawings and processes for manufacturing and assembly, with no real technology transfer. Fighter aircrafts, anti-tank missiles, air defence radars and tanks were manufactured in India by Defence Public Sector Units (DPSUs) and/or Ordnance Factories (OFs) through licensed production. Post-independence, while, India did gain from Soviet Union due to favorable credit terms and rupee payments, most sellers were however reluctant in sharing core defence technologies. Countertrade and long term credit, especially from the western countries proved to be a failure due to padded up prices. The long term objective of indigenous defence production could not be achieved, as the domestic defence industry failed to achieve parity with international high-technology weaponry resulting in Indian defence forces to be dependent on direct imports [9].

The Kelkar Committee, which was set up in 2004 to examine defence procurement procedures in India, had highlighted the lack of technology transfer in manufacturing defence equipment and had recommended introduction of offsets. The first formal defence offset policy included in the Defence Procurement Procedure-2005 (DPP-2005) stated that defence procurements exceeding an estimated cost of Rs 300 crore, would entail offset obligations of at least 30% of the contracted value, which could be increased or reduced by the Defence Acquisition Council (DAC). The offset obligations were primarily direct offsets. Offsets were however, not mandatory and were at the discretion of the Services Capital Acquisition Plan Categorization Committee (SCAPCC). The recipients of the offset obligations were DPSUs/ OFs only.

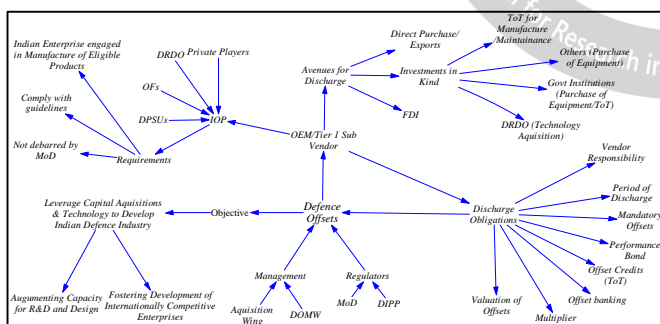
In 2006, foreign defence firms were permitted to form Joint Ventures (JVs) and Strategic Partnerships (SPs) with Indian firms subject to Foreign Direct Investment (FDI) ceiling limitations and restrictions in defence sector. Offsets were made mandatory for defence contracts exceeding the threshold and were to be discharged co-terminus with the main contract. A Defence Offset Facilitation Agency (DOFA) was established as a single window entity to facilitate implementation of offsets in India. Any Indian defence industry or organization classified by DOFA as the Indian Offset Partner (IOP) could now receive offsets from foreign defence firms, which were earlier restricted to DPSUs / OFs only. Foreign vendors are free to select a suitable IOP for discharge of offsets.

The first defence offset contract in India was signed in 2007. In, 2008, penalties were introduced for failing to

discharge offsets within the stipulated time. Offset banking was introduced where, offsets could be banked and discharged against future offset obligations within 30 months. Procurements under fast track route and Indian firms with more than 50% Indigenous Content (IC), participating in Buy (Global) category of procurements and were exempted from offsets.

In 2011, civil aviation, internal security, training and simulators were added as acceptable avenues for discharge of offsets. Multipliers were introduced on offsets to encourage Micro, Small and Medium Enterprises (MSMEs), validity of banked offsets was increased to 7 years from the earlier 30 months and DOFA was replaced by a Defence Offsets Management Wing (DOMW). In 2012, Defence Offset Guidelines (DOG) were promulgated and the objectives for defence offsets were defined, which were to leverage capital acquisitions to develop Indian defence industry by (i) fostering development of internationally competitive enterprises, (ii) augmenting capacity for research, design and development related to defence products and services and (iii) encouraging development of synergistic sectors like civil aviation, and internal security. Services, maintenance and repair were also included as avenues for discharge of offsets. Offsets could now be discharged till 2 years after the completion of the main contract. The maximum penalty for failure to discharge offsets in time was capped at 20% and tier-1 sub vendors of the main vendor were also permitted to discharge offset obligations on behalf of the main vendor.

Services as an avenue for discharge of offsets was held in abeyance in 2013 but was re-introduced in 2015 and the IC stipulation for an Indian vendor participating in Buy (Global) category of procurements, to be exempted from offsets was reduced to 30% from the earlier 50%.



