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The developmental contribution of the Offset Agreements: the case of Colombia¹.

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Abstract:

Colombia is a middle-income country but with a human development constantly threatened by insecurity. This paper analyzes the developmental impact of Offset Agreements (linked to international defence-industry cooperation) implemented by EADS-CASA in Colombia. Compare Malaysia, the Colombian case exemplifies how offset might be an instrument of development through increasing security in recipient countries. In an international context that seeks explicitly how to include the private sector as a developmental agent, and that it is looking for the best practices among public-private partnerships, these agreements can be a good example. The offset agreements executed in Colombia are assessed with high marks in relevance, ownership and alignment, and potential direct and indirect value added, externalities and sustainability. Transparency is the weakest point of the offset. A move towards an international initiative that helps minimize unwanted effects such as unfair competition or corruption is proposed.

Key Words: Colombia; development; Offset Agreements; public-private-partnerships; technology transmission.

JEL: F13; H56; O32

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1. INTRODUCTION.

Offset Agreements (OOAA) are compensation arrangements used in the trade defence industry. They are called "compensation agreements", "industrial participation" or "industrial and social cooperation", associated to sales contracts in the defence industry. This paper aims to highlight this ambiguity and stress their significant potential to boost economic development in countries importing defence equipment.

In essence, an offset is a "compensation" undertaken by the defence industrial exporter and that the government of the importing country requires, usually worth 100% of the contract (or less). Compensation is performed in different forms, the most frequent are outsourcing or co-production of goods and services in the importing country, technology and know-how transfer, technical assistance for international marketing operations, financial assistance and investment through joint ventures, although these are less frequent (Bovis 2008).

Some countries are openly against offsets considering them as an instrument of unfair competition and are openly opposed to Article XVI of the World Trade Organization Agreement on Government Procurement. Paragraph 1 of this Agreement states: "When qualifying and selecting providers, products or services, and when evaluating offers and awarding contracts, entities shall not impose or seek compensation [offsets], or take them into account." Offsets are defined in footnote as "measures used to promote the country's development or improve the status of its payment balance accounts by domestic content requirements, licensing to use technology, investment, compensation trade or similar" (WTO 1996:24).

However, paragraph 2 of the agreement establishes the exception to this measure for "general political considerations, including those relating to development" and Article XXIII.1 for national defence procurement².

Offsets have advantages and disadvantages in both an economic level (trade, financial, labour) and a social level (welfare resulting from access to technology, better security, civilian applications of the acquired in the military industry...). Thus, they are a debated and ambiguous instrument.

From an economic level, the impact of offsets is unknown. Not only due to the intrinsic difficulty of the concept of impact (group of net effects in the society, either direct and indirect, intended or unintended, positive and negative), but because offsets are not so transparent and ambiguous trade instruments. This ambiguity is manifested at several levels: the importer's national security, the

² Literally: "No provision of this Agreement shall be interpreted in a way that prevents a Party from taking any action or not disclosing any information which it considers necessary to protect its essential security in relation to procurement of arms, ammunition or war materials, or any other procurement indispensable for national security or for national defence purposes".

effects on employment and economic growth of the two cooperating parties, and if it's an opaque instrument of unfair competition. Let us discuss each of them.

Initially, the importer's national security is clearly increased since for that purpose, the government acquires defence material, usually through the ministry of defence, but also through the economy or industry ministries, on the international market. Except for –rather extreme– cases of authoritarian governments that acquire defence equipment without any sense of proportion or national security strategy (say, a dictator who acquires military aircraft for his personal use and enjoyment), national security increases with defence contracts and let's not forget that safety is a central dimension of human development. The World Bank (2000) in its World Development Report 2000/2001 dedicated to poverty (the subtitle was in fact *Attacking poverty*) summarised the development process in three vectors: expanding opportunities, empowerment and security.

For the offset provider (seller), the benefit is clear. With each contract, the defence company increases its benefit, to be reduced by the portion of the offset provision. But there are also externalities for the provider's safety, for example through the dissemination of inter-operability of defence equipment in joint operations. Think of cases since the Gulf, Afghanistan and Iraq Wars among the "coalition forces", to military intervention in cases of natural disasters like the tsunami in Southeast Asia and the earthquake in Haiti. Connectivity and inter-operability of the armies have been key in these cases.

But offsets can also reduce national security. Not only because a greater amount and quality of military equipment is acquired and that becomes a threat to the neighbouring country, but because compensations received via offsets, such as transfer of cutting edge technology, can subsequently be sold to a "fragile", less secure country or even to a direct competitor of the offset provider country. Bovis (2008) gives the example of American technology transfer subsequently transferred to China, making it a direct competitor and making it gain importance on the international scene. And instead of China we can think of North Korea or Iran with induced increases for international insecurity.

Potential impacts on employment and economic growth are ambiguous (Brauer & Dunne 2004, 2005). Offset compensations can move workforce and activity volume from the provider country to the importing country. The case is very clear when offsets are specified in outsourcing or labour requirements of the importer. The other side of this displacement is the increase in direct employment and the acquisition of human capital and technology in the importing country. The Department of Defence in the United States made an estimate which amounted 9,500 jobs lost annually because of offsets (quoted in Bovis 2008:204). Furthermore, the same study estimated 38,400 jobs kept in the U.S. because of offsets and that offset unilateral suppression by the country would mean losing 85,800 jobs (Bovis 2008).

You have to consider that in addition to direct employment generated by offset outsourcing in the buying country, there are positive externalities in the form of technology and experience acquisition that should be counted as "technology incorporated either in physical or human capital" and its

assessment should include all R&D costs that the providing company has had until the product's development and all technology transferred. Offset opportunity cost would be to acquire the same technology and experience in the market, which would certainly be much more expensive for the buyer and more lucrative for the provider.

Finally, because offsets are linked to export transactions, the provider country's GDP increases directly, while that of the buyer decreases via imports, but less than the final value of the acquisition agreement because offsets compensate such import. The final net value is difficult to calculate, because although offsets are undertaken for 100% of the contract cost, they're not provided for the same value, but subject to a sort of "freehand" valuation, to multipliers imposed by each recipient country subjectively and to final acknowledgment by the buyer that agreed offset credits have been satisfied. This means trading margins, discretion and very broad endpoints.

