Regulating European defence procurements: implications and challenges

– A case study of the Swedish A&D industry on the international fighter market and the role of offset agreements.

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Abstract

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Background: When governments procure fighter jets from international suppliers, offsets frequently occur. In 2009, the European Commission issued Defence and Security Directive 2009/81/EC – a first step to incorporate the defence sector into the European single-market model. The regulation has changed the circumstances on the fighter market by limiting the use of offsets. Whether the fighter market, or the defence sector, is able to adjust to these changes remain unanswered.

Purpose: The purpose of this study is to investigate and analyse the role of offsets in procurements of fighter jets, to get a better understanding of the present situation at the fighter market where the EU attempts to ban offset agreements.

Research method: This study uses a qualitative method. Seven interviews with employees at Saab Aeronautics were carried through. In addition to the interviews, a literature study was conducted on defence markets, offsets and the European context. The gathered material was thereafter analysed with selected theories of institutional and transaction cost economics, as well as previous research in order to fulfil the purpose of the study.

Conclusion: The study concludes that offsets can be seen as a by-product of the existing market imperfections and political transactions, and therefore a natural component in procurements of fighter jets. Certain forms of offset can be used by purchasing governments to neutralize existing market imperfections and lower the transaction costs. However, this is only one dimension to offsets since they may appear in several forms with different purposes and risks attached to them. The institutional change on the European fighter market will produce both winners and losers in the years to come. Whether eliminating offsets will lead to a more open and transparent fighter market remains ambiguous.
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Oscar Kvanme and Maximilian Stegö Chilò

Linköping, May 2016
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### Abbreviations

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<th>Full Form</th>
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<tr>
<td>A&amp;D</td>
<td>Aerospace and Defence</td>
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<tr>
<td>BDSV</td>
<td>Bundesverband der Deutschen Sicherheits- und Verteidigungsindustrie</td>
</tr>
<tr>
<td>CISB</td>
<td>Centro de Pesquisa e Inovacao Sueco-Brasileiro</td>
</tr>
<tr>
<td>DG MARKT</td>
<td>Directorate General Internal Market and Services</td>
</tr>
<tr>
<td>FMV</td>
<td>Försvargets materielverk</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>IC</td>
<td>Industrial Co-operation</td>
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<tr>
<td>IFBEC</td>
<td>International Forum on Business Ethical Conduct</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>OEM</td>
<td>Original Equipment Manufacturers</td>
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<td>TFEU</td>
<td>Treaty on the Functioning of the European Union</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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<td>WTP</td>
<td>Willingness to pay</td>
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1. Introduction

Countries looking to conduct international defence procurements are usually not subjected to the competition rules of international trade agreements as the acquiring of defence materiel\(^1\) concerns national security. Purchasing governments are consequently able to place additional, unorthodox requirements of economic compensation on selling companies in the bidding process of a defence procurement. Such a requirement is commonly referred to as an offset – a side agreement to a main contract representing the purchasing government’s demand for reciprocal benefits (IFBEC, 2015; Matthews & Ansari, 2015). These agreements consist of transactions of various benefits and economic activities, not necessary related to the procured goods or even defence (Brauer & Dunne, 2004; Taylor, 2003). Previous cases of offsets have included transactions closely related to the main contract, such as a co-production agreement of the purchased equipment, as well as completely non-related transactions. For instance, the promotion of local olive oil or establishment a domestic airline (Schoeni, 2015). Some therefore distinguish between direct and indirect offsets\(^2\), or related and unrelated to defence, while others apply different terminology to describe the reciprocal arrangements (IFBEC, 2015). Given the variation in content, and a lack of uniform definition, offsets will be treated as “additional agreements to a main contract, defining transactions of economic activities demanded by purchasing governments” going forward.

There are many sides to offsets and the outcome of them varies considerably. Some of them channel structural inefficiencies into the global economy, while others are efficient and welfare enhancing even though coming at a high cost (Udis & Maskus, 1991). Either way, they are controversial. Offsets may be interpreted as a form of coercion since they have been said to influence purchasing decisions more than the price and quality of primary defence product. Such reciprocal trade facilities could therefore not only be distorting to trade, but also come at the risk of corrupting practices (Matthews & Ansari, 2015). European defence markets have been an exception from the European Union’s single-market principles of economic liberalization, openness and transparency in the past (Matthew & Ansari, 2015). As procurements of defence materiel have laid outside the scope of the European Commission’s

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1 Defence materiel refers to the products produced by the defence industry; i.e. military equipment such as arms or weapons, and products of dual purposes (civil and military).
2 Related or unrelated to the main contract. Offsets unrelated to defence are often compared to traditional countertrade and barter (Ahlström, 2000).
procurement regulation, Member States have been able to require the otherwise prohibited offsets for country-specific interests. Such procurements have undermined the EU’s policies of the internal market since offsets are believed to be a distortion of competition (DG MARKT, 2009a). Offset have been said to influence price, have a regulatory and protectionist effect, and put unnecessary obligations on suppliers (BDSV, 2016). Having said that, at the global level the use offsets have steadily been increasing during the last decade. The consultant firm Avascent estimated that offset obligations will reach $500 billion through 2016 (Avascent, 2012).

During the 2000s, questions started to be asked to why the defence sector should not be a subject to the same single-market principles and competitive reform process applied to the European civil sector (Matthews & Ansari, 2015). In 2009, the EC made an effort to eliminate offsets in defence procurements between EU Member States, as well as indirect offsets from selling companies outside of the Union, by issuing a directive for Member States to implement into national law (DG MARKT, 2009a; The Economist, 2013). Defence and Security Directive 2009/81/EC (hereinafter referred to as Directive 81) sets out to liberalize the Member States’ traditionally sovereign defence sectors in favour of Pan-European procurements. The directive can be interpreted as a first step to evolve a “free market” in defence, equivalent to the European single-market in the commercial sector (Matthews & Ansari, 2015). By regulating Member States’ procuring procedure and forbid the use of offsets, the EC aims at opening up the internal defence market to improve competition, market integration and transparency in Member States’ defence procurements (DG MARKT, 2009a). Although Directive 81 allows for purchasing governments to request offsets on the basis of security of supply, the DG MARKT (2009a) of the EC note the following on offsets in a guidance note to Directive 81:

> Whether they are civil or military, direct or indirect in nature, and whatever their legal connection with the main contract is, offset requirements are restrictive measures which go against the basic principles of the [EU] Treaty, because they discriminate against economic operators, goods and services from other Member States and impede the free movement of goods and services. Since they violate

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3 DG MARKT: “…the guarantee of supply goods and services sufficient for a Member State to discharge its defence and security commitments in accordance with its foreign and security policy requirements. This includes the ability of Member States to use their armed forces with appropriate national control and, if necessary without third party constraints” (DG MARKT, 2009b, p.1)

4 The Directorate General of the Internal Market and Services’s (DG MARKT) main role is to coordinate the European Commission’s policy on the European Single Market and to seek the removal of unjustified obstacles to trade.
basic rules and principles of primary EU law, the Directive cannot allow, tolerate or regulate them (DG MARKT, 2009a, p. 5).

1.1 Problem discussion

The Aerospace and Defence Industry accounted for a majority of offsets (49 percent) during the 2000s (Taylor, 2012), making it the foremost relevant defence industry in the context of Directive 81. Udis and Maskus (1991), Wessner and Walff (1997), and Ungaro (2013) recognized that offsets are an increasingly important part in international trade of military equipment, especially in the Aerospace Industry. Furthermore, Udis and Maskus (1991, p. 163) recommend: “a serious effort to … distinguish between beneficial offsets and detrimental offsets before attempts at international control of the phenomenon are mounted”.

Directive 81 represents a formal rule change – an institutional change – set out to change way business is done on defence markets. Naturally, some market actors will end up benefiting under the new regulation, while others will not (North, 1997). Previous research concludes that defence markets are full of market imperfections and deviate considerably from traditional market models\(^5\). If the defence markets, in which offsets occur, are imperfectly competitive due to existing preconditions, would a removal of offsets improve them? This question matters in the context of Directive 81, since EU authorities strive for improved competition and transparency. Furthermore, one could also question if offsets are at-all-times detrimental or not, as suggested by Udis and Maskus (1991), or even if some components of offsets are necessary for the transfer of defence materiel.

In order to gain a better understanding of how susceptible these markets are to liberalization, we will study an actor of the European A&D industry, Saab, and the one of its prime markets where offsets frequently occur. By investigating and analysing the role of offsets on the fighter market, we seek to determine the realisms of eliminating offset within the studied area.

1.2 Purpose and research questions

The purpose of this thesis is to investigate and analyse the role of offsets in procurements of fighter jets, to get a better understanding of the present situation at the fighter market where the EU attempts to ban offset agreements. In order to achieve such an understanding, the following questions are asked:

- Why do offsets occur in procurements of fighter jets?
- What is the economic rationale for offsets in procurements of fighter jets?
- What are the implications of Directive 81 at the European fighter market?

1.3 Methodology and research delimitation

As a better understanding of a certain phenomenon is central to this study, a qualitative method was seen as appropriate to fulfil the study's purpose. Seven semi-structured interviews were conducted with employees at Saab to gather qualified knowledge, opinions and experiences of the role of offsets at fighter market. The primary data was complemented with previous research on offsets and defence markets in a literature study, to put the gathered interview material in a context. The gathered material was later analysed with selected theories, in order to fulfil the study's purpose and research questions. Since this study is a case study of the A&D industry in Sweden, the generalization of conclusions is limited. An overall appreciation of the effects of Directive 81 and the realism of an offset-free Europe will therefore not be achieved.

1.4 The contribution of the study

To our knowledge, there are few studies performed with a qualitative method within the chosen research area. Most economic studies on offsets are quantitative, econometrical studies set out to establish relationships of different variables. Moreover, little research has been done investigating the implications of regulating offsets at an international level. One contribution is therefore using an uncommon method to study a fairly unstudied aspect within the research area. A majority of the current research done on offsets focuses on the effects of them, for instance how they affect employment in procuring countries. This study rather takes a more fundamental approach to offsets, as we seek a better understanding of the existence and role of the phenomenon. This approach was motivated by the changing circumstances on European
defence markets. Naturally, most studies done so far on the recently implemented EU regulation are from a legal perspective. To our knowledge the only other economic study made on implications of Directive 81 is the one made by Matthews and Ansari (2015). Another contribution to the research area is therefore the different approach to offsets. Lastly, as this study is a case study of the Swedish A&D industry, we also see the results as contributing since a small-country perspective is generally absent from offset research.

1.5 Disposition

Chapter 1
Chapter 1 introduces the study’s topic, relevant background to the problem, purpose and research questions, as well as a short description of the chosen research method.

Chapter 2
Chapter 2 presents a literature review to put the study in a context. This chapter also presents previous research which will be used in the discussion part of Chapter 6.

Chapter 3
Chapter 3 presents the selected theories within transaction cost economics and institutional economics.

Chapter 4
Chapter 4 describes the methodology of the study.

Chapter 5
Chapter 5 presents the results from the performed interviews.

Chapter 6
Chapter 6 discusses the gathered material from the interviews with the help of selected theories and previous research.