Source: Author's Representation
Figure -2 (Defence Offsets Ecosystem)

In 2016, the threshold value of contracts for offsets to come into play, was increased to Rs 2000 crores and DAC was empowered to partially or completely waiver offsets in a contract. In 2020, procurements through Inter Governmental Agreements (IGA), Foreign Military Sales (FMS), Government to Government sales (G2G) and cases of a single vendor ab-initio, were exempt from offsets. Civil aviation, internal security and services were also deleted from the list of avenues for discharge of offsets resulting in

dropping of the third slated objective for offsets. The defence offset ecosystem in India has been depicted in figure-2, which gives a gist of the defence offset guidelines in its present form.

India has currently the highest threshold for defence offsets at 270 million US\$ which is more than twice of that of Saudi Arabia which is the second highest at 107 million US\$. Some European countries have less than one million US\$ as the threshold for defence offsets. A comparison of the threshold of defence offsets of various countries is at figure-3. India has also the least offset requirements of 30%, most countries demand more than 100% of the value of the main contracts as offsets, with some countries even going up to 200%.

Defence Offset Threshold (Million US\$)			
India	270	Norway	7
Saudi Arabia	107	Bulgaria	6
Czech Republic	24	Italy	6
Switzerland	17	Netherlands	6
Canada	14	Poland	6
Belgium	13	Brazil	5
Finland	12	Turkey	5
Greece	12	Israel	5
Portugal	12	Hungary	4
Sweden	12	Australia	4
Malaysia	12	Romania	4
South Korea	10	Lithuania	2
Kuwait	10	Slovenia	1
Denmark	8	Slovakia	0.16

Source: from offset contracts of countries
Figure -3 (Threshold of Defence Offsets)

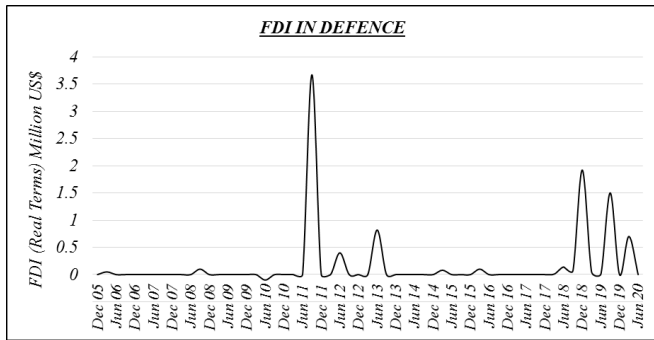
IV. INDIAN OFFSET EXPERIENCE

Indian experience on defence offsets has been largely unenthusiastic. 55 defence offset contracts with 19 foreign firms have been signed till Dec 2020, Air Force, Navy and Army have 32, 16 and 07 offset contracts respectively [10]. All the offset contracts concluded have been direct offsets only. The total offset obligation stands at approximately 11.80 billion US\$, to be discharged by 2024 [11]. As on Nov 2020, offset obligations worth 3.524 billion US\$ have been claimed, of which 1.75 billion US\$ have been accepted in audit. The discharge of offsets has seen a significant increase post 2018 indicating positive efforts to expedite discharge of offset obligations [12]. Penalties to the tune of 38.19 million US\$ have been imposed on defaulting foreign firms.

Methodology adopted to evaluate the impact of defence offsets in this paper is by analyzing FDI in defence, defence exports, performance of DPSUs /OFs, performance of private players in defence industry, defence technology transfer, G2G procurements, studies conducted and observations by CAG.

Effect on FDI. Foreign firms can discharge their offset obligations through FDI. In addition, they can also claim

offset credits on equity investments in JVs. The data of FDI in defence from 2005 till 2019 shown in figure-4 indicates that the FDI inflows in defence has been less than a million US\$ in a year, with occasional peaks. When compared to the total FDI inflows into India, FDI in defence is just about 0.002% of the total FDI inflows [13]. FDI in defence ranks at 61 among the 63 different sectors receiving FDI inflows in India. In addition, not all FDI in defence can be attributed to offsets. In the absence of any worthwhile FDI inflows in defence till now, it can be reasonably concluded that there has been little effect of offsets on FDI inflows in defence.