The rest of the paper is organised as follows. The following section presents the stylised features and types of OAAA. The third section analyses the potential impact of two representative types of OAAA: technology transfer by the EADS-CASA case in Colombia and outsourcing workload from the same company in Malaysia. The fourth section summarises the main conclusions and extensions derived from the research.

2. OFFSETS AS POTENTIAL DEVELOPMENT INSTRUMENTS.

OAAA can be viewed from the perspective of a public-private partnership for development³.

They can therefore be considered as development generating projects in line with recent International Declarations such as Busan (OECD-DAC 2011) which promotes inclusive participation of the private

³ The concept of Public-Private Partnership for Development (PPPD) is under construction. In general, it can be defined as "a collaborative relationship between the public and private sector, and civil society organizations for greater effectiveness in achieving objectives of common interest and generate a positive impact on development in places and areas where they operate" (<http://www.alianzasdesarrollo.org/appd>). A definition that we can describe as development-focused would be "actions that integrate public and private agents to undertake resources together for actions that would have greater and better impact on development than they would separately, and involves well-articulated, joint design and formulation and fully connected with a development objective" (Intermón-Oxfam 2011:173). Several donor agencies have developed tailored programmes and mechanisms for this instrument, such as *Global American Development Alliances* by the American USAID; *develoPPP* by the German GTZ, *Private Sector Department* by British DFID, or even the *Business platform* constituted by the Dutch SNV and the World Business Council for Sustainable Development. The content of this instrument has tended to focus on public financing of undertakings for promotion of the business network in developing countries (International Finance Corporation of the World Bank Group or MIF-American Development Bank), but it actually encompasses broader aspects such as responsible business behavior at all levels of action, the role of business in development, inclusive business venture, or the financing of basic social services provided by companies but under public financing. In this paper we extend the concept of PPPD to the relationship between a public stakeholder (usually the Ministry of Defence) and a private actor (defence industry material provider) to analyse whether it has positive effects on the buying country's development.

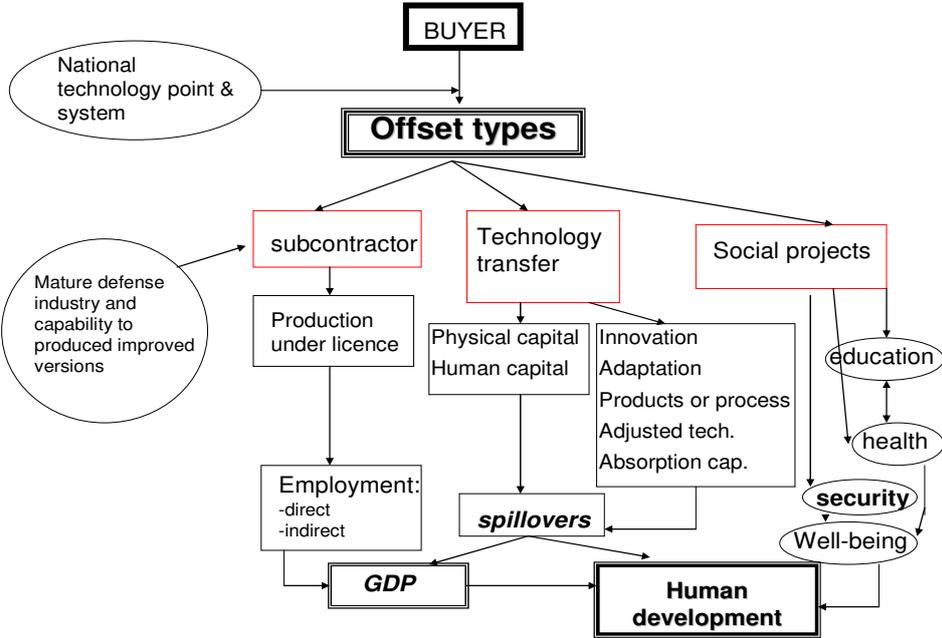
sector as an agent of development in a *Global Partnership for Effective Development Cooperation*. Indeed, OOAA projects are demanded linked to purchase of defence industry material, therefore the appropriation of such projects is –a priori– very high and clear. This is a difference, for example, in many projects of official development assistance that are evaluated as an “offer” responding more to the interests and initiatives of one donor than to the recipient country. OOAA are projects with a clear “demand approach” that can generate (or not) increased economic growth and human development. Following, a broader explanation of OOAA typology and how they can generate more growth and development.

OOAA are bilateral trade relationships. On the one hand, there’s the Defence Ministry who acquires defence material (buyer) and defines and specifies the OOAA conditions in each case (see CTO 2012 for a detailed description of each country in relation to offsets). On the other hand, there’s the providing company which is a defence industry, private company. Each party acts on their interests and this section aims to show that there may be a balance where both parties win.

OOAA from the buyer’s perspective.

Figure 1 allows to synthesise the channel through which the buying country can generate growth and development through OOAA practice.

Figure 1. Potential effects of OOAA in the buying country.



Source: Author’s elaboration.

As shown in Figure 1, buying countries can choose from various types of offsets to compensate the purchase of defence industry equipment. A guiding principle may be the innovation and technology system that already exists in the country and its distance from the global technology frontier. The higher the country's technological development, the more likely for it to opt for an outsourcing or workload offset; including continuing education and experiential learning. Licensed production of defence equipment by the vendor can increase the number of direct and indirect employment (goods and service suppliers to the new plant) and thus generate higher GDP. This method is often chosen by developed countries that are looking to somehow compensate for their lack of competitiveness in this industry through offset agreements.

Unfortunately there's a lack of specific data on the volume of real jobs generated by offsets. While there are high estimations as the one cited by Bover (2008) referred to the United States amounting to 38.400 jobs created by offsets in the country, other authors disagree that there is a real impact in terms of employment: *"there is virtually no positive and certainly no compelling evidence that offsets create new, let alone sustainable jobs"* (Brauer & Dunne 2005:11).

An additional factor that should be taken into account is the tax burden arising from outsourcing, in the form of increased revenue for the buying country.