Chapter 7
Chapter 7 presents the study’s conclusion, in which the study’s research questions and purpose are answered.
2. Literature review: defence industry, offset and regulation

2.1 Now and then: The European Defence Market

The defence industry is dominated by US and European-based firms. Together, these two regions account for 69 of the top-100 companies in the defence sector, and 84.2 percent of worldwide sales (IFBEC, 2015). In Europe, the internal defence market is of considerable importance to the European economy. EU Member States spent €186 billion on defence in 2013 (Karock, 2015) and European defence industries have an annual turnover of €55 billion, employing approximately 400,000 people (Trybus, 2014). At an aggregated level, the European defence industry covers a wide range of areas and many companies within the Union are regarded as the world’s top producers. However, the defence capacity between Member States varies considerably. Trybus (2014) divides the Member States into two groups of domestic defence industrial capacity. The first group consists of France, Britain, Germany, Italy, Spain and Sweden; which all possess a high capacity in their defence industries. The second group consists of the rest of the Member States, whose defence industrial capacity is described as little or non-existing (Trybus, 2014).

The origins of the fragmented European defence market dates back to the end of the Cold War. In times of less tension, many European countries made substantial cutbacks in their defence budgets and military expenditure thus decreased\(^6\) (Struys, 2004). This, in combination with a general increase in prices and costs, forced the European governments to face the economic realities of maintaining and supporting domestic defence industries – something that proved to be too costly for many Member States. As a consequence, the previously closed national defence markets started to open up to international competition, as purchasing governments had to prioritize affordability. Contracts were awarded on the basis of competition to larger extent in comparison to earlier when purchasing government generally favoured the domestic industry (Bialos, Fisher & Koehl, 2009). This new economic reality, in combination with increased competition from large American companies, led to a complete reconstruction of the European defence industry. Many European defence companies were forced to leave the market\(^7\), most notably the small and medium sized companies. However, some companies in certain areas managed to diversify their activities and decreased their dependency on the national market through international sales. Overall, the development of the last decades of the European

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\(^6\) See Appendix 2 for Member States’ defence budget development.

\(^7\) Struys (2004) estimates that 600,000 to 700,000 defence-related jobs disappeared between 1988 and 2001 in Western Europe.
defence market have resulted in a limited number of large companies in the defence industry, making it difficult for smaller companies to compete (Struys, 2004).

The use of offsets in Europe took off after the Cold War. They were initially used to strengthen the receiving country's industrial base, ensuring the purchasing country that they could use, maintain and repair the procured defence products throughout their life circle. Offsets were also used as an instrument for large countries to protect their national defence companies, as well as securing contracts during competition. As a consequence of the earlier mentioned lowering of defence budgets, governments started to prefer purchasing cheaper, foreign military products rather than producing the products themselves. Since first introduced on the European defence market, different forms of offsets have been developed and are used in various ways by the governments of Member States (Platzgummer, 2015).

Up until recent years, the Member States’ acquisition of defence material has not been a direct subject to the EU’s regulation of procurements (Trybus, 2014). Member States were able to require offsets as a mean to pursue country-specific economical and industrial benefits (Trybus, 2014). However, in 2009 the EC issued Directive 81 to modify the settings for defence procurements among Member States, with the long-term ambition to eliminate offsets (DG MARKT, 2009a). The directive aims at increasing economic efficiency at EU defence markets through more competitive procurements (Matthews & Ansari, 2015). The acceptance of Directive 81 has varied between Member States. Only three countries implemented the directive into national legislations on time, before the 21st of August, 2011. Not until March in 2013, all 27 Member States had completed the transposition (Karock, 2015). However, Directive 81 has created some issues. The EC fails to define what constitutes an offset in the directive (2009/81/EC), even though the ambition is to diminish them. Furthermore, the directive still allows the exemption on basis of national security though Article 346, but do not fully define what composes a countries national security interest. Instead, Member States are left with the liberty to interpret their own needs of security (2009/81/EC). This means that in order to achieve an internal defence market, the EC faces a difficult task in supervising if the directive is followed by Member States (Karock, 2015).

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8 Article 346 of the Treaty on the functioning of the European Union (TFEU) consider the protection of classified information. It is only the Member State’s fundamental interests of national security that supports the usage of the exemption on the basis of Article 346.
Finally, companies within the defence industry generally produce high-technological products of dual-use purposes, i.e. goods that could be used for defence- and security purposes, and/or civilian purposes. Defence related products may therefore be only one of the defence companies’ main activities (Trybus, 2014). The A&D industry, an industry of dual-purposes, is described as one of the more polarized defence industries in Europe. Among the Member States, there are three countries with industries capable of manufacturing fighter jets and selling them as prime contractors (Chagnaud, Mölling & Scütz, 2015). Although there are a limited number of countries with industries capable of producing final products, the production process usually involves several separable producers. These producers, or subcontractors, exist to a certain degree in all Member States. As there are more producers in the lower stages of the production chain, competition is naturally tougher (Trybus, 2014). The A&D industry is characterized by a high level of technological intensity. According to OECD data, the A&D industry is at the top among industries in those terms. It presents the highest overall R&D expenditure in terms of production and added value, as seen in Appendix 3 (OECD, 2009).

Eliasson (2010) reasons that the high technological intensity within the industries creates a technological cloud, which the surrounding companies can benefit from if holding the right competence. He refers to these benefits as spill-over effects, and argue that they are means of economic development. Governments may reach such development through governmental procurements. Governmental procurements of privately demanded public goods and services should be thought of as a potent industrial political instrument rather than being associated to the distorting effects of subsidies, according to Eliasson (2010). The private willingness to pay (hereinafter referred to as WTP) for public goods and services, e.g. defence may, however, not correspond with the political WTP. The market therefore has a democratic task. Eliasson (2010) argues that the informing of citizens is important in governmental procurements. The citizens should be informed of what is being offered and if they get their money’s worth. Eliasson (2010) exemplifies the potential of spill-over effects by Saabs procured development of the Gripen system. As an example of joint production, the Gripen project became a technology driver for Swedish industry and economic development.

**2.1 Offsets as a part of the defence procurement**

Brauer and Dunne (2004) argue that there are two extreme forms of acquiring defence materiel for a country. Governments can either produce and purchase the desired products domestically, or explore international markets for “off-the-shelf” purchasing from foreign suppliers (Brauer
Governments are likely to import if the desired products are not available domestically, or if the domestic defence industry is not competitive in terms of price, quality and/or technology (Taylor, 2003; Brauer & Dunne, 2005). This is the case for a majority of procuring governments, according to Brauer and Dunne (2004). However, as mentioned earlier, these are only two extremes. In-between they lay various possibilities of different levels of involvement for purchasing countries. Consequently, when governments proceed to import, a search is usually conducted on the international market for a best total offer involving an offset rather than the best product in terms of price and quality (Ahlström, 2000; Brauer & Dunne, 2005).

Offsets are not unique for defence markets, even though they are often associated with them. A defence offset occurs in government purchases of defence material from a foreign seller. An offset appearing in a purchase of non-defence goods, is known as a civil offset. Similar to the offsets appearing in defence sectors, civil offsets most frequently occur in high technology sectors, e.g. within telecommunications or computers. Further use of the term “offset” will refer to the defence offsets (Taylor, 2003).

2.2.1 Offset definition

There is no universal consensus of what constitutes an offset (IFBEC, 2015). There are, however, various proposed definitions utilized by academics and experts within the defence industry. Brauer and Dunne (2004) note the following:

An offset is a contract imposing performance conditions on the seller of a good or service so that the purchasing government can recoup, or offset, some of its investment. In some way, reciprocity beyond that associated with normal exchange of goods and services is involved (Udis & Maskus, 1991, p. 152).

... an offset occurs when the supplier places work to an agreed value with firms in the buying country, over and above what it would have bought in the absence of the offset (Martin & Hartley, 1995, p. 125).

...are usually designed to achieve relocation of economic activity from the country of the equipment supplier to the purchasing nation (Martin & Hartley, 1995, p. 127).
Offsets are simply goods and services which form elements of complex voluntary transactions negotiated between governments as purchasers and foreign suppliers... they are those goods and services on which a government chooses to place the label “offsets” (Hall & Markowski, 1994, p. 179).

An initial distinction in the treatment of the offset can be made. Offsets may either be treated in terms of the agreement between the buyer and the seller, or in terms of the transaction specified by agreement. An offset agreement is a contract defining the components of offset package, related to a specific defence import contract. An offset transaction refers to the transfer of an activity from the seller to the buyer. Sellers claim credit for the deliverance of activities in order to fulfil the offset agreement (Ungaro, 2013).

As the sole buyers, governments have the leverage to place additional demands on suppliers (Brauer & Dunne, 2004). Trybus (2014) views the offset of a defence procurement as civil compensations for government's spending of taxpayers’ money. Even though coming at a cost, governments prefer realizing these compensations instead of bargaining for a lower price in many instances (Taylor, 2003). According to previous research, there are cases in which the offset package has been the main reason for the purchasing government to select a specific foreign seller. Selling companies therefore try to create an attractive total offer and use offsets as a marketing tool (Ahlström, 2000). However, offsets are not for free. A common price reference is five to ten percent of the main contract, although the European Defence Agency estimates it to be higher (Trybus, 2014).

Governments use offsets as a policy tool in governmental procurement (Taylor, 2003). The government’s objectives for procurements are reflected in the offset policy it holds. Ahlström (2000) finds these to be trade, defence or industry orientated. If the primary motivation of an offset policy is to balance a trade deficit in the short run, a request for countertrade is likely to occur. If the goal is to achieve a long-term industrial development, industrial co-operation within the prioritized industry are motivated in the governments’ offset policy (Ahlström 2000). The content of the offset package may therefore vary extensively. Offset transactions may take – but are not limited to – the following forms: co-production, subcontracting, training⁹, licensed

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⁹ Training related to the maintenance or production of the procured system. It could also be of indirect nature, such as engineering capabilities, computer training or foreign language skills.
production, technology transfers\textsuperscript{10}, purchases\textsuperscript{11}, investment, marketing/exporting assistance and financing activities such as credit assistance (Ungaro, 2013; BIS, 2013).

Some separate offsets from traditional countertrade and barter, while other do not. Building of the previous reasoning on offset policies, Ahlström (2000) distinguishes offsets from traditional countertrade in purpose. In the case of the former, the buyer seeks long-term industrial development through local production involving technology, while the latter rather has the focus of financing the defence procurement. Traditional countertrade or barter may involve everything from direct counter-purchases to payment for goods in e.g. crude oil. The motives behind them and problems related to them are however similar (Ahlström, 2000).

Either way, the different offset forms can be divided into two main categories – direct offsets and indirect offsets. What separates the activities related to direct offsets and indirect offsets is the point of reference. Direct offsets are directly related to the main contract – the purchased defence materiel. These offset commitments could take the form of subcontracting, training, technology transfer, licensed production or co-production. While direct offsets are centred around the core product, indirect offsets could consist of anything. They may be divided into defence-related indirect offsets or non-defence-related indirect offsets, depending on the nature of the contract. Defence-related indirect offsets are activities required by the defence industry in the purchasing country, although they are independent of the primary defence procurement. Lastly, non-defence-related indirect offsets, which are often called civil offsets, are independent from the primary defence procurement contract and separable from defence industrial sector (Georgopoulos, 2015). Matthews and Ansari (2015) adds to the above presented classifications that regardless direct or indirect, offsets can be expressed formally or informally.