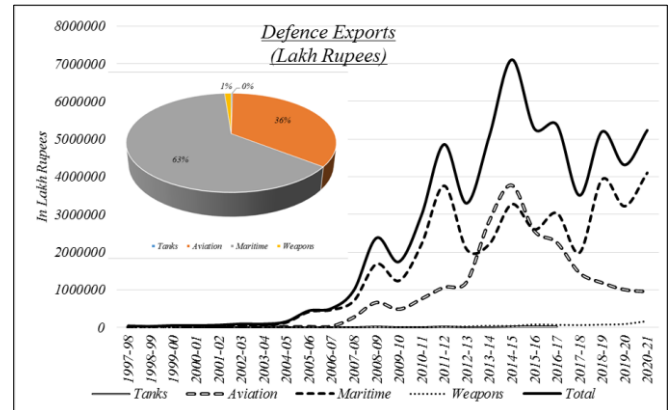
Source: <https://dipp.gov.in/publications/fdi-statistics>.

Figure -4 (Offsets in Defence Procurements)

Effect on Defence Exports. As per the dashboard of Department of Defence Production (DDP), Ministry of Defence (MoD), the defence exports have shown a six fold increase from 2016-17 to 2019-20. However, for an in-depth analysis of defence exports, data from Ministry of Commerce and Industries (MOCI) has been taken. Indian exports are classified under the eight digit Indian Trade Classification Harmonization System (ITC-HS) codes. Exports relating to military equipment under Industrial License (IL) come under four (04) broad categories, viz; code '87100000' relating to tanks and armored fighting vehicles, twenty categories of aviation equipment having codes from '88011000' to '88052002', which have been merged into a single category under a two digit HS Code of '88' for ease. Twenty nine categories of marine equipment having codes from '8901101' to '89080000', merged into HS Code '89' and seventeen categories of weapons having codes from '93010000' to '93070000', merged into HS Code '93'.

India exports defence equipment to around 110 countries. Export data [14] from 1988 till Sep 2020 has been shown in figure-5 indicates that while, maritime and aviation equipment form 63% and 36% respectively, armored fighting vehicles and weapons accounting for just about 1% of the total defence exports. Variation in figures between the MoD and MOCI can be attributed to classification of items being exported under defence head. Defence exports have been steadily increasing wef 2005. India is now 19th in the list of defence exporters in the world [15]. The increase in defence exports over the years however, cannot be attributed to offsets alone. General economic growth, international agreements, liberal IL,

participation of private sector players etc, would have contributed more in improving the exports. Hence, there is no positive evidence to prove a direct relationship between defence offsets and defence exports.



Source: <https://tradestat.commerce.gov.in>

Figure -5 (Defence Exports)

Effect on Performance of DPSUs/ OFs. The turnover of DPSUs has been increasing steadily over the years. Turnover of Rs 45,776 Crores in 2018-19 of DPSUs was the highest ever till now [16]. As per the dashboard of DDP, MoD, annual sales turnover of DPSUs has steadily increased from Rs 40,427 crores in 2016-17 to Rs 47,168 crores in 2019-20, while that of OFs has reduced from Rs 14,825 crores to Rs 9,213 crores in the same period.

To study the impact of offsets on DPSUs, the value of sales data of all the nine DPSUs have been obtained from their annual reports and tabulated in table-1.