The second type of offset is technology transfer⁴. In this case, instead of requesting workload, the buyer wants to receive technology to reduce external dependence and to eventually develop its own high-tech industry. The transfer may be incorporated to either physical capital (e.g. airworthiness improvement machinery, aircraft repair and maintenance industry) or to human capital through training of highly qualified personnel. The impact of this type of offset is very complex to analyse since it depends on the future innovation, product or process capacity the buyer is able to develop, as well as the adaptation of what's offered to the point of existing technology in the country and the commitment to develop externalities resulting from the transfer.

What is very well reflected in this point, is the difference between the cost of technology generation fully assumed by the vendor (since it has undertaken all prior R&D investment) and the value transferred to the buyer subject to its future potential in innovative development and the degree of novelty (cutting-edge tech) of what is transferred. Transfer of flight certificates or ratings such as those made by EADS-CASA in Colombia may exemplify the potential impact of these externalities.

⁴ The EU's "Green Paper in support of inclusive growth and sustainable development" claims: *"Scientific and technological cooperation and capacity-building, as well as investment in knowledge, innovation and new technologies can play a key role in fast-tracking inclusive growth and taking people out of poverty"*, as the document is describing precisely the partnership for inclusive growth, involving private sector stakeholders (European Commission 2010:12).

However, again there are suspicions that what is transferred in offsets is not always the most innovative as it is a factor of vendor competitiveness loss⁵.

In sum, the impact of this second type of offset is clearly determined by the value of externalities it leads to. A very important aspect at this point is the possible applications in the civil sector of what is received within the military industry. The dual-use material is what best exemplifies this area (transport aircraft that can be used for troops or civilians rescue in humanitarian emergency operations, for instance)⁶.

The third type are offsets that go further from the defence industry and are designed for compensation through social projects. The example of pharmacological research of diseases prevalent in the troops of Colombia and Brazil (leishmaniasis) conducted by a Spanish university within an offset designed by EADS is a good example. Although we haven't been able to document many projects of this type operating in the health, education, nutrition and food security sectors in the buying countries, it's true that they could benefit if the goal is to influence the receptor's human development more directly. In general, all offsets that may contribute directly or indirectly to greater security in the country, would be generating higher human development without having a clear or intentional effect on the GDP. This would be the actions taken within the triad that the World Bank (2000) identified as major development drivers: opportunity, empowerment and security. The challenge that still remains is to document and prove that offsets and what type of offsets, have actually led to greater national security. While investigating this dimension, there are authors who maintain a rather sceptical stance on the matter (Dumas 2004; Taylor 2004) if not openly critical⁷. As recognised by Brauer (2004:58) and Matthews (2004:97) this poses a challenge to the very little empirical evidence there is on offsets⁸. Given the relational nature of offsets it seems likely that the evidence contribution burden of offset impacts falls on the buying country, firstly because it is the public part of the public-private partnership and secondly, because it is their tracking system who can collect and disseminate

⁵ Matthews (2004:99) comments “*Yet, US evidence suggests that American Offset-related technology transferred in 85% of the cases was over 10 years old*”.

⁶ See Matthews (2004) for a description of the results chain of technology transfer in terms of Offsets appropriateness, absorption capacity (which is influenced by the initial state and existing technology clusters, as well as creation of skills and abilities and intellectual property rights), competitiveness (R&D policy, science and technology local policies) and the ultimate goal (sustainable domestic technological development).

⁷ “*To date, evidence does not suggest that offsets increase countries' long term economic or military goals. To summarise this evidence, it is now quite clear that offsets do not result in arms acquisition cost reductions, that offsets do not stimulate broad-based civilian economic development, that neither substantial nor sustained job creation occur, not even within the military sector, that almost no successful technology transfer into the civilian sector is observed, and that only limited technology transfer into the military sector occurs, often over decades and at a high cost*” (Brauer and Dunne 2005:13).

⁸ “*The evidence is weak...Anecdotes abound, but case Studies are few, and none are comprehensive in the sense of an economic audit. That would assess all costs and all benefits to all people*” (Brauer 2004). It's surprising that such statement actually remains true almost a decade after its publication.

information on jobs created, civil use of the material, public revenue or externalities –even in a qualitative/descriptive way– generated by the offset.

OOAA from the vendor's perspective (provider).

The offset vendor or provider may consider compensation as a marketing tool to win purchase tenders of defence equipment. From a strictly business perspective, their strategy is to try to minimise the offset cost (perhaps maximising their value) so that its operating margin from the sale of defence products is as large as possible. The offset is still overvalued for the provider, but it's also accepted – either for "custom" or general use– but also as an opportunity window to continue a relationship with its client and to obtain future contracts. From this angle, the quality of offsets that can be negotiated can be targeted to promote human development.

Of the three types of offsets described above, the less attractive could be those related to workload or outsourcing, since they force to a displacement of production from where the market offers the best low cost opportunities for buying countries.

Technology transfer offsets can encourage stronger future partnerships for joint research and production or the creation of joint ventures between companies. The vendor, through the offset, can try to continue to provide goods and services such as repairs, continuous training, upgrades of earlier equipment versions sold, etc. so that profit generated by the sale of defence equipment is increased.

Finally, "social" offsets can pose business partnerships of defence companies with companies of other areas (health, education, civil security, etc.) leading to mutual spillovers.