\textsuperscript{10} It could be a question of technical assistance, research and development or other activities.
\textsuperscript{11} Commonly referred to as countertrade. Additional purchases are made by the exporting nation to offset the cost of initial import.
To conclude this part, it should be emphasized that there is no universal consensus on what constitutes an offset (IFBEC, 2015). A variety of offset forms have been developed and used in various ways by Member States’ governments, since first introduced on the European defence market (Platzgummer, 2015). The EC and the DG MARKT treat offsets externally in Directive 81 and the term is left undefined. This issue will be discussed in Chapter 6.

2.2.2 Previous research: The case for and against the offset

While the procurement of defence materiel could be thought of as strictly motivated by national security reasons, this may not be the case. Trybus (2014) and Platzgummer (2015) argue that countries see offsets as a way of achieving economic development. Commonly stated goals are employment creation, transferring technology and cutting costs (Schoeni, 2015). The outcome of the offset depends on whether the selling firm fulfil its obligations, as well as the buying country’s capability to absorb the demanded activities (Platzgummer, 2015). Although comprehensive data is lacking, anecdotal evidence demonstrate that offset rarely meet expectation (Schoeni, 2015). A go-to example of an offset failure are the shrimp farms provided by the radar- and missile developer Raytheon in Saudi Arabia, which went bust due to the local climate (The Economist, 2013). Brauer and Dunne’s (2004) research suggests that the offsets provide limited new or sustainable employment. Overall, experience suggests that offset succeed at a higher cost than expected, or fail entirely (Schoeni, 2015). So why do offsets appear in defence procurements? Brauer and Dunne (2004) compare offsets to the misleading concept

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**Figure 1: Modelling offsets. Reconstructed from BIS (2013).**
of a "free lunch". While the lunch certainly is free for those invited, the host still has to pay the bill at the end of the day - something that tends to be overlooked. Governments and politicians of democracies, who must justify their expenditure of public funds, become persuaded with the idea of offsets in a similar way. The offset appeals to them as it is believed to bring benefits to the procuring country, e.g. employment creation. Governments are also faced with powerful incentives to spend their defence R&D and procurement dollars at home. Contracts are often awarded to domestic defence companies by procuring governments, as defence programs also tend to be long-term projects (Bialos et al., 2009). In reality, as mentioned earlier, there is usually a price tag attached to the offset. The cost itself, as well as who actually accounts for it, tends to be left out of the discussion (Brauer & Dunne, 2004). Governments are willing to highlight the purported economic benefits of offsets but reluctant to evaluate the actual outcome, according to Brauer and Dunne (2004). According to a recent study made by Transparency International, a third of the governments using offsets neither audits them nor impose due-diligence requirements on contractors (The Economist, 2013). Higher institutions label offsets as means to non-competitive and non-transparent procurements. The WTO, EU, OECD as well as the United States, all declare offsets as trade disorienting and stifling competition (IFBEC, 2015).

The defence markets have for a long period of time been criticized of being unfair, as purchasing decisions often are based on the package that comes with an offset, rather than the primary defence product itself. Decisions to purchase military products have been followed by an offset agreement, including technology transfer, co-production or direct investments (Matthews & Ansari, 2015). As much criticism against offsets descends from it being anti-competitive and market distorting, defence markets are by nature full of imperfect conditions. Taylor (2012) views the exchange setting of defence markets as imperfectly competitive and characterized by high transaction costs. These transaction costs are the result of structures of incomplete and asymmetrical information, as well as bounded rationality. Opportunistic behaviour may arise since sellers have better knowledge of the exchanged product than the buyers. Purchasing governments are faced with complexities of contract design, implementations and ex-post monitoring in order to minimize possible opportunistic behaviour and other insecurities (Taylor, 2012).

Matthews and Ansari (2015) views the high degree of government control and intervention, as a general imperfection of defence markets. Consequently, defence markets can hardly be described as open and efficient. Export restrictions, profound oligopoly-oligopsony market
structures at the global level, the heavy bias towards international brands (based on quality, reliability and durability consideration), as well as entry barriers such as R&D expenditure are factors limiting competition (Matthews & Ansari, 2015). Following the arguments made by Matthews and Ansari (2015), offsets are just one of the many imperfections that pervade the defence markets, and perhaps of lower significance compared to other trade distorting elements.

While the selling companies are keen to maximize profits, governments have different agendas than business firms. Governments have other goals and another time perspective, as well as other rationales behind their behaviour (Boddewyn & Brewer, 1988). In addition to purely national security considerations, procuring governments are driven by a desire for domestic employment, accessing technology and the economic strength it can create, the maintenance of economic capabilities, along with the desire for operational sovereignty over key systems (Bialos et al., 2009). Taylor (2003) contends that since offsets often have mixed objectives, the political influences are of heavier impact compared to the cost-efficient reasoning's when procuring a defence system. However, Matthews and Ansari (2015) argues that there is no evidence of the purchasing Member State not making a rational cost-efficient procurement decision when purchasing defence material. Offsets form an important role of the overall acquisition package, but questions concerning the life-cycle costs and operable capability will most certainly play the biggest part (Matthews & Ansari, 2015).

Taylor (2012) argues that if the market preconditions are far away from being optimal for the theoretical free market scenario, optimal market equilibrium may still be achieved. When markets are imperfectly competitive and buyers have some form of leverage on the seller, theory suggests that there will be a price reduction on the purchased goods. Since the settings of the defence markets advocates opportunistic behaviour from the seller, and that the buyers are facing high transaction costs in form of contract design, implementation and after sale services, the existence of offsets may not be so strange (Taylor, 2003). Taylor (2003) finds offsets of subcontracting and co-production to function as an economic hostage that minimizes ex-post transaction cost in defence procurements. These forms of offset decrease the possibility of opportunistic behaviour by the seller. Since about 70 per cent of the cost of an Air Force aircraft and weaponry is composed of maintenance and repairs, offsets can be used in order to minimise these transaction costs by including activities of after sale service or services concerning maintenance and repairs (Taylor, 2003). Udis and Maskus (1991) argues that offsets can be viewed as a "second best choice" for countries which are lacking domestic industrial capacity, since offsets can help to establish some form of industrial structure. Schoeni (2015)
references Lipsey and Lancaster’s (1957) theory of second best\textsuperscript{12} to describe offset’s function on defence markets. According to Schoeni (2015), offsets may be seen as the optimal equilibrium on defence markets, since they are full of market imperfections.

Matthews and Ansari (2015) observe a desire from smaller Member States to maintain offsets in defence procurements, since many of these countries’ defence industries are dependent on offsets in order to sustain. Matthews and Ansari (2015) further argue that Directive 81 may be too strict, since countries that are dependent on offset need time to diminish their dependency. They identify a predicament with Directive 81 and the banning of formal offsets. Since offsets often are motivated by national security interest, the risk is that offsets will be driven underground, to reappear as informal, turning the defence markets less transparent (Matthews & Ansari, 2015)

\textsuperscript{12} The theory of second best optimum imply that if any constraints interfere the fulfilment of one of the Pareto conditions, the remaining conditions are in general no longer desirable. The second best optimum achieved most likely differs from the Pareto optimum, since it is achieved under a constrained setting (Lipsey and Lancaster, 1957).
3. Theory

3.1 Market structures and imperfections

The neoclassical theory of the firm is based on a static conception of competition. In microeconomics, there are four main theoretical market structures: perfect competition, monopolistic competition, oligopoly and monopoly. The different market structures have certain characteristics. The number of market actors, the level of information, entry and exit conditions, among other characteristics is specified to determine the structure of the market and whether a competitive equilibrium is to be expected or not (Lipczynski, Wilson & Goddard, 2013). Groenewegen, Spithoven and Van den Berg (2010) view the neoclassical model of perfect competition, the most efficient market, as a benchmark for market imperfections. Market imperfections lead to less efficient markets and higher transaction costs.

Groenewegen et al. (2010) identify five market imperfections, prohibiting markets from being fully efficient: (1) Imperfect information refers to market actors not being fully informed. Information asymmetries prevail when some market actors have more information than others. When these actors use it to their advantage, opportunistic behaviour occurs. (2) Market power refers to a single actor or a group actors being able to influence the price on the market to their advantage. These actors will make additional benefits at the cost of a less efficient market. (3) Externalities can be described as the benefits and costs of decisions made by actors outside of the transaction, affecting the actors actually involved in the transaction. (4) Public goods are non-excluding goods which any actor could benefit off, e.g. street lightning or national defence. (5) Natural monopolies occur as technological improvements are made in production and companies achieve efficient scale of production. If there are entry barriers, a monopoly may materialize, which could exercise market power. Market imperfections comes with the possibility of welfare losses, if the market is not governed efficiently by either private actors or the government itself (Groenewegen et al., 2010).

Natural monopolies are “natural” in the sense that they may supply an entire market efficiently. However, as monopoly, it also has ability to set prices above the equilibrium level. As buyers, government can solve this problem by creating competition through state-organized auction. There are two criterions of competition – quantitative and qualitative. An ordinary auction based on price is of the quantitative kind. Groenewegen et al. (2010) refers to the latter as “beauty contest”. Auctions tends to be beneficial for the consumers since the evaluation criterion is solely based upon the price of the product, where the company with the lowest price
wins. In a beauty contest, companies will be evaluated through a set of qualitative criterions, reflecting their capabilities to achieve the objectives set by the government. When the government has issued under what conditions the concession will be awarded, the competing companies will have to evaluate their own capabilities and price before entering the tendering process. Regardless the nature of competition, the awarded company will have the exclusive rights to be the only supplier on the market (Groenewegen et al., 2010).

The most common theory on public goods, the Samuelsonian theory, views government production as necessary since markets fail allocate these goods efficiently. While referencing national defence, Holcombe (1997) argues this notion to be misleading as there are several examples of privately produced public goods. However, the government have an essential role coordinating the market, either taking the production in their own hands or appointing it to private actors to produce the public good. Economists frequently categorize national defence as a public good. Regardless who produces it, it will be financed by the nation’s taxpayer (Groenewegen et al. 2010).

### 3.2 Transactions and transaction cost

A transaction refers to the legal aspect of an exchange of commodities between individuals or organizations, i.e. a transfer of property rights or ownership (Groenewegen et al., 2010). To distinguish between different types of transactions, Groenewegen et al. (2010) and Ollila (2009) categorizes different types of transactions. Two of them are presented in the table below:

*Table 1: Transaction types, interpreted from Ollila (2009) and Groenewegen et al. (2010).*

<table>
<thead>
<tr>
<th>Transaction type</th>
<th>Reason</th>
<th>Means</th>
<th>Institution</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market, bargaining</td>
<td>Scarcity</td>
<td>Price</td>
<td>Market</td>
<td>Equality</td>
</tr>
<tr>
<td>2. Political, rationing</td>
<td>Agreement</td>
<td>Negotiation</td>
<td>Political</td>
<td>Citizenship</td>
</tr>
</tbody>
</table>

(1) Bargaining transactions, or market transactions, are the most common transaction on markets. Bargaining occurs as scarcity prevails with the price acting as means. The parties involved, the buyer and the seller, have an equal legal status with respect to the transaction. In other words, economic equality. (2) Political transactions, or political transactions, differ from the previous two in that they require agreement from several participants to complete a transaction, i.e. negotiation. Each decision maker has the authority to apportion benefits and cost to members of a joint enterprise or society. Rules matter in these types of transaction as they often concern distribution of national wealth (Groenewegen et al., 2010).
Transaction costs could be viewed as a cost derived from a friction in the economic system. Here, they are treated as the costs related to the process of creating contracts on markets with imperfect conditions and problems between the parties (Williamson, 1985). In other words, the secondary costs of negotiation and enforcement, which are the costs of participating and lowering the costs of negotiation and enforcement (Wang, 2003). This means that actors must identify uncertainties or risks associated (Groenewegen et al., 2010). According to Williamson (1985), transaction costs appear \textit{ex ante} or \textit{ex post}, i.e. before or after the transaction. The ones appearing before the transaction are related to different costs of forming the agreement between the parties in question, such as the cost of negotiating, drafting and safeguarding the agreement. The ones appearing afterwards are interconnected with the initial costs, as formed contracts rarely are perfect. It could be a question of maladaptation, governance, among other factors of imperfect conditions (Williamson, 1985). Transaction costs are rarely measured directly as costs in empirical studies. Proxies believe to critically affect transaction cost are often used, for instance: uncertainty, transaction frequency, opportunism, and so on (Wang, 2003).