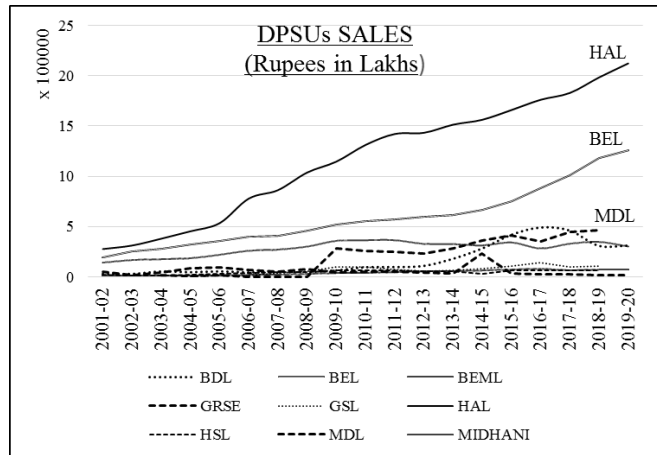
Value of Sales of DPSUs in Lakh Rupees										
FY	BDL	BEL	BEML	GRSE	GSL	HAL	HSL	MDL	MIDHANI	
2001-02	28336	194199	142415	49844		277500	20139			10424
2002-03	27772	250802	168117	15369		312000	16467			9136
2003-04	52480	279859	176575	39077		380000	12720	19100		12513
2004-05	45098	321209	185601	88141	8349	453400	23698	9954		13127
2005-06	53153	353628	220584	98599	10696	534200	31888	16429		15289
2006-07	43351	395269	260179	71374	15279	778400	39977	1865		19250
2007-08	45438	410254	271334	55665	40094	862500	51014	606		25501
2008-09	46482	462369	301347	74062	58712	1037400	49828	549		30911
2009-10	62723	521977	358893	42427	95478	1145700	66203	285613		37121
2010-11	93916	552969	364707	54622	102739	1311500	63788	261141		41787
2011-12	95912	570363	364837	54506	72288	1420400	60434	252369		50901
2012-13	107471	601190	328977	46434	56422	1432400	56250	229064		55859
2013-14	177989	617423	326220	30819	68077	1512800	51907	286551		56271
2014-15	279968	669457	312965	230805	80452	1562100	32301	359260		65570
2015-16	415997	754117	342292	30668	110236	1658600	65708	410622		76145
2016-17	488662	882470	283698	22162	145246	1760400	65009	352367		80971
2017-18	458760	1008484	330542	23390	98629	1828400	65167	448798		66608
2018-19	306935	1178922	348106	14677	107176	1982100	60554	464915		71085
2019-20	309520	1260776	302882	12968		2121800				71288

Source – Annual reports of DPSUs.

Table-1. Value of Sales of DPSUs

On study of the value of sales of DPSUs in table -1 it can be seen that only M/s Hindustan Aeronautics Limited (HAL) and M/s Mazagon Docks Limited (MDL) have shown a noticeable increase in the value of sales, coinciding with the defence offset policy from 2005. The prominent increase in value of sales in respect of M/s Bharat Electronics Limited (BEL) after 2015 may or may not be attributed to offsets. The same data graphically depicted in figure-5 for easier assimilation, shows that the increase in

the value of sales of M/s HAL, M/s BEL and M/s MDL, no there has been significant increase in value of their sales in the other six DPSUs. This also correlates to the increase in exports of aviation and maritime defence equipment.



Source – Annual reports of DPSUs.

Figure -5 (Sales of DPSUs)

The impact of offsets on performance of DPSUs and OFB has however been negligible in terms of technology improvement [17]. In addition, the import content of all the DPSUs and OFs have either increased or have remained constant over the past few years [18]. Except for 2017-18 the total revenue expenditure of OFs has been more than the total receipts [19]. Hence, it can be fairly concluded that, there has been little impact of offsets on the DPSUs/ OFs.

Effect on Private Players. 42 JVs in defence manufacturing having been approved by the government till now [20]. While not all 42 JVs are with private players, but private players in defence industry seem to be most enthusiastic on offsets. As per industry estimates, there has been a fifteen fold increase in defence exports since implementation of offset policy [21]. In absence of adequate financial data of the defence private players, extent to which offsets have impacted the private players can be judged by the number of Letters of Intent (LoI)/ IL by the government which has seen a significant increase post promulgation of the offset policy in 2005, which shows a strong co-relation between offsets and the interest of private players in defence industry.

According to a survey conducted by LK Behera, offsets received by most private companies did not significantly contribute towards capability enhancement of the Indian defence industry. Most private players opined that offsets were of Build-to-Print (BTP) nature, with little value addition and hence, have not resulted in any meaningful technology transfer [22]. The number of JVs with private players has also reduced over the years from five in 2015 to two each in 2016, 2017 and 2018 and finally one each in 2018 and 2019 [23]. As on Feb 2020, there were 69 startups in defence, with a target of 200 startup companies by 2024. Hence, while there is considerable enthusiasm among private players in the Indian defence industry, it can be

attributed more to the recent opening up of the industry to private players and benefits a few private players received as offsets. However, effect of offsets in improving the technological knowhow among private defence players is still questionable.