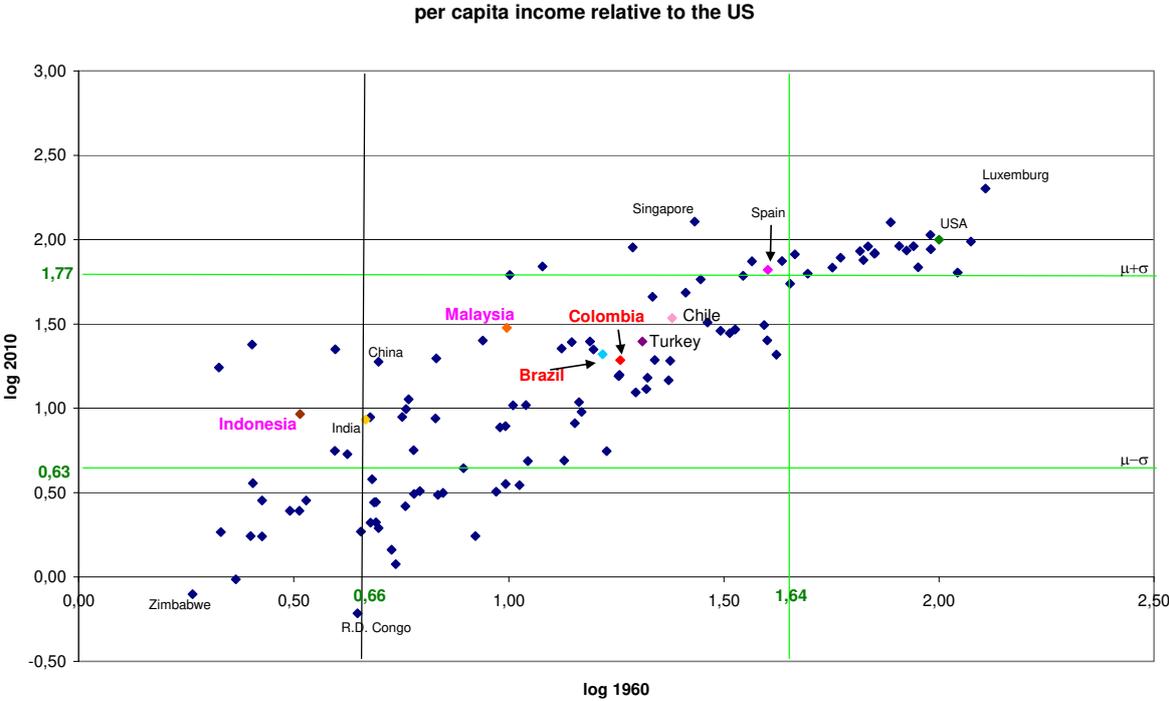
Given the characteristics of offsets, the main buying countries are middle income or high income countries looking, in major defence, the best provision of material they consider necessary for national defence. After analysing the possible impacts on the development of buying countries, we can divide them into two groups. Some of the high-income countries, only demand workload or very specific technology transfers. For EADS clients these would be the UK, Finland, Australia and Portugal.

The other group consists of middle-income countries who gather the three most common offset types. It's interesting to realise how offsets can be an innovative mechanism acting as a lever or catalyst in the process of structural and institutional change needed by middle-income countries, and are a phenomenon known as the "middle-income countries trap"⁹.

⁹ Literature on the subject highlights the need to increase investment in knowledge to achieve externalities that will diversify production that allows to escape from this trap (ECLAC 2011; Agenor & Canuto 2012, Lin & Treichel 2012; Jankowska et al. 2012) as well as encouragement to collaborate in public-private partnerships (ECLAC 2011 and Lin & Treichel 2012) of which offsets can be an opportunity that might become reference.

As seen in Figure 2, segments are formed by the average plus and minus the standard deviation of the logarithm of GDP per capita in relation to United States' between 1960 and 2010. The cloud of points drawn in the middle could be considered as the group of middle-income countries facing the institutional and structural economic challenge of getting out of the “trap” created by an initial phase of rapid growth, often based on poorly diversified exports of low value-added industries, extractive industries, and in any case, a cheap, poorly qualified workforce as compared to the productive workforce of middle-high income countries. As low-income countries leave the primary growth model and intensive export in low wages, they need to incorporate more and better technology for their new industries. This structural change is not easy and this is where offsets could be very efficient development tools.

Figure 2. Middle-income countries with a potential to use offsets in a developmental way.



Source: Author’s elaboration inspired by The Economist (2012). Data from Penn World Tables 7.1.

Many countries framed as potential candidates for overcoming the trap of middle income countries are members of the public-private partnership with EADS. The most notorious cases may be those of Colombia and Brazil in South America, and Indonesia and Malaysia in Asia. This reality is what motivates the more in-depth analysis of impact on offset development in Colombia and Malaysia.

3. EADS-CASA OFFSETS IN COLOMBIA (AND MALAYSIA).

EADS-CASA is a multinational company part of the Airbus Military group. It has its own code of ethics (EADS 2010) and regulations to prevent insider trading (EADS 2013)¹⁰. To date it has maintained offset contracts in 18 countries. With the most developed countries it has workload offsets (the United States, Canada, France, UK, Belgium, and Germany) as well as with other middle-income countries: Poland, Turkey, Chile, Malaysia, Indonesia and South Africa.

It has also maintained technology transfer offsets with Colombia, Brazil, Czech Republic, United Arab Emirates, and Finland in addition to, Portugal, United Kingdom and Poland where there is a combination of two offset types: technology transfer and production outsourcing.

We have chosen one country to analyse in more detail the potential effects on development of each type of offsets: Colombia for technology transfer and Malaysia for workload.

The two countries are classified by the World Bank as upper middle income and as you can see in Figure 1, both are located within the quadrant called the middle income trap.

Still, there are significant differences between the two, not only geographical but also economic and within the science and technology system structure. Table 1 shows a few indicators of interest of both countries, adding data from Brazil and Indonesia acting as comparable countries to Colombia and Malaysia respectively.

Table 1. Socioeconomic indicators of Colombia and Malaysia.

	BRAZIL	COLOMBIA	MALAYSIA	INDONESIA
R+D(% GDP)	1,00	0,15	0,59	0,10
Researchers (per million people)	695,70	157,20	364,60	89,60
GP military (% budget)	6,63	16,49	11,13	
Public spending military (2010) (%GDP)	1,62	3,60	1,60	0,70
Public spending: health (2010) (%GDP)	4,20	5,50	2,40	1,3
Public spending: education (2010) (%GDP)	5,70	4,80	5,80	3,00
net ODA (%GNI)	0,03	0,46	0,09	0,20
FDI (%GDP) 2007-2011	2,70	4,00	3,90	2,1
IDH (2012) rank	85	91	64	121
IDH (2012) value	0,730	0,719	0,769	0,629
GDP per capita (2011) (2005 PPP \$)	10.278	8.861	13.672	4.094

Source: UNDP (2013).

¹⁰ In February 2013, the ETHIC Intelligence agency awarded EADS a certificate on the design of its Anti-Corruption Compliance Programme.