Political transaction costs reflect a long negotiating process between several actors, frequently concerning the welfare of a nation. The government can play an important role by setting economic objectives for a nation and steering its development. These objectives and decisions should reflect the expertise of the civil servants and governmental institutions in order to be effective. However, governments are not perfect and it is impossible to guarantee that every citizen's preferences will be translated into an aggregated national welfare-function. There is a risk that the government’s decisions are based on vested interests and will lead to additional costs and welfare loss (Groenewegen et al., 2010).

### 3.3 Institutions

An institution is a wide concept. Through time they have been viewed upon in different contexts, and therefore been defined differently. North (1991) views institutions as the rules of the game in a society. There are both formal and informal institutions. Formal institutions are the formal rules that determine what is allowed and what is not allowed in the society (North, 1991). Examples of formal rules include constitutions, statute and common law, and regulations (North, 1997). Informal institutions are more ambiguous. North (1991) describes them as the norms and behaviour accepted by the society. Thus, the informal institutions reflect the society’s code of conducts and determine how individuals interact with their surroundings. Most rules are informal even in the most organized societies (Ollila, 2009). Informal institutions
differ from formal institutions in their ability to change. An informal institution is formed over longer periods of time and it cannot be altered as quickly as a formal rule, nor automatically adapt to a formal rule change (North, 1991). Together, the formal and informal institutions form an institutional matrix which defines the boundaries for behaviour as well as potentiality for change in the institutional framework (North, 2006).

North (1997) defines organizations as the players who act under the institutional framework. Organization may refer to either economic or political organizations, among others types of organizations. Their goals differ as they are motivated by different factors. It could be a question of maximizing profits or getting re-elected to a certain position for example. However, the ultimate goal is always survival (North, 1997). The current institutional framework, the rules, determines which organizations win and lose. It reflects the opportunities presented to the organizations, an incentive structure (North, 1994a). Organizations will therefore adapt to the prevailing institutional framework in order to survive (North, 1994b).

The foundational purpose of the institutions, the rules of the game, is to understand and coordinate the ever-changing world we live in (North, 2006). The rules are means of economizing interaction, or transactions, since they help predict other's behaviour (Ollila, 2009). In order for individuals to rationalize their choices, a certain level of information is required. North (1991) view individuals limited in their mental capacity and does not consider them susceptible to perfect information. Institutions are therefore created to provide information on others behaviour, to reduce the insecurity and to create structure in different decision-making situations (North, 1991). Reduced insecurity facilitates transactions and reduces the cost associated with them. The so-called transaction costs (Ollila, 2009).

The bridge between transaction costs and institutions relates to the earlier mentioned purpose of institutions. Reducing insecurity and creating structure is synonymous with lowering the transaction costs. The purpose of institutions is therefore to minimize the transaction costs to make exchanges on markets more efficient (Williamson, 1985). In the case of imperfect markets, there exist several different ways to coordinate the transactions in order to reduce the welfare loss (Groenewegen et al., 2010). A need for new institutions arises with new developments (Ollila, 2009). Institutional change is consequently often put in a context of economic change. It is not necessarily what produces economic development; it is rather considered as a component of the process of economic change. As economic and social organizations are faced with an economic reality, the competition for scarce resources, they are
forced to invest in new skills and knowledge in order to survive. Institutions become relevant in this setting since they provide the incentive structure that dictates what skills and knowledge are rewarding for organizations. In other words, which skills and knowledge provide the maximum payoff under the current institutional framework (North, 1997).

North (1997) argues that institutional change is an ongoing process which occurs when organizations and institutions continuously interact. Since the economic reality is continuously changing in a dynamic world, the perception of this economic reality is a subject to change too. An altered understanding of the economic reality induces humans to modify their institutional structure. This modification in turn leads to further changes in the economic reality (North, 1997). Institutional change can therefore be seen as an evolutionary process as it is a consequence of human behaviour and altered perceptions (Groenewegen et al., 2010).

Groenewegen et al. (2010) concretizes the sources of institutional change. Similar to North, they recognise the endogenous process of the interaction between institutions and actors, though they identify three exogenous variables. They are technology, the state and culture. The institutional change is either driven by efficiency or vested interests, and can thereby be beneficial for the whole economy or just certain actors.
4 Methodology

4.1 Choice of research area

Given the close historical ties between Saab’s flight division and Linköpings Universitet, we saw great potential in studying the fighter market. Although not being too familiar with the market itself, nor the A&D industry, we were aware of the controversial history of international arms sales, as well as the importance of the defence industry to the Swedish exporting sector. The SEK39.3 billion sale of JAS Gripen fighter jets to Brazil in 2014 certainly has its own economic implications (Saab, 2015). Overall, we thought it would be interesting to study the complexities of large, international defence procurements. We initiated contact with Saab in early February 2016. A couple meetings were held with the Vice President of Industrial Partnerships at Saab, Jan Germundsson, to discuss what a potential study could be formed around and how it would be executed. Discovering the somewhat recent EU-regulation, and realizing the lack of small-country perspective in the debate of defence procurements, we found this to be an interesting topic for our study.

4.2 Perspective

Justesen and Mik-Meyer (2011) recommend researchers to elucidate the perspective of their study, since the perspective dictates the study and has methodological consequences. This study ultimately seeks a better understanding of a frequently used, though vaguely defined, trade instrument appearing on a newly regulated and complex market. We viewed the gathering knowledge and experiences of a market actor as central to reach such an understanding. Kvale and Brinkmann (2014) views the phenomenological approach as a way of understanding social phenomena through the perspective of actors. The phenomenological approach interprets reality as the world perceived by humans. The subjective acts and experiences of actors are therefore of importance. By interpreting and describing the world through the eyes of actors, a better understanding may be reached of the studied phenomenon (Kvale & Brinkmann, 2014). Justesen and Mik-Meyer (2011) stress the importance of subjectivity within the phenomenological perspective. Naturally, the definition of phenomenon postulates subjects with experience of the phenomenon. (Justesen & Mik-Meyer, 2011). The subjects in this study are employees at one of the three European fighter producers (Chagnaud et al., 2015), and studied phenomena are the environment (the fighter market), the transactions (procurements involving offsets) and the implications of regulation (EU-directive).
4.3 Choice of method

There are two main methods for researchers to use in scientific studies – the quantitative method and the qualitative method (Bryman & Bell, 2011). Quantitative methods are based on numerical data and provide quantifiable results through some form calculus, e.g. statistical methods. The purpose of quantitative methods is often to identify and explain causal relationships (Justesen & Mik-Meyer, 2011). Since this study does not intend to explain certain relationships or effects on defence markets, rather to understand how they function, we did not see a quantitative method as suiting. Following the reasoning of Justesen and Mik-Meyer (2011), we viewed the qualitative method as more suiting since it sets out to describe and provide a better understanding of phenomena. Quantitative studies also require a certain amount of data. Defence procurements generally lack transparency since they involve to information sensitive to the national defence, defence secrets, to the procuring country. Specifics of an offset agreement among other components of defence procurements are therefore left unpublished. There is an overall shortage of data due to this secret nature of defence markets. Generalization is described as difficult to achieve, as countries are reluctant to open processes involving defence secrets to the public (Brauer & Dunne, 2004). We interpreted the circumstances as further motivation for a qualitative method.

The qualitative method is not as straightforward as the quantitative method (Bryman & Bell, 2011). Richards and Morse (2013) describe qualitative research as a way of exploring and gaining new knowledge of something, otherwise meaningless if reduced to numbers. Denzin and Lincoln (2013) similarly view the qualitative method as a way for researchers to study entities' qualities and processes; which cannot be measured in terms of quantities, intensity or frequency. Bryman and Bell (2011) on the other hand reason that the qualitative method should be treated in terms of what it is unsuccessful at. Since qualitative data may be understood as individuals' perceptions of phenomena (Starrin & Svensson, 1994), the qualitative method is not measurable or statistically verifiable (Bryman & Bell, 2011). Quantitative studies consequently have the advantage of expressing statistically proven probabilities of established relationships - something qualitative studies are unable to do (Alvesson & Sköldberg, 2008). Since this study is based on qualitative data, i.e. the perceptions of the interviewed respondents, it will not be measurable or statistically verifiable.

To our knowledge, little research has been made on offsets in a qualitative manner. Following the description of Bryman and Bell (2011), this study may be interpreted as an explorative
study. Further goes into this argument as few studies have been made in a context of international market regulation, especially within the economic field.

Following the difficulties of maintaining an inductive or deductive approach, an abductive approach was seen as fitting for our study. Abduction is often viewed as a middle ground between the induction and deduction, as it shares qualities of both (Alvesson & Sköldberg, 2008). A study with an inductive approach begin with the gathering of empirical results, to later apply theoretical frameworks. The deductive approach works the other way around, starting off by building a theoretical framework which then dictates the entire study (Bryman & Bell, 2011). This approach was not seen as fitting to our study as it is too rigorous for an explorative study. There was a possibility for an inductive approach in the initial phase of the study, given the explorative nature. However, following the discovery of Directive 81 and an overall appreciation for the complexities of defence markets and offsets, we chose to apply institutional economics to the study. Institutional economics allowed for a more dynamic approach to markets (Lipczynski et al., 2013), which was seen as fitting given the rather unique circumstances of defence markets.

Although abduction shares similarities with induction and deduction, it is important to acknowledge that abduction brings new aspects and should therefore not be seen as a mix of the two. An abductive approach allows for development in the empirical and theoretical material during the research process (Alvesson & Sköldberg, 2008). The common theories within institutional economics allowed us to have a starting point in our research. As the empirical data has developed during the research process, some theories have turned out to be more adequate than others. As a consequence, theories have been added as well as removed, which is in line with the abductive approach. Overall, Starrin and Svensson (1994) recommend a qualitative method with an abductive approach for studies set out to study known phenomena in a new context. Although offset is a loosely defined concept, the reasoning of Starrin and Svensson applies to the purpose of this study since offsets are studied in the context of new regulation.

Much like Yin (2007) describes case studies, we sought to produce new knowledge in areas of complex phenomena. Furthermore, Yin (2007) describes case studies as a way for researchers to study current complexities in a real context. Since offset occur most frequently within the A&D industry, as well as the fact that there are few producers of defence material offering offsets, we viewed a case study of the Swedish A&D industry as suiting (Taylor, 2012;
Chagnaud et al., 2015). We interpreted the circumstances surrounding the defence industry as motivation for a qualitative study of a single actor.