Effect on Technology Transfer. Defence Research and Development Organization (DRDO) had identified six new technologies to be obtained from the firms under the offset obligations. However, foreign firms have disagreed on five of them. Technical assistance for indigenous development of the Kaveri engine for the Light Combat Aircraft (LCA), the sixth technology desired, has also not been confirmed till date. The CAG has also highlighted that there has been no transfer of modern / critical technology to DRDO from offsets. While technology transfers are much touted, India's capability to absorb the technology needs to be also considered, foreign defence OEMs have been quoting protracted timelines for technology transfers with defence firms in India.

CAG Observations. In 2011, CAG had brought out serious deficiencies in the implementation of offsets in defence procurement. Counter purchase of Indian goods were not implemented in the 155mm howitzers contract from AB Bofors, Sweden in 1986 [24]. Full value of offsets in the purchase of fleet tankers from M/s Fincantieri of Italy were not realized in 2008 and also in 2011 [25]. Offset obligations in purchase of AW-101 helicopters from AgustaWestland, UK [26], Mi-17 V5 helicopters from Russia's Rosboronexport, Unmanned Aerial Vehicles (UAV) from Israeli Aerospace Industries, Rafale aircrafts from Dassault and P8I maritime surveillance aircrafts from Boeing were not complied [27]. Equipment worth Rs 3,410.49 crores was received as offsets without any value addition in 16 defence deals since 2005. Some foreign firms had selected ineligible IOPs for discharge of offsets. Penalties from defaulting firms in two cases were not recovered are some of the highlights of the CAG report.

From 2005 till 2018, only 59% of offsets, which have to be discharged by 2024 in 46 contracts, have been discharged. Further, only 48% of offsets discharged, worth Rs 5,457 Crore have been accepted in audit. It would therefore be almost impossible for the foreign firms to discharge the remaining 41% offset obligations by 2024. In many cases, foreign vendors made offset commitments to qualify for the main supply contract, but later, did not fulfil them [28].

While the CAG's findings brings out deficiencies in the implementation of the offset policy, it does not provide solutions, suggestions or recommendations to improve the system. The findings are more of auditory nature of fault finding. While the CAG has been vocal in stating that the offset policy has been a failure, reliance on CAG reports alone would not give a holistic analysis of the success or failure of the offset policies.

Studies Conducted. The MoD had assigned a study to MP-IDSA in 2019 to ascertain the impact of offsets on Indian defence industrial base [29]. The study brings out that as on 31 Oct 2019, more than 90% of offset obligations were discharged in the form of direct purchase of products and services. Out of the 171 IOPs created for discharge of offsets, the top 5, 10 and 15 IOPs have received 51.76%, 76.11% and 87% of total offsets respectively. Also, there were hardly any technology transfers or FDI in defence due to offsets [30].

G2G Deals. About 70% of the defence imports in India are now through G2G deals. US alone accounts for more than 55% of the G2G deals, followed by Russia, Israel, Germany and France. While, procurements through G2G route are faster, the leverage a buyer enjoys and price reductions by competitive bidding are lost. Lockheed Martin C-130J, Boeing C-17 Globe master, P-8I maritime surveillance and Rafale fighter aircrafts, AH-64D Apache, MH-60R Romeo Seahawk and Chinook helicopters, S-400 Triumf air defence missile systems, Stringer air-to-air missiles, Grigorivich frigates and SIG-716 assault rifles are some of the recent big ticket G2G procurements by India [31]. With G2G procurements now out of the offset umbrella, bulk of India's defence procurements would not fetch any offsets to India. It is however, too premature to remove offsets from defence procurements altogether.

V. ANALYSIS

The offset policy seems to have a mixed impact on the Indian defence industry. While exports, particularly of maritime and aviation equipment seem to have increased, these are mainly in the form of parts or components and not complete systems or platforms. This only indicates an improvement in economic activity in the defence sector. Offsets have not been able to draw any meaningful FDI in defence or get in advanced technology. Although there has been a significant increase in the discharge of offsets in the recent years, the offset benefits have been reaped only by few IOPs. Moreover, the offsets discharged by foreign firms have been mostly in terms of buying products and services. The repeated scathing attacks by the CAG on the implementation of offsets in defence procurements indicates, that all is not really well in defence offsets in India. It is probably due to this that the offset policy has now been tweaked, to trimmed off civil aviation, internal security, services, offset banking etc, as avenues for discharge of offsets. Offsets are now confined only to contracts involving outright purchase from foreign vendors through competitive bidding with the highest threshold in the world. .