The first two rows of Table 1 show science and technology system indicators. Colombia makes significantly less effort in R&D than Malaysia (0.15% of GDP compared to 0.59%), with Brazil being the most noteworthy in this variable. Differences continue by observing the number of researchers per million inhabitants. It seems clear that Malaysia is ahead of Colombia in research capacity, and perhaps may be in a better positioned to absorb technology.

The next two rows show the military public expenditure and compared to other social expenditure (health and education). In this case, Colombia far exceeds the other countries, both in military expenditure on the public budget, as on GDP. While Colombia is the country with more expenditure in health (5.5%), it is not the case in education, with Malaysia making the most effort (5.8%). The association between educational expenditure and technological absorption capacity is tight, yet not direct as it would be necessary to disaggregate educational expenditure (detailing on what goes to tertiary education) and to know the external flow of researchers who can be attracted by each country, among other explanatory variables.

With respect to external financing, there are few differences in the arrival of FDI flows (4% of GDP) and none of the countries considered is highly dependent on development aid (although in the case of Colombia, U.S. aid regarding “conflict, peace and security” with an average of \$26.6 million in 2007-2010 (DAC 2012) stands out). In an international environment of strong decline in the contribution of ODA to developing, finding alternative sources of development generation such as offsets seems to be a good opportunity if you know how to design and manage this developmental perspective.

Finally, the table provides data on ranking and value of human development index and per capita income. It is these variables which have the biggest differences. Indonesia lags behind in both development and per capita income, and Malaysia has an income 1.5 times higher than Colombia's.

These data provide a basis for the hypothesis that the higher level of development, the higher the ability to absorb benefits in terms of offset development –especially technology transfer and spillovers derived from it–, which generates the concept of offsets as efficient development tools but after a certain threshold. Either through workload (which requires human capital, business organisation and the capacity to absorb technology based on learning by doing), or through technology transfer, where political (Department of Defence) and private (offset participating companies) decisions show a firm commitment of absorption, innovation and realisation of potential externalities incorporated into the offset, in a physical, human, social and technological aspect.

EADS offsets can show what we mean.

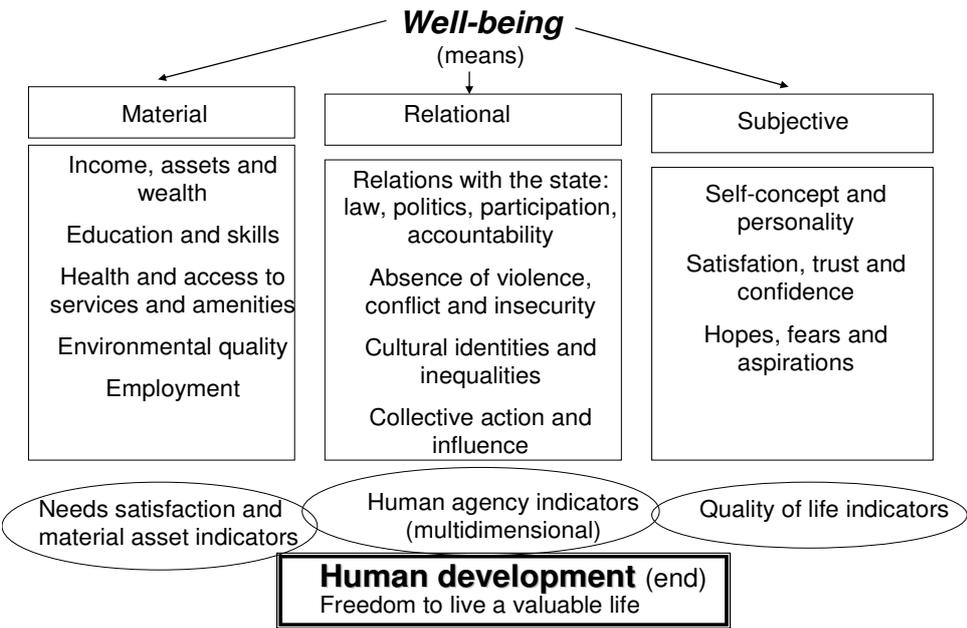
In Malaysia there have been offsets involving the outsourcing of aircraft and helicopter components. They are therefore workload offsets, but they have brought externalities such as the development of

carbon fibre manufacturing plants or the innovative application by the CTRM Company to other components and aerospace sectors such as automotive and marine¹¹. In addition to jobs created – which contribute to GDP growth and development from increasing assets to meet needs– we must also think of the revenue derived from these businesses (both direct, in the form of corporate tax and income of workers, and indirect), and the contribution to the balance of payments derived from exports of these goods.

Furthermore, CTRM has developed a production line directly related to homeland security consisting of unmanned aircraft and helicopters, the UAV or Tactical Unmanned Aerial Vehicles, RADOMEs¹², and movable bridges (alvis bridging).

Given this reality of productive diversification and highly competitive positioning of CTRM, workload offsets can be described as successful and contributing to Malaysian development. Not only economically via increased production, but in human security being already its own manufacturer of material contributing to the country’s defence and security. Both the material and the relational ways of development have been increased, as set out in Figure 3.

Figure 3. The three-way influence of welfare on human development.



Source: Author’s elaboration and Sumner (2012).

¹¹ See www.ctrm.com.my

¹² RADOME is a sphere shape structure built to protect the radar antenna or radar dish from damaging environment elements that might affect the radar performance. CTRM was awarded a contract to design, manufacture, supply, install and commission 2 units of RADOME for the Royal Malaysian Air Force or RMAF.

For its part, offsets in Colombia have been the technology transfer type, as summarised in Table 2.

Table 2. EADS offsets in Colombia.

Agreement	Content
01/09. Creation of an Airworthiness Department	Training 4 Colombian technicians in NIAT (National Institute for Aviation Technology) and Master in certification and flight testing (conducted by ETSIA) Once the Department is created, support will be given for 3 years.
02/09. Improvement of Metrology capacity	Expansion of CAMAN capabilities (Maintenance Air Command) using equipment and training in Metrology.
03/09. Implementation of a maintenance centre for hydraulic-mechanical components	Training, advice and counselling on the creation of the Aircraft Centre C-212, CN-235 and C-295.
04/10. Training in design and manufacture of Unmanned Aerial Vehicles (UAV)	Training 4 technicians and integrating them to the ATLANTE programme carried out by EADS.
05/11. Implementation and development of MITS Platform (Multimedia Interactive Training System) of aircraft C-295	Outsourcing a Colombian company for the development and operation of business computer courses from MITS.
Transfer of technology to study recurrences, failures and resistance in Leishmaniasis patients in the Public Force (CEU Agreement - Directorate of Military Health)	Finding a marker for prediction of early response to treatment, study of the metabolic and biochemical characteristics of Leishmaniasis strains, technology transfer for the study of such strains and enrichment of Colombian bank for genotyped indigenous strains.