It is further recommended for case studies to complement the collected primary with additional data, i.e. triangulation (Yin, 2007). To triangulate the primary data, we conducted a literature study to gather relevant research within the field. Thus far, the discussion of EU regulation of defence markets has been limited to legal research. The research field generally lacks an industry perspective, and adding to that, a smaller country perspective. Saab is one of the three European A&D companies capable of producing fighter jets and has been offering offsets at least since the 1999 deal with South Africa (Ahlström, 2000; Chagnaud et al., 2015).

4.4 Interviews

The primary data of this study consist of seven semi-structured interviews. The use of semi-structured interviews was seen as desirable, since it permitted us to elaborate the interviews with follow-up questions in order to best answer the purpose of the study. This is in line with what Bryman and Bell (2011) recommend for studies that have a clear purpose and a set of research questions to answer. Although the purpose was reformulated during the research process, the foundation remained the same. Semi-structured interviews also give space for the respondents to reflect on the questions from their point of view, which was seen as key as our knowledge of the topics was limited in comparison to the interview candidates. Depending on the respondents’ answers and knowledge on the subject, the interviews took different directions, while treating the same questions. Lastly, the use of semi-structured interview was motivated by the explorative nature of the study, as it seeks to produce new knowledge (Justesen and Mik-Meyer, 2011).

In accordance with Bryman and Bell (2011), an interview guide was created before performing the interviews. The guide helped us in creating a structure for the interviews, and later on facilitating the comparability and arrangement of the results. The interview guide approached three main topics, which were developed during the literature.

The topics were the following:

- A&D industry and defence markets
- Offsets
- Future prospects for the European defence markets and offsets
With the first topic we pursue to clarify how an acting company on the fighter market defines the market conditions. The second topic aimed at investigating the role of offsets and why it exists. The last topic dives into the implications of Directive 81, and gives room for the respondents’ reflections concerning the future development of the European defence markets and offsets.

Since the number of people with knowledge of defence offset is limited, it was essential to get in contact with people with the appropriate background. With recommendations from Jan Germundsson, we established contact with employees at Saab that held the desired knowledge. Thus, this study used purposive sampling, which Bryman and Bell (2011) suggest as eligible when seeking the right knowledge of a certain phenomenon. Due to a limit of interview objects with knowledge and experience of the topic of this study, no test interview was conducted. However, after the first interview we chose to change the phrasing of some questions to limit future misunderstanding, but the content remained the same.

The respondents were the following:

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Occupation</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eva Söderström</td>
<td>Vice President, Head of Industrial Co-operation, Group Finance</td>
<td>2016-03-11</td>
</tr>
<tr>
<td>Bengt Janér</td>
<td>Director at Saab Brazil</td>
<td>2016-03-11</td>
</tr>
<tr>
<td>Anders Edlund</td>
<td>Director of Industrial Co-operation, Group Finance</td>
<td>2016-03-17</td>
</tr>
<tr>
<td>Karin Ekeryd-Mårtenson</td>
<td>Head of Resources and Strategic Sourcing at Saab, Saab Aeronautics</td>
<td>2016-03-18</td>
</tr>
<tr>
<td>Åke Albertsson</td>
<td>Senior Partner, Industrial Co-operation, Group Finance</td>
<td>2016-03-23</td>
</tr>
<tr>
<td>Dan Jangblad</td>
<td>Senior Vice President and Head of Business Area Industrial Products and Services</td>
<td>2016-03-24</td>
</tr>
<tr>
<td>Magnus Ahlström</td>
<td>Vice President of Saab Global Innovation Program, Group Strategy</td>
<td>2016-04-01</td>
</tr>
</tbody>
</table>
The initial contact with the respondents was made over email, where the purpose of the study was presented, followed with an invitation to participate of the research. While initiating the interviews, we wanted to have the conversation in person, due to the fact that much literature concerning qualitative interviews emphasises the advantage of face-to-face interviews contra telephone interviews (Bryman & Bell, 2011). We sought to conduct the interviews in a neutral environment where the respondents could be relaxed, and the possibilities for disturbance and noise were limited. All interviews took place at the respondents’ offices except one which was made over telephone. Despite the advantages of interviewing in person, we considered the knowledge and experience of the particular interview candidate to be of value for the study.

In order to increase the respondents’ confidence, all respondents were offered the possibility of anonymity. It was also clearly stated that the material would only be used for the purpose of the study. The length of the interviews varied around 55-70 minutes, which is in line with what Andersen (2012) regard as appropriate for interviews. According to Bryman and Bell (2011), there is a risk that respondents feel uncomfortable while being recorded. With permission from the respondents, an audio recording device was used during all interviews except one. During this interview, one of the authors took notes while the other asked the questions. The use of audio recording was used to minimise distractions, enabling us to ask applicable follow up questions, as well as the access to an entire transcription as recommended by Bryman and Bell (2011). This permitted us to listen through the interviews multiple times, limiting misunderstandings and clarifying differences of opinions. The recordings were fully transcribed and systematized into the topics they treated, which facilitated the representation of the result. The transcribed answers were compared and selected on contribution to the study. We wanted to create a combination of well-grounded, individual answers and answer frequency on key questions.

4.5 Ethics

During the research process, it was important to take account of the ethical guidelines that concerns the respondents participating in the study. To ensure that the study holds a high level of research ethics, guidelines and principles have been followed. Vetenskapsrådet (2002) recommends a set of principles regarding information, consent, confidentiality and usage of the material. The first requirement implies that the respondents shall acquire as much information as possible concerning the study and its purpose before deciding to participate or not, which is also recommended by Bryman & Bell (2011). We considered this requirement to be fulfilled as
we informed the respondents of the study and its purpose when the initial contact was made. Furthermore, the respondents got the opportunity to ask questions and read the interview guide before the interview started, and thereby acquainting themselves with its structure and content. The requirement of consent implies that participators in research have the right to decide on their own whether or not to participate (Vetenskapsrådet, 2002). In conjunction with the interviews, the respondents were informed that they had the right to stop whenever they wanted. Moreover, all respondents had the possibility to decline the use of an audio recorder at the interview. The third requirement concerns confidentiality. The treatment of personal data should be carried out in a way that no unauthorized person can get hold of it (Vetenskapsrådet, 2002). As previously mentioned, the respondents were offered anonymity. In order to fulfil this requirement, we chose to keep their identity anonymous in the Chapter 5 where the respondents’ answers are presented. This was done by referring to them as Respondents A-G. The last principle of requirement concerns the usage of the material, which implies that the gathered data from individuals only can be used in research purposes, and not for commercial use (Vetenskapsrådet, 2002). The gathered data has only been used by the authors of this study, to answer the study's purpose. In addition to the research ethical principles mentioned above, there exist some recommendations concerning the approach to the research process. One of them describes how the researcher should ask the respondents if they are interested to take part of the research results, which is a way to make the respondents understand that their participation is valuable (Vetenskapsrådet, 2002). All the respondents were asked if they wanted to review the result, to see how the interview material ended up being used. Lastly, even though we received assistance in the choosing of respondents, this study was not conducted on the request of Saab Aeronautics. Thus, the study was carried out independently from external involvement.

4.6 Literature review

An extensive literature study was executed within the research area to identify relevant concepts and areas of discussion. Since the existing literature on the fighter market is scarce, our literature review describing its characteristics primary consist of research on defence markets on a general level. The material consisted of earlier studies, news articles, textbooks and information on web pages. The majority of articles and academic research papers were found through databases, primarily Scopus, JSTOR Journals and LIBRIS. Other internet based data sources that were used has been considered to be credible and containing relevant information for the study. In accordance with Bryman and Bell (2011), a critical approach while gathering the information has been used.
4.7 Reliability, generalization and validity

In order to maintain the reliability in our research in line with how Bryman and Bell (2011) describes it, a detailed documentation of the study’s method has been carried through, facilitating future replication. The developed interview guide was used during all interviews, which may be used in similar studies. However, to produce the same result with interviews may be difficult, since the respondents can give different answers from time to time (Kvale & Brinkman, 2014).

Since this study is based on a limited number of interviews, giving the perspective from a fighter jet producing company in a small country, generalizing our findings to all the actors at the defence markets cannot be done. However, the respondents interviewed in this study holds high knowledge of the fighter market and procurements of defence material, and represents one of the three European fighter jet producers, making it possible for us to make some generalizations within the area of research to some extent.

In order to confirm that the realised research had been done in approval with the respondents, and that we had understood the respondents’ responses correctly, a respondent validation was carried through. After thoroughly processing the material, we sent out our result to the respondents so that they could take part of the material from their interview in a context. This is recommended from researchers on qualitative interviews such as Bryman and Bell (2011), in order to further strengthen a study's validity. Furthermore, in order to increase the study's validity additionally, we used triangulation by comparing the results to previous research. This implies that the problem is treated from different perspectives. This strengthens the study's credibility, according to Bryman and Bell (2011).

4.8 Reflections and criticism of data

A point of criticism was the common employer of the interview candidates, which created the risk of biased answers and opinions. Although efforts were made to create a neutral interview environment as recommended by Bryman and Bell (2011), we still see this as a point of criticism. The fact that no respondent chose to be anonymous might be a reason to believe that they shared honest answers. Efforts were made to interview employees at FMV – the Swedish governmental procurement agency – to get a buyer’s perspective. Unfortunately, no interview materialized as the interest was not mutual. Furthermore, it would have been interesting to
extend this research by interviewing people at the European Commission. It would have given us a wider conception of how different actors look at offsets role in defence procurements, and how they look upon the future development of the European defence markets.

Another area of potential criticism in our research relates to the limited number of respondents and the density of respondents as a group. Despite similar titles at Saab and shared area of expertise between some respondents, their previous experiences varied, which was seen as a positive. We did not find that additional interviews with employees at Saab Aeronautics would have provided more depth to the study, since we attained our theoretical saturation with the seven interviewees. This is supported by Bryman and Bell (2011). All in all, we viewed our selection of respondents as suitable with respect to their positions and sufficient for the representation of a selling part on the fighter market.

The degree to which the respondents were familiar with Directive 81 differed. However, all respondents were familiar with its general outline and its effect on Saab as a prime contractor. Finally, when coding and analysing the interview material, there is a risk that the social context of the respondent’s answer gets lost or misplaced (Bryman & Bell, 2011). While systematizing the respondents’ answers into the presented results, we made efforts to maintain the context within the right area.
5. Results: Interviews

5.1 A&D Industry and defence markets

Defence producers, like Saab Aeronautics, usually operates on various civil and defence markets, according to respondent A. The separate components of the final system may either be produced in-house or bought from outside suppliers. Prime contractors, used to, but rarely produce everything by themselves in the current day, according to most respondents. Respondent A categorizes the production chain into different tiers of producers. At the highest level, the Original Equipment Manufacturers (hereinafter referred to as OEM), prime contractors manufacture and sell large systems (e.g. fighter jets) to procuring countries. Suppliers of the prime contractor are divided into different tiers of subcontractors. The highest tier consists of the most central components to the final system, such as the fighter jet's engine. Lower tiers consist of commodities of less technical difficulty, according to respondent A. Respondent B describes the lower production tiers, as more standardized in production and many products can be sold directly off-the-shelf. Contrarily, large systems at the OEM level are difficult to sell directly off-the-shelf. Selling producers at the OEM level usually face specific individual demands regarding the features of the fighter jets. This means that some products within the A&D industry are comparable and interchangeable while others are not, according to respondent B.