While the offset policy has been continuously refined with stakeholder inputs and studies by defence think tanks, poor implementation and monitoring of discharge of offset obligations post contract, seem to be the primary cause of defence offsets not achieving the desired results. Defence

acquisition is a complex process requiring professionals with many years of experience to execute the process efficiently. According to a survey the Naval Postgraduate School, USA, it takes about 10 years for one to become fully proficient in defence acquisitions [32], however according to government guidelines, the average tenures of officials in MoD is between two to three years [33]. So in effect, one set of officials are involved in negotiation of the defence deal, and a totally different set of officials, either in the same department (after a large gap of time) or in some other department are entrusted with monitoring and implementation of offsets. With diffused accountability on both sets of officials, there is adequate scope for each set of officials to blame the other. Apropos, there seems to be insufficient evidence to state that the Indian offset policy has served its stated objectives and strengthened the Indian defence industrial base since its inception in 2005.

Improved interdepartmental coordination, clarification of roles and responsibilities during contract negotiation and post contract management, stringent scrutiny in selection of IOPs, a consultative procedure in offset negotiations, longer tenures of officers dealing in procurements and permitting a portion of defence offsets to be indirect offsets in other strategically important sectors, an user-independent offset evaluation and handling system, assistance and management consultations from reputed firms such as PricewaterhouseCoopers, McKinsey and KMPG etc could well be some of the measures to improve. With most defence procurements now through the G2G route, there would now be very few defence procurements with offsets obligations, thereby enabling closer monitoring and more efficient implementation.

VI. CONCLUSION

Effective management of offsets is complex problem with no set solutions, but require a great amount of coordination and unity of effort. A successful offset process in one country may or may not succeed in a different country or with a different set of people in the same country. The idea of offsets is more like a free lunch, which is free to the invitees but the host, still has to foot the bill, as offsets come at a price. Neither economic theory nor extant empirical evidence suggests that defence offsets actually benefit a country's economic development. Instead, it is generally acknowledged that arms deals with offsets are more expensive than arms deals without it [30]. While offsets are one the ways to leverage technology, no country wants to part with critical defence technologies or source from Indian industry, which could ultimately lead to their creating competition for themselves.

In 15 years since 2005, India has experimented with the policy on defence offsets, and has now limited its offset requirements to a very narrow portion of defence procurements, thereby reducing the overheads in procurement costs due to offsets. The Indian experience on

defence offsets has not been very rewarding thus far. Notwithstanding, a higher emphasis on monitoring and implementation supported by minor policy tweaks would go a long way to ensure that India gets the bang for the buck in defence contracts involving offsets.