Source: EADS projects.

Following, a valuation of these agreements according to the criteria of relevance, appropriation and alignment, as defined by the OECD (OECD-DAC 1991, 2005).

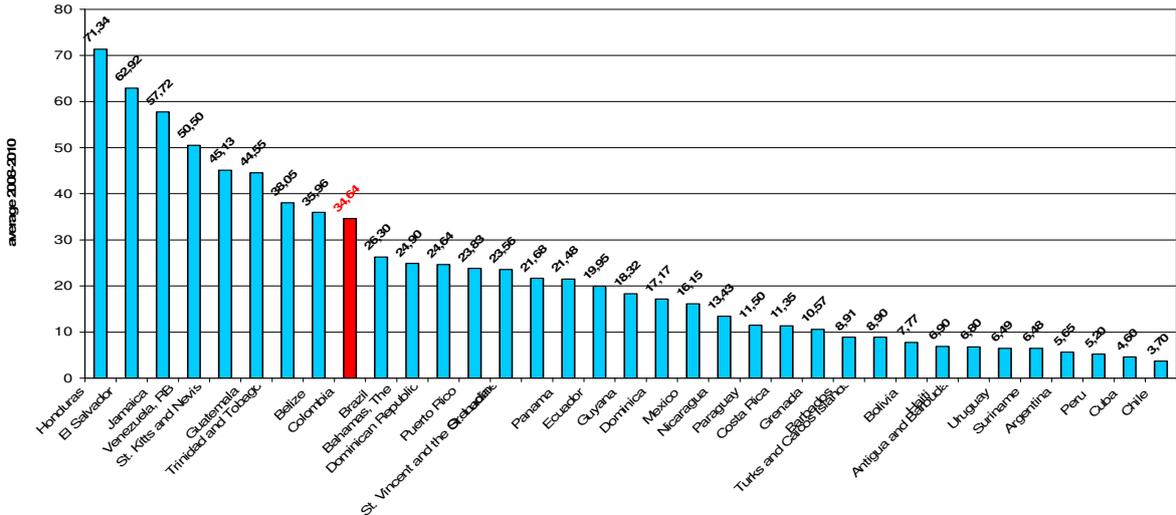
A. Relevance.

In terms of relevance, conceived as "assessing the adequacy of an intervention's objectives to the context in which it takes place" (OECD-DAC 2002), the valuation is very high.

It's clear that Colombia is a country which needs to strengthen human security in terms of development. It is estimated there are between 3.6 to 5.2 million people displaced (CIA Factbook

2012) by the civil conflict which has already lasted over 40 years. Since 2006 more than 31,000 paramilitaries have been demobilised but the FARC presence, along with the production of illegal drugs is still the main problem in the country¹³. Although it is the ninth country in Latin America in terms of murders per 100.000 inhabitants (34.64 in average during 2008-2010, Figure 4), and the evolution has a very decreasing profile since 2002, it still has rates significantly above the continental average (Figure 5).

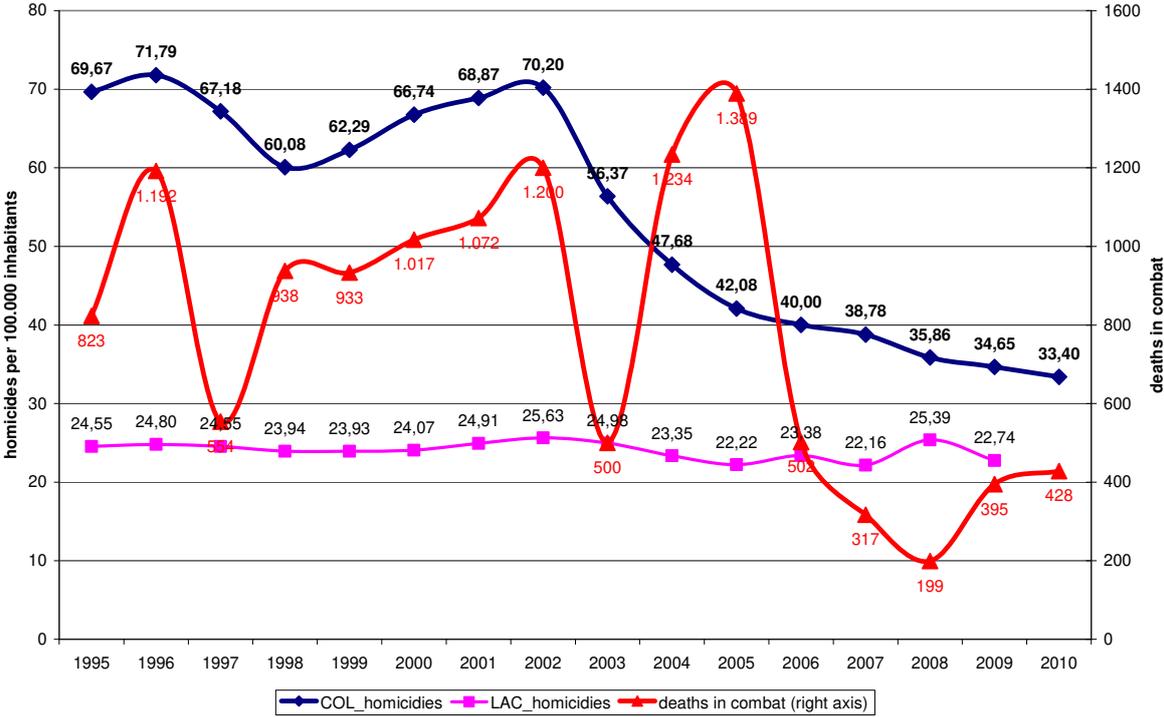
Figure 4. Homicides per 100.000 inhabitants. Average 2008-2010.