Fighter jets are considerably more complicated and expensive to produce than civil aircrafts, according to respondent C. Respondent D reasons similarly and views fighter jets as the apex of technology within the A&D industry. Respondent E extends the point made by respondent D and respondent C by stating that the development of new technology is a long and expensive process, requiring high levels of competence. In accordance with respondent E; respondent B, respondent F, and respondent A also acknowledge that not only the development of technology requires a high levels of competence, but also the actual manufacturing at the OEM level. Respondent A and respondent G view this competence as scarce rather than abundant, and explains the difficulty of establishment at the OEM level in this aspect. Manufacturing separate components of a fighter jet is different from integrating an entire system, respondent A explains. Fighter jets are advanced systems of several integrated components and separable systems, required to be well-functioning and efficient.

All respondents point at the complexity and high costs of the OEM production as the main reason for limited number of operators. Respondent C and respondent G say that such industries
are expensive and have lots of technical requirements. Establishment and maintaining industry requires continuous financial backing from the government to support large investments in R&D, according to respondent D. Respondent B views the large investments as entry barriers and says that they are hard to get by. Repayment also requires lots of time, respondent B adds. Respondent A believes the current-day industries to be the results of an irreversible process of investing in the domestic industry to develop and sustain the capability necessary for production. Respondent A views this process as irreversible because establishment from “scratch” is almost impossible. Respondent B also brings up the importance of a national program and reasons that it would be difficult to sell fighter jets to other countries if the industry's own national defence is not using them. Respondent F also argues that a national market is necessary for establishment since the industry lacks a well-functioning market at the global level. Furthermore, respondent F views the number of producers as more than what would be economically sound, with respect to the enormous cost of maintaining it. What motivate countries to attempt establishment are the security interests of individual countries, according to respondent F. Respondent D shares this opinion. According to respondent D, the will of establishing a domestic industry originates from countries' desire to be independent and make sure that they have the capability to defend themselves. This need is greater for non-allied countries, such as Sweden, in comparison to countries that belong to some sort of military alliance. Countries within alliances, e.g. NATO, can rely on other countries' defensive capabilities, respondent D argues.

According to all respondents, there are about five countries with industries capable of producing fighter jets, which are able to compete on the international market. Respondent C lists the French Dassault Rafale model, the American F-series of Boeing and Lockheed Martin, the Russian fighter jet models and the Eurofighter\(^\text{13}\) as the current day competition to the Swedish Gripen. Some respondents add a couple of countries with uprising industries and mention that there are always countries looking to establish an industry. Although the sellers are limited in numbers, all respondents describe the competition as fierce at the OEM level. Respondent B describes the buyers as price sensitive. All producers want to complete sales at the OEM level to ensure their future, according to respondent A and respondent B. The selling company's government shares this interest since such sales alleviate their role as a source funding to maintain the domestic industry. All respondents explain that competing sellers are presented with few selling opportunities, as the buyers are limited countries. Respondent G says that

\(^{13}\) A collaboration between the UK, Germany, Italy and Spain.
selling opportunities occur on less than a yearly basis. In accordance with all other respondents, respondent G says that Saab as a producer cannot sell defence equipment to corrupt governments and that Saab has declined potential buyers in the past. Respondent C, respondent B, respondent E and respondent A argue that there are several restricting measures affecting the efficiency of markets. Export restrictions, tariffs and licenses along with other restricting measures make the market ineffective per definition, according to respondent C.

The level of competition varies within different areas within A&D industry, according to respondent A and respondent B. Parts of the production chain present well-functioning and competitive markets, while others do not. Respondent A compares well-functioning markets within A&D industry to markets for structural parts to the automobile industry. Commodity markets for aircraft engines, ejection seats, and other standardized products are generally well-functioning. Prices are pushed down through competition on these markets, according to respondent A. However, when it comes to products of the most advanced technology, the markets are often dysfunctional. When companies develop certain advanced products, e.g. weapon or radar systems, they have no interest in sharing it with their competitors since it gives them a strategic competitive edge. This forces competing companies to either develop and produce the product on their own or settle for the second-best. Respondent A concludes that there will always be strategic areas in which producers want keep an advantage and thus no functioning market will exist until the competition catches up in that particular area.

All respondents view the secret nature of defence markets as a substantial difference from civil markets. Aside from the dysfunctional areas of the industry, there are also security political aspects to consider, which affects competition. Respondent C argues that a considerable amount of the products and systems are classified as defence secrets. Respondent E explains that Swedish producers of defence systems are heavily regulated by the government agency Inspectorate of Strategic Products, those regulations limits the availability of information of products. Respondent F views defence markets not just as markets of products. Security policy plays an intricate role in decisions regarding procurements of larger systems, which are more central to national defence, according to respondent F. For countries with political power (e.g. the United States, France, Russia and China), it is often a part of the defence product and the offer. Developing a relationship with a large powerful seller could solve the initial security related issues, which made the country engage in a defence procurement in the first place. Respondent F brings up an example from about 20 years ago, in which a country preferred to purchase fighters from a powerful country after feeling threatened by a potential invasion.
Respondent F views the security policy related part as the deciding factor rather than the utility or benefit related to the procured system in defence procurement decisions. All the respondents acknowledge strategic alliances as a substantial factor in defence procurement decisions. They complicate markets as they stifle competition and affect agreements greatly. Respondent F, respondent A and respondent E brings up previous cases in which authorities have restricted sellers to engage or prohibited the follow-through of supply due to diplomatic relations, alliances in times of war, or other security reasons.

Respondent G explains that the defence procurements of fighter jets generally are government-to-governments sales. In some cases, selling companies such as Saab, may sell directly to the buying state, but it is not the norm. Respondent A and respondent B explain that governments conducting defence procurements may have different procurement procedures. They can either be put into competition or be directed at a certain seller. In procurements of competition, the buyer specifies certain requirements to the competing sellers, then gathers and evaluates the offers. How the evaluation is done differs from buyer to buyer, according to respondent B. Some evaluate the offer as a whole, while others use weighted models and in some cases it is a pure matter of budget and price. Respondent A explains that procurements directed at a certain seller are more straightforward. The buyer approaches the seller with a specific demand and the price is negotiated. In this case, the buyers often seek to acquire what is "unique" for selling company, according to respondent A. The seller then tries to encapsulate the unique part by selling a large system. Both respondents describe the procurement of fighter jets as long negotiating processes. Due to the size and longevity\(^\text{14}\) of the investment, these procurements are long-term strategic decisions. Naturally, this increases the length and complexity of the decision-making process, according to respondent B and respondent A.

All the respondents argue that the political involvement and national interests affect the procurement process. Respondent G views the identification of the decision-making unit as difficult. It could be the minister of defence, the minister of finance, the head of Air Force, or someone else. Respondent C explains that procuring countries often have mixed agendas. From the perspective of the Air Force, the prime concern is to improve the national defence. On a political level it is more complicated, respondent C argues. Respondent F explains that political authorities can either support or limit the market actors. Procurements of large defence systems are dense decision processes involving many parties and stakeholders. The citizens of the

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\(^{14}\text{The respondents issue that fighter jets are supposed to last 30-50 years.}\)
procuring country can affect the decision through interest and lobby groups. Respondent F reasons that these groups could favour or oppose procurements from a certain country, or the procurement of defence equipment in general, i.e. the government’s money should be spent elsewhere. The common man’s opinion does therefore matter in procurements of fighter jets, according to respondent F. It is a political decision rather than a decision made by someone with the knowledge of the product. Certain governments are more transparent and systematic in the procurement process than others. In accordance with respondent G, respondent F reasons that the process is hard to predict, since culture and behaviour varies between procuring countries. There are cases of transparent procurements, where a planned procurement procedure is followed and the parties involved know what is to be expected. The decision-making unit can be identified in those cases, and the seller is able to adjust its offer, according to respondent F. However, in cases where the decision maker cannot be identified, the seller has to figure it out during the procurement process.

5.2 Offsets

The responses to the presented definition of offsets varied. Respondent F subscribed to the definition, but says that offset as concept is rarely defined within the industry. However, most respondents shared the view of offsets as transactions of economic activities, demanded by the buyer. Procurements of fighter jets are expensive and the buying countries’ decision makers want to retain a piece of the investment at home. Many of the respondents explain their existence with the simple reasoning: "if we buy expensive fighter jets from you, you must offer us X in return". There was also a general consensus among respondents that offset is a term of the past within the industry. The preferred way of addressing the side deals appearing in the procurements of defence is “Industrial Co-operation”, as indicated by some of the respondents' titles at Saab.

Throughout the interviews, several respondents bring up offsets in terms of an evaluation procedure of offers done by the procuring countries. Respondent G associates the presented definition of offsets with IC rather than offsets. Respondent G explains IC as the whole package, a broader term, and offsets as the formal counterbalancing demands expressed by the procuring country. Respondent E also brings up the formal counterbalancing and argues that countries often demand a certain percentage of the main sale in offset values. Respondent C reasons similarly and views the offset as the contractually negotiated part in a package of activities, associated to a main sale. Transactions of additional economic activities, such as industrial co-
operation, may occur without any formal offset demands expressed, respondent C argues. Respondent B explains that procuring countries requiring offsets from sellers either put formal demands on the seller or require them informally. Many of the respondents bring up the twenty-some years it took Saab's to close the sale to Brazil as an example of the time and investments required to reach the final agreement. Respondent A tells us about CISB\textsuperscript{15}, an innovation centre launched ahead of Saab completing the sale to Brazil. The platform created interaction between the two countries. Respondent A views it as a sort of offset even though no formal request was made from Brazil.

Though respondent E makes the distinction between formal offsets and IC, respondent E views them as similar to one another in functionality. Barter, countertrade, offset and IC serve similar purposes. The difficulty of defining offsets could be traced to the dissimilarity in offset policies between countries, according to respondent E. Since countries have different policies on offset, one cannot expect a globally common outcome of the additional demands expressed by procuring countries. This creates confusion and make offsets hard to concretize.

Respondent B views the offset policies as a reflection of what the procuring country wants to achieve with the offset. Respondent B reasons that offsets could be seen as the answer to the question of how procuring governments should motivate purchases of expensive military equipment to the civil segment. How value is created, whether or not intended for civil segment, varies between countries. Since countries are situated in different development stages, they have different focuses and individual agendas. Respondent B exemplifies the different motives of countries with previous cases of government negotiation in which Saab was expected to deliver an offset. Brazil wanted to develop its domestic industry, so a technology transfer was requested. India was more focused on receiving factors to boost their producing sector. Malaysia wanted to increase its sales of commodities. Estonia had the goal of increasing export flows from Sweden to Estonia. Historically, some buying countries have sought value through pure countertrade and barter, while others have sought value through subcontract work, a technology transfer or something else. Either related or unrelated to the procured system, respondent B explains. To get a better sense of the wide spectrum of economic activities which could be packaged together with a main product, respondent A separates offset activities into five categories:

\textsuperscript{15} Centro de Pesquisa e Inovacao Sueco-Brasileiro.
(1) The first category consists of technology transfers of the procured system, e.g. participation in developing tactical systems or software. This form of direct offset enables the buyer to become less dependent of the seller in terms of upgrading the system, adjustments and reparations. The purpose of this form of offset is therefore to become self-sufficient and independent of the seller. It is relatable to the security of supply, respondent A explains. Respondent A views this category as necessary for long term usage and maintenance of the procured system. Respondent A also views these offsets as a way to learn and to do things on your own, i.e. on-the-job training. They are necessary to gain the fundamental competences and capabilities of the procured system. Respondent E also views this as important and explains that situations of extortion may arise if buyer is left benighted. The buyer is in the hands of the seller in such a case, and seller can charge buyer extra for follow-up services. Respondent A further explains that in some cases, as in the Brazilian case, the buyer also seeks to establish a long term domestic industry, independent from other sellers. Additional benefits can be extracted if the procuring country succeeds in establishing its industry since it creates job opportunities. Respondent D argues that the technology transfer is a way for developing countries to get access to new technology. Speaking from experience, respondent D reasons that procuring countries seek technology transfers to foster spill-overs to civil industries, i.e. secondary spin-off effects. Respondent F also highlights the potential benefits of these forms of offsets and argues that it is about creating the ability to develop things on your own within the country. Especially in developing countries, lacking the ability to refine raw material.