VII. ACKNOWLEDGMENT

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REFERENCES

- [1] Stephen Martin (2007), 'Economics of Offsets: Defence Procurement & Countertrade', *Routledge Publications, USA*.
- [2] Mitra Anuradha (2009), 'A Survey of Successful Offset Experiences Worldwide', *Journal of Defence Studies, Volume 3, Issue 1, IDSA, New Delhi*.
- [3] Brauer Jurgen & Dunne, J. Paul Dunne (2004), 'Arms Trade Offsets and Development' *Paper for 8th Annual Defence Economics and Security Conference, University of West of England, Bristol, Jun 2004, UK*.
- [4] Avascent (2016), 'Survey of Defence Offsets, Global Partnerships and Industrial Cooperation', *White Paper May 2016, Avascent, USA*.
- [5] Transparency International (2010), 'Defence Offsets, Addressing the Risks of Corruption', *UK*.
- [6] Behera, LK, Research Fellow IDSA, <https://idsa.in/profile/lkbehera>.
- [7] Cowshish, Amit, Consultant, IDSA, <https://idsa.in/profile/acowshish>
- [8] Verma, Sandeep, IDSA, <https://idsa.in/taxonomy/term/1713>
- [9] Baskaran, Angathevar (2011), 'The Role of Offsets in Indian Defence Procurement Policy', *Published in Arms Trade and Economic Development Theory, policy and Cases in Arms Trade Offsets, Routledge Studies in Defence and Peace Economics, USA*.
- [10] DOMW (2021), 'Details of OEMs having Offset Contracts', *DOMW, MoD, GoI. Available at https://domw.gov.in/Index/vendorsdetails. Accessed on 03 Jan 2021*.
- [11] Lok Sabha, (2019), 'Seventh Report of Standing Committee on Defence, Demand No 20', *17th Lok Sabha Demand for Grants. pp 35-42*.
- [12] DDP, (2020), 'DDP Dashboard: Defence Offsets', *DDP, MoD, GoI. Available at https://ddpdashboard.gov.in. Accessed on 31 Dec 2020*.
- [13] DIPP (2020), 'FDI statistics', *DIPP, MOCI, GOI. Available at https://dipp.gov.in/publications/fdi-statistics. Accessed on 31 Dec 2020*.
- [14] MOCI (2020), 'Export Data- Commodity Wise' *MOCI, GOI, available at https://tradestat.commerce.gov.in/ edib /ecom.asp. Accessed on 30 Dec 2020*.
- [15] Rawat, Bipin Gen (2020), 'Catalysing Defence Exports', *e-symposium, FICCI, 09 Sep 2020, New Delhi*.
- [16] PIB (2019), 'Defence Production', *PIB, GoI release No 1575777 dated 26 Jun 2019*.
- [17] Behra, Laxman Kumar (2015), 'Indian Defence Offset Policy: An Impact Analysis' *Journal of Defence Studies, Vol. 9, No. 4, 2015*.
- [18] Lok Sabha, (2019), 'Seventh Report of Standing Committee on Defence, Demand No 20', *17th Lok Sabha Demand for Grants. Pp 30-34*.
- [19] Lok Sabha, (2019), 'Fourth Report of Standing Committee on Defence, Demand No 19 & 20', *17th Lok Sabha Demand for Grants*.
- [20] PIB (2019), 'Joint Manufacturing Defence Platforms', *PIB, GoI release No 1593798 dated 27 Nov 2019*.
- [21] Desai Nishith Associates (2017), 'Indian Defence Industry'. *Research paper Jan 2018. pp 42-43*.
- [22] Ibid (17).
- [23] Lok Sabha, (2020), 'Seventh Report of Standing Committee on Defence, Demand No 20', *17th Lok Sabha, Demand for Grants. pp 43*.
- [24] CAG (1990), 'Report No. 12 of 1990, Union Government (Defence Services) Army and Ordnance Factories', *CAG, GoI, pp 12*.
- [25] CAG (2010), 'Report No. 16 of 2010, Compliance Audit on Air Force and Navy, Union Government, Defence Services', *CAG, GoI, pp 17*.
- [26] CAG (2013), 'Report No. 10 of 2013, Defence Services Air Force on Acquisition of Helicopters for VVIPs', *CAG, GoI*,
- [27] CAG (2019), 'Report No. 20 of 2019, Management of Defence Offsets' *CAG, GoI*.
- [28] CAG (2012), 'Report No. 17 of 2012-13, Air Force and Navy, Union Government, Defence Services (Compliance Audit)', *CAG, GoI*.
- [29] PIB (2019), 'Defence Offset Contracts', *PIB, GoI release No 1563901 dated 11 Feb 2019*.
- [30] Lok Sabha, (2020), 'Seventh Report of Standing Committee on Defence, Demand No 20', *17th Lok Sabha, Demand for Grants. pp 40*.
- [31] D Smruti (2020), 'Rock and a Hard place', *Force India. Cover Story. Available at http://forceindia.net/cover-story/rock-hard-place. Accessed on 05 Jan 2021*.
- [32] Murphy Colleen & Bouffard Adam (2017), 'Understanding Defence Acquisition Workforce Challenges', *14th Annual Acquisition Research Symposium, Naval Postgraduate School, California, USA, pp 11*.
- [33] Verma, Sandeep (2018), 'Problematic Defence Acquisitions', *SSRN Electronic Journal, DOI:10.2139/ssrn.3242663*.
- [34] Brauer Jurgen & Dunne, J. Paul (2004), 'Arms Trade & Economic Development' *Routledge Publishers, New York, USA*.