Source : World Development Indicators 2012.

¹³ International Cooperation Strategies 2007-2010 and 2012-2014 establish these demands as a priority (see ACP 2007 and 2012). In the case of the 2007-2010 Strategy, priority 3.2 was "Fight against the world drug problem and environmental protection" and 3.3 was "Reconciliation and Governance". In the current edition of 2012-2014 in section "Demand Areas for International Cooperation", 2.5 is "Governance" and 2.6. "Victims, Reconciliation and Human Rights". Note that these documents establish the priorities of International Cooperation, a concept which is different from Official Development Assistance. In International Cooperation you can incorporate Defence Cooperation, legitimately, while the ODA concept is excluded, for example, military aid. In fact the OECD DAC establishes the following criteria for calculating ODA: (1) Military equipment and services attached to military operations and debt forgiveness by military reasons is excluded. Additional costs for the use of armed forces as dispensing humanitarian aid or development services are considered ODA. (2) Peacekeeping operations. Items related to enforce peacekeeping agreements, are not counted as ODA, but net bilateral costs incurred by donors to carry out operations administered or approved under UN such as monitoring election processes, actions in favour of human rights, national infrastructure rehabilitation and demobilisation of soldiers, monitoring and training local administrators including customs and police officials, disarmament and elimination of anti-person mines. By "net bilateral costs" we must understand the extra cost of assigning personnel to these activities, net of per diem and other benefits they may be received from the United Nations. Similar activities (such as military training for mine clearance) are not listed as ODA. Treatment to similar actions not carried under UN administration, count as ODA but not within the "Peacekeeping Operations" area. (3) Training police officers. Considered ODA unless paramilitary training or counterinsurgency work. Direct support to police by the donor to control civil disobedience in the recipient country is not considered ODA. On the other hand, offsets analysed here are referred to in the agreements as "Industrial and Social Cooperation Projects."

Figure 5. Insecurity in Colombia: intentional homicide and combat casualties.



Source : World Development Indicators 2012.

Both the International Cooperation Strategy 2007-2010 and the namesake of 2012-2014, indicate safety as a priority. In Strategy 2007-2010 –period in which agreements were signed– of the three priority areas found, the second ("Fight against the world drug problem and environmental protection") and the third ("Reconciliation and governance") are directly related to safety. In Strategy 2012-2014 –currently in place– areas of demand and provision of international cooperation are differentiated. Among the 6 areas of demand, "Governance" and "Victims, Reconciliation and Human Rights" are included.

It's clear that the six agreements signed have had a direct impact in terms of security and defence and this is undoubtedly one of the national priorities in terms of development.

In regard to the bidder, EADS CASA is a company clearly oriented to the defence industry and has provided know-how, training, –both formal and informal–, consultancy and premium technology, either through its own personnel or, when it has outsourced services included in any of the agreements, through public (CSIC, ETSIA) or private (CEU San Pablo University, Multimedia Services) institutions who are specialists in the subject matter of the demand.

B. Ownership.

Ownership refers to how institutions of the country demanding international cooperation, exercise effective leadership on development policies, strategies and interventions. It also analyses the coordination among cooperation offering parties.

In the present case it's clear that all agreements' initiative has come from the Ministry of National Defence of the Republic of Colombia and so it's been stated in the agreements in which the parties are the Ministry of National Defence, represented by the Minister, and EADS CASA representative in Colombia. Agreements were signed by the Industrial and Social Cooperation Group Coordinator, by the Director of Planning and Budgeting of the Defence Sector, by the Directorate of State Procurement Advisor and by the Director of State Procurement of the Defence Ministry.

Offsets analysed refer to the Master Agreement signed between the parties which generates an Industrial and Social Cooperation equal to 100% of the total sale of aeronautical equipment provided. Each project has undergone "Eligible Activity" pre-qualification as per Colombian protocols for offset agreements and are monitored by personnel from the Ministry of Defence. Furthermore, recognition of the obligations addressed in terms of offsets (sort of invoice or acknowledgment of the agreement section satisfied) are also signed by the Colombian staff credited for it.

In summary, offset agreements, at least in the Colombian case being evaluated, are a highly rated instrument in terms of appropriation. Initiative, monitoring and completion of the contractual obligations under each agreement for industrial and social cooperation, are ratified by national personnel who have leadership at all times of the intervention.

C. Alignment.

One of the most frequent criticisms of international cooperation interventions in the form of foreign aid is that they tend to create parallel structures for management, monitoring and evaluation, forcing to use the bidder country's standard formats instead of using the recipient country's national procedures.

Alignment analysis –as a quality criterion of international cooperation emphasised in the High Level Forum on Aid Effectiveness in Paris (OECD-DAC 2005), Accra (OECD-DAC 2008) and Busan (OECD-DAC 2011)– should reflect the commitment of the bidders to provide their assistance and consider participating in strategies, management systems and procedures of the demanding countries (receptors). This criterion is important because duplication and parallelism of structure management raise transaction costs and make international cooperation interventions less efficient, weaken the appropriation and leadership of national policies and tend to generate external dependence (Knack & Rahman 2004; Economides et al. 2006, Kimura et al. 2012, Manning 2012). Although in recent years

there has been some improvement in these aspects (OECD 2007) there is still much room for improvement in the 'classical' instruments of International Development Cooperation.

Another controversial aspect of international cooperation interventions has been the conditionality of some interventions in terms of economic policy and binding of returns through the acquisition of goods and services of the offering country (Jepma 1991; Cordella y Dell'Araccia 2002; Temple 2009; Ranis 2012).

With regard to offsets discussed herein, none of these problems has been detected. Agreements derived from Industrial and Social Cooperation always use the demanding country's procedures, both in terms of forms, law, accounting, monitoring and evaluation. In offset agreements, each country sets its rules, practices and procedures on a discretionary basis¹⁴. In the present case, information and transaction costs are low, as negotiation and establishment of the trade terms are established bilaterally between the Ministry of Defence and the offset provider company.

The delivery monitoring and control justifying each offset credit is made by mutual consent according to the terms stipulated in each agreement and are always simply verifiable (training provided through certification by the training entity, airline tickets, lodging bills or service delivery, etc.). If disagreements arise they're resolved bilaterally between the parties, but this is unusual because each derivative agreement explains the rights and obligations of the provider and the demander, establishes the procedure and the responsible for supervision, and the penalties or fines for noncompliance.