(2) The second category has a purpose of promoting innovation in the procuring country, e.g. the previously mentioned CISB. Developing countries want to utilize the competences of more developed countries to establish or improve an innovation system. It relates to the previous category since it builds of the ideas of utilizing a high tech industry and foster spin-off effects, according to respondent A. Respondent A views this form of offset as more ambiguous.

(3) The third category consists of production of the procured system. Countries demanding this form of offset usually want to create value by raising domestic employment. The offset is of the direct kind, related to defence through the procured system, but differs in its motivation in comparison to the previous categories. Respondent A views the third category as more politically motivated than first and second category, since the main focus is creating employment rather than developing the domestic industry.
(4) The fourth category consists the politically motivated indirect offsets, production unrelated to defence. This category of offsets can include basically anything according to respondent A. It is similar to the third category but involves activities outside of the procured system. Employment creation is emphasized, according to respondent A. Several respondents bring up examples of past indirect offsets demanded by the procuring country, e.g. establishment of white goods factories or other non-defence related industries.

(5) The fifth and final category consists of political offsets. Large sellers with political power are the only ones able to offer this category of offsets. Respondent A describes the fifth category as political favours offered in conjunction with the main contract of fighter jets. Respondent A exemplifies with powerful selling governments offering their political support in decisions at the top level of politics in the procuring country favour. These offsets could be related to defence, for instance, the powerful seller offers their support in a decision of letting the procuring country to join the UN Security Council. They could also be unrelated to defence. Respondent A brings forward an example in which a powerful selling European country offered their vote in an EU-decision to let the buying European country to finance new motorways with EU funds. Several respondents also bring forward examples of the United States offering better commercial agreements related to a relief of tariffs or embargo. Respondent A views these offsets as a result of the complicated political setting in which these deals go down.

Even though not categorizing the different potential properties of offset, most respondents bring up offset in a similar way as respondent A. All respondents argue that offsets could fill different functions for the procuring country.

When asked about how offsets affect competition, the respondents share the same view. All seven respondents argue that offsets affect competition on defence markets, though some respondents think it affects competition more than others. Respondent E argues that offsets could be the deciding factor when a government procures fighter jets. In the late stages of procurement processes, when governments only are considering few selling candidates, offering more or less to the same product at the same price, the deciding factor is going to be the offset offer. Respondent G also views offsets as a deciding factor, but points out that offsets are not required in some countries. Respondent B argues that offsets' effect on market competition can be interpreted on separate market levels. Respondent B interprets offsets as a comparative advantage in terms of the offer to a procurer of defence material. Respondent B does not see this as a distortion to that particular defence market, but the offset could affect
other markets. Sellers helping local industries in the purchasing country would probably affect that particular market and be a distortion, respondent B reasons. Respondent C, respondent D and respondent A explain that a competing seller may benefit from certain offset request when competing against other sellers. Respondent C argues that Saab uses offsets to its advantage as a selling point. Certain sellers are better in certain offset categories, according respondent C, respondent D and respondent A. Saab, described as a small seller by the respondents, have a comparative advantage in technology transfers since they are willing to share it. Larger sellers tend to utilize their political power as a comparative advantage, according to respondent A.

The respondents also agree on offsets coming at a price. According to most respondents, the price varies by the size and properties of the offset. Respondent B believes there are two arguments to why countries are willing to pay the price of offset. The first argument relates to respondent A’s first category of offsets - the military argument. Procuring countries want to gain the capability for utilizing, updating and supporting the procured system. The second argument – the political argument – relates to gaining additional benefits such as job creation, technology and knowledge, among other benefits to elevate the local industry. Respondent D reasons that the procuring countries are willing to pay the price because they can access technology otherwise unavailable to them. All the respondents view offsets as a complicating factor for sellers. Most respondents mention the difficulty of balancing the amount of information shared in a technology transfer. Respondent G explains that there is a security aspect to it, in addition to sellers wanting to keep their competitive edges. Seller have to act within the security policies of its country. However, most respondents view the offset as an opportunity rather than a problem. Respondent E argues that offsets allow sellers to encounter new subcontractors, form new relations and penetrate new markets. Respondent C shares this view and explains that the offset allows for countries to interact and form relations with one another that otherwise probably would not occur. Respondent A views some offsets as more problematic than others from a market perspective. In an optimal world, sellers have defined production lines and sell their products directly off-the-shelf, respondent A explains. However, the reality of defence markets does not allow for simple one-off sales, since procuring countries do not want to depend on the sellers if errors related to the procured system occur. Especially not if the seller is a smaller one and limited in its capacity. This is something sellers have to accept in order to sell. Respondent A says that offsets related to the security of supply are complicating, but not bad.
Respondent B says there is both positive and negative aspects to offsets depending on the outcome. Respondent B exemplifies with Saab's recent sale to Brazil. If the perspective is limited to the procurement process, offsets may benefit both the buyer and seller. The selling company benefits because offsets may enable them to compete in procurement where they otherwise would not. If the seller proceeds as the final supplier to the procuring country, as a result of the offered offset, it may enjoy a new client and partner, more orders, lower costs and increased delivery capacity. The buying country also benefits since its additional demands on receiving factors for establishing a domestic industry or creating employment are met. The only ones not benefitting of offsets from this perspective are the other sellers losing out on the sale. However, one can look at offsets from another perspective. The properties of the offset package may not come of use, i.e. the procuring country may not be able to absorb or sustain the received values. In such a case, the selling company could be wasting valuable technology or resources when setting up production in the procuring country. Respondent F also reasons that these offsets come at a risk. The procuring country may not be able to spread the technologies and attained competence to other industries, nor utilize it over time. Procuring countries may elect new politicians, who may favour other projects than the ones related to the offset. It is a problem of long sightedness, respondent F reasons.

5.3 EU directive and the future

The respondents were presented with a short description of Directive 81 and the future ambitions of the EC. Overall, the awareness of the EU regulation was relatively high, though the level of detail to what Directive 81 consists of varied among the respondents. Some of the respondents had direct working experiences of it, while others were just familiar with basic framework and the implementation into national law. A couple of respondents had less direct experience of Directive 81 but were familiar with material presented to them and the main outline.

A majority of the respondents issued that offsets are not to be required by purchasing governments anymore. Directive 81 received mixed feelings from the Member States, following the differences in defence industry capacity within the EU, according to respondent C and respondent E. Member States of less developed defence industries, for instance the Czech Republic and Poland, were malcontent with the restriction of offset-use, according to respondent C. On the other hand, countries of large defence industries like France, which rarely
demand offsets, probably did not mind forbidding them, according to respondent C and respondent D. Several respondents also bring up the United States' negative attitude towards offsets and Buy America Act when asked about Directive 81. Respondent E explains that the United States do not demand offsets when procuring defence material. Instead, the Buy America Act forces selling companies to produce the procured systems in the United States, which could be viewed as an extreme form of the common offset demand for local production.

Respondent B explains that the use of offsets has declined. Smaller defence procurements (of approximately SEK 100 million or less) used to include an offset, but nowadays they do not. Today, offsets generally occur in large procurements in which countries demand some sort of technology transfer for the long-term support, updating and maintenance of the procured system, according to respondent B, respondent E and respondent A. Many of the respondents issue that purchasing governments still demand certain forms of offset, even though Directive 81 has been implemented to national law in most Member States. As Directive 81 allows for exemption on the basis of security of supply, countries use the exception to conduct offsets. The EC has therefore not completely succeeded in its ambition to eliminate offsets, according to respondent B. Many countries avoid demanding them though, as they fear prosecution, respondent B further explains. Some countries have received warning letters and fines from the EC after violating the directive, according to respondent C. Furthermore, some respondents argue that Denmark as well as Finland and the Netherlands still demand offsets to a certain degree. Respondent F and respondent E also argue that Member States still seek some sort of extra benefits in return in large defence procurements. Respondent E argues that countries try to go about their business as before, prior to the directive. However, indirect offsets are no longer tolerable. In accordance with respondent F, respondent E argues the difference to be that offsets are not formally expressed or written, as before. Respondent F explains that offsets used to be formed by countries’ offset policies prior to the implementation of Directive 81. Although the number of offsets has declined, some activities are still demanded and difficult to control. Both respondent F and respondent C reason that defence procurements may be perceived as less transparent today since offsets are still required but not expressed by national policies.

Respondent A argues that Directive 81 primarily addresses offsets of category three and four, i.e. offsets of production and/or indirect nature. Respondent A reasons that a restriction of these forms of offset may create problems within the EU, as many countries still wish to acquire them. If imposed, Member States will try to get around the directive in some way, respondent A believes. Furthermore, countries will never accept an all-out ban of offsets if it was to
compromise their national security. Countries have an urge to augment their independence in military acquisitions. In other words, to be able to control what they are buying. Therefore, they either have to acquire sufficient knowledge of the defence system from the seller or establish a domestic industry to produce it on their own. Respondent A says that the importance of the security of supply cannot be overstated. Respondent A views it as a testament to why countries always will prioritize their national interests over an offset-free Europe. The EC’s ambitions to remove offsets completely, including technology transfers related to the main product to assure fundamental capability, is therefore unrealistic according to respondent A. Most respondents view a complete removal of offsets as unlikely for similar reasons. As long as the national interests of the Member States are prioritized above the European Union’s, the demand for offsets will remain.

The respondents were asked what the potential consequences of a removal of offset could be. Respondent C argues that selling countries with a large defence industrial capacity would benefit, since they do not have to rely on offsets in order to sell. Respondent A stresses that political offsets (category 5) lies outside the scope of Directive 81, which gives fighter jet producing countries of political power an advantage. Respondent D similarly argues that Saab would have great difficulties in competing against sellers backed with political power. Limiting offsets on global level would present major challenges for smaller sellers, which have relied on offsets to sell in past. Respondent D views this as problematic at the global level, but perhaps not as challenging within the EU. Although in agreement, respondent G brings up an interesting counterpoint. Putting a price on offset is difficult. Doing business would therefore be easier in a sense, according to respondent G.