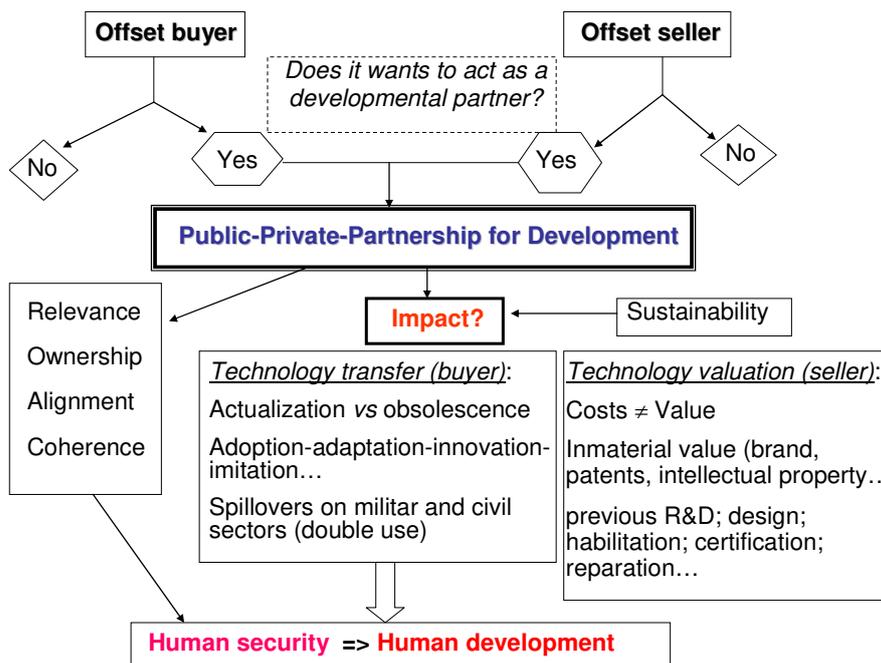
In summary, offset agreements, as instruments of International Cooperation (industrial and social), – at least in the case of Colombia we're analysing– are displayed as high relevance, appropriation instruments with national priorities and national leadership, all OECD recommendations for effective international cooperation. Furthermore, using national procedures and bilateral monitoring and verification systems, they incur in low transaction management, monitoring and operation control costs, without creating parallel structures as often criticised of Official Development Assistance projects and programmes, for instance. In offsets there's no place for a "good intentions cartel" (Easterly 2002, 2006, Moyo 2009) but very inefficiently, because basically they seek other interests outside national development of the recipient, and there are problems of coordination, duplication and lack of complementarity between some interventions that often respond to an "offer" logic rather than actual demand of the recipient country.

¹⁴ See CTO (2012) as a guide to offsets regulation in 83 countries.

D. The problem of assessing impact in terms of development.

Much more complex it is to assess impact, not so much in economic as buyer and vendor reach an agreement, even in monopsonistic (Ministry of Defence) and oligopoly (defence equipment providers) structure markets, but in terms of human development through a hypothetical greater human security in the buying country.

Figure 6. Offsets flowchart and human development impacts.



Source: Author's elaboration.

As shown in Figure 6, if both parties opt to enter into a cooperation agreement for development, the criteria described above appear to be necessary but not sufficient to say that an offset has generated greater human development. Relevance of the acquisition, appropriation in terms of development priorities led by the buying country, alignment with the national defence system, investment and government procurement, and consistency of the offset acquisition are not guarantee of impact or its sustainability in the medium and long term.

To be able to say with greater likelihood that an offset has been a development generator we would have to address the valuation of transferred technology (somehow extra cost for the provider, but still a compensation for the offset originating sale), as well as the application, absorption and use of technology transmitted to the buyer.

In the case of Colombia, this identification of impacts would go, for example, to being able to check and detail the effects of airworthiness after completion of three years of support by the provider and

with a view to the creation of a national system of certification and aerial enabling –both military and civilian–, including implementation and transfer of training offered to technicians who have participated in such training and that could prove that it has led to increased security (at least air) for Colombian citizens.

For the implementation of the multimedia platform and support and demand for specific services to the participating company, impact could come from...

Although the Leishmaniasis Research Project is perhaps one of the clearest examples of contribution in terms of human and social development, it was not developed in the end.

The challenge to quantify its value, detailing the actual effects in the medium term and describing changes that have occurred against having signed the offset agreement remain outstanding. In short, this is the most relevant question, offsets counterfactual in terms of human security.

4. CONCLUSIONS AND EXTENSIONS OF THE INVESTIGATION.

In this paper offset agreements have been presented as industrial cooperation instruments of the defence sector and potentially generators of human security increase and human development through a relational vector.

Through the cases of Malaysia and Colombia, we have described the two most common types of offsets: those involving production externalisation with increased workload on the buying country (Malaysian case) and those characterised by technology transfer (Colombian case).

EADS offsets in Colombia have been assessed as high relevance, ownership and alignment in terms of what the OECD considers effective principles of development effectiveness.

The remaining challenge still pending is to demonstrate and –to the extent possible– to quantify impact of these offsets in terms of greater human security in Colombia. This requires more detailed data on jobs created by the offset, transmission of knowledge performed in trainings, externalities arising from ratings and certifications. Without such data, stating that offsets have caused increases in Colombia's development and security remains a hypothesis. As several authors argue, "*the economic impact of offset policy remains shrouded in mystery*" (Matthews 2004:95), "the negative security consequences of offset arrangements...have [distortive] economic consequences in the longer run (Markusen 2004:79) since "*empirical evidence on offset deliverables remains sketchy*" (Matthews 2004:97).

It is likely that the burden of empirical proof and greater transparency and access to data can be placed on governments buying defence equipment since they are financed with public resources, although providers may also design a monitoring system that includes enough information to know impact in terms of their sales development. Thus, public-private offsets agreements, may contribute with their shared example of human development, contribution of the private sector in the defence industry to human security will be clearer. At the end of the day, what a rigorous evaluation of offsets

should provide is an answer to the counterfactual of what would have happened, in terms of human development, had those offsets not taken place.

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