Respondent C, respondent B and respondent E that purchasing countries would lose out on the potential benefits of offsets. Countries would lose out on the possibility to get hold of advanced technology in a convenient way, according to respondent E. The other two respondents reason similarly, and say that developing the domestic industry and creating spill-overs would be a challenge. All respondents argue that the main defence product would be cheaper to procure in the absence of offsets, since offsets come at a price. The buying country’s taxpayer would therefore benefit in a sense, according to respondent B, respondent G and respondent E. Respondent A argues that technology transfer is a question of national security, and does not believe that any country would accept a complete ban of them. Respondent A reasons that all countries that desire technology transfer will find a way of demanding it. Respondent F reasons that it would be possible to include the essential parts, such as training, without calling it an
offset. All respondents issue that a certain amount of training and knowledge of the procured system are necessary for the procuring country's usage of the product.

The respondents are of the opinion that offsets will remain. Respondent E argues that it is possible that offsets will change shape, but still exist. In the future, offsets will reflect the demand for security of supply rather than the economic compensations they have been serving as so far. In other words, more related to the procured product instead of the indirect offset practices, respondent E explains. Respondent F also believes that offsets will remain as phenomenon. The question is whether or not the terminology will be the same. Offsets is an important tool for developing economies, and respondent F believes that the demand for technology transfer will increase as economies successively grow. Both respondent F and respondent A address the problems related to the political offsets and issue that they will remain in the future. Respondent A argues that the problem with these offsets is that they are difficult to identify and measure, and thereby difficult to restrict. Respondent A, respondent B, respondent C and respondent E believes a common European defence market equivalent to the civil sector will not be possible to achieve until the EU has a common defence. Until then, Member States will have incentives to establish a domestic industry and prioritize their own national interests. If the EU succeeds in establishing a common defence, the current number of producers in Europe would probably decline as there would not be a need for multiple producers, according to respondent E.
6. Discussion

6.1 A general note on offsets

What constitutes an offset becomes important in the context of EU regulation. Striving for an abandonment of offsets could result in different outcomes, depending on what would be prohibited. The gathered interview material reflects the existing literature in that offsets are some form of reciprocal arrangement in which activities are transferred from the seller to the buyer. They are motivated by presumed benefits in the purchasing country and selling companies use them to make their offer more attractive. However, a more precise generalization of the term can hardly be made. During the interviews there was no clear consensus to what exactly constitute an offset – which probably is the reality. The use of other terminology, such as industrial co-operation, adds further confusion in the attempt of defining offsets. It should be mentioned that the presented definition might have confused the respondents, since it was rather concise yet very broad. The take away from this study is therefore that offsets should not be treated at an overall level. They should preferably be assessed case-by-case, or at least by form or category.

Offsets have previously been categorized in terms of direct and indirect, and related or unrelated to defence. The direct-indirect categorization does not allow for a distinction in function between the various measures that an offset could be of. It rather tells us the point of reference. The categorization under 5.2 submitted by respondent A has a different focus. Respondent A categorizes offset by purpose or underlying function rather than association. This is interpreted as the more useful way to treat offset in terms of the recommendation by Udis and Maskus (1991), presented in the introduction. If a certain form of offset is beneficial, or even necessary for a transaction, it is probably not going to be identified through the point of reference. For instance, an offset related to a main contract could probably be both beneficial as well as detrimental. Although the same reasoning applies to respondent A’s categorization, there is a better chance of identifying necessary components to a main agreement since the offset’s purpose is the point of focus. Respondent A’s way of viewing offsets is also useful in the treatment of EU regulation. If the goal is to remove the distorting effects from the internal defence market, one should factor in all the benefits sellers may offer, affecting the decision of buyer. Respondent A’s fifth classification, “political offset”, reflects the high level of political involvement, brought up by Taylor (2003), the respondents, among others. As respondent A reasons, they are hard to identify and they represent one of the major challenges for any type of
market regulation. It should be mentioned that respondent A’s five categorizes of offsets might not be very useful outside of procurements of fighter jets. However, it presents an interesting approach to offsets and might come useful in further international regulation.

6.2 Why do offsets occur in procurements of fighter jets?

As most defence markets, the international fighter market deviates considerably from the traditional market models. The results of the study show that the market is characterized by a politicized oligopoly-oligopsony structure, similar to the general description of international defence markets made by Matthews and Ansari (2015). Respondent F argues that there is no functioning market at the international level. The market imperfections are interpreted as the result of the prevailing circumstances - the economic realities of declining defence budgets and high-tech production, the nature of defence, and political decisions. The existence of offsets may be seen as by-product of this setting and the historical lack of market regulating.

A company producing at the OEM level shares characteristics with Groenewegen et al.’s (2010) description of natural monopoly, at the national level. There are significant entry barriers as production is characterized by technical difficulty, requiring high levels of competence and initial investments in R&D. Although producers are commercial companies, they rely on domestic governmental procurement and cost-sharing within R&D from government bodies, according to some respondents. This political dependency may be interpreted as an entry barrier, as it limits the possibilities of market entry. Another aspect supporting the idea of a large company producing at the OEM level as a natural monopoly is that it is able to supply the entire domestic market. Given the investments required to establish the necessary capabilities and the limited demand, it is probably cost efficient if only one company supplies the entire market.

As sole suppliers, natural monopolies can dominate markets by exercising market power if there are significant entry barriers, according to Groenewegen et al. (2010). However, in reality, purchasing governments are not limited to the domestic market since they have the option of turning to the international market. As Bialos et al. (2009) note, defence procurements markets have been transitioning from closed, national markets to more open and competitive markets in search of affordability and modern-day standards of products. Following Groenewegen et al.’s (2010) reasoning on creation of competition, governments utilize their market position by putting the defence procurements in competition to get better value. Since only one company will stand as the final supplier, competition will prevail and the sellers’ initial market power is
cancelled out. This applies to the respondents’ view of the fighter market. Given the longevity of fighter jets, and the limited number of buyers, selling opportunities are few. As the selling companies have to sell in order to survive, competition becomes fierce in procurements and a buyer’s market is created.

There are different ways to create competition through state-organized auctions. Contracts can be awarded on the basis of price, a quantitative criterion, or involve qualitative criterions, according to Groenewegen et al. (2010). Procurements of fighter jets open to competition is a form of state-organized auction. Respondent B says that the procurement procedure differs in-between purchasing governments. Some put emphasis on the price while others evaluate the offer as a whole. The offset agreement\(^{16}\) is interpreted as the outcome of auction in which the purchasing government factors in different qualitative aspects in their decision. Two examples of this are given below, based on the reasons for governments to overlook a price reduction as formulated by respondent B:

Procurements of fighter jets concern long-term investments and technology intense products, of which the procuring country’s does not have complete knowledge of. Since these decisions concern national defence, there is a drive for independency to a certain degree, depending on military alliances. Under these circumstances, purchasing governments have incentives to base their auctions on qualitative criterions to gain the necessary capabilities related to the long-term use and maintenance of the investment. If the purchasing government chooses to proceed with such an auction – a beauty contest – a direct offset of technology transfers and training (respondent A’s first category) is a common outcome. In these cases, qualitative aspects are prioritized over a price reduction since the offset comes at a price and an ordinary auction based on price is overlooked. This auction may be explained by what respondent B refers to as the “military argument”.

Respondent B also refers to a “political argument”. Similar to Bialos et al. (2009), respondent B explains that governments seek access to technology and knowledge, higher domestic employment and other development encouraging measures. Eliasson (2010) views the governmental procurement as an instrument for governments to achieve economic development – a political goal. Groenewegen et al. (2010) similarly view the government’s role as important as it sets economic objectives to achieve development. Therefore, governments do not only

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\(^{16}\) Excluding countertrade practices.
have incentives to form the procurement auction around qualitative criterion related to defence, but also around politically motivated, development encouraging qualitative criterions. Such an auction could result in different forms of offset and would be dependent on purchasing country’s offsets policies, following the reasoning of Ahlström (2000) and respondent B. The reason why indirect offsets and offsets unrelated to defence occur, may be explained by the Groenewegen et al.’s (2010) reasoning on governments’ economic objectives and the point made by respondent F on lobby and interest groups.

Groenewegen et al. (2010) reason that the government’s objectives should reflect the existing expertise and institutions in order to be effective. However, governments are imperfect and the decision may be based on vested interest. Lobby and interest groups have the ability to influence procurement decision regarding fighter jets, according to respondent F. Hence, the procurement is interpreted as a political transaction of negotiation. They are long, dense decision-making processes involving many stakeholders, as respondent F describes them. There are reasons why these group may want to engage and steer the auction away from defence-related criterions. As these procurements concern national defence, the acquired products are interpreted as public goods – a publicly funded service provided by the state to serve its citizens. Both respondent B and Trybus (2014) view offsets as a way for governments motivate the expenditure on defence to the civil sector. A procurement of fighter jets is a substantial investment for most countries, as the sum total of the Saab’s sale to Brazilian demonstrates. Since defence is a sensitive topic, the WTP can be unevenly distributed between the government and the general public might oppose the government’s spending on it, as explained by respondent F and Eliasson (2010). If the citizens’ WTP does not match the government’s WTP, the logical response could be to conduct an ordinary auction based on price, to lower the cost of the procurement. Another logical response could be to compensate by fulfilling economic objectives in conjunction with the procurement. For instance, with employment creation through local production or a technology transfer to create spill-overs. Thus, the government might choose to base the procurement auction on other criterions than price to satisfy the parties involved and motivate the expensive procurement to the general public.

Altogether, the procurement of a fighter jet is a long negotiating process of several actors, concerning the welfare of a nation since it involves considerable government expenditure. This is demonstrated by respondents’ description of the Brazilian sale, which took 20 years to complete. Given existing market imperfection, these political transactions of extensive
negotiation are of high transaction costs – a measure that will be treated further in the next section of this chapter.

6.3 What is the economic rationale for offsets in procurements of fighter jets?

At first glance, offsets might be seen as strictly motivated by political and defence factors. However, the results of this study shows that an economic rationale could be found for offsets, by the lowering of transaction costs. Similar to Taylor’s (2003) conclusion, yet different, we find that certain forms of offsets can reduce buyers’ uncertainties, originating from information asymmetries, as well as opportunistic behaviour from the seller. Offsets of respondent A’s first category (direct offsets of technology transfers and training) are interpreted as ex-post transaction cost lowering offsets in procurements of fighter jets, as they reduce the future uncertainties related to the main product.

As demonstrated above the international fighter market presents several market imperfections. An asymmetrical information structure prevails as the purchasing country has limited information of the product. The respondents explain that certain parts and core technologies are kept secret for two reasons. Firstly, sellers want to keep the uniqueness of their products to themselves for competitive reasons. Secondly, these products are defence secrets that serve strategic purposes to the selling country’s national defence. The consequence of this information structure is that purchasing countries face multiple uncertainties. Since the purchasing country does not have complete knowledge of the fighter jet, they become limited in maintaining, supporting and updating the system in the long run. Factoring in that these systems are supposed to last 30-50 years and are expensive, it is in the interest of the buyer to gain necessary knowledge and capabilities. Not doing so, and having to rely on the seller, presents risks related to potential opportunistic behaviour by the seller. Respondent E points out that this could even result in a situation of extortion, as the buyer is dependent upon the seller’s competence and goodwill. A couple of the respondents also shared cases in which the seller has not honoured the agreement or limited the buyer due to changes of political interests – a substantial exogenous factor increasing uncertainty.

Purchasing countries are faced with high transaction costs in safeguarding and monitoring the agreement in these cases. Following respondent A’s reasoning on offsets of category 1, consisting of technology transfers and training related to the purchased system, ex-post transaction costs can be lowered by limiting the uncertainties related to seller’s potential opportunistic behaviour. If the buying country’s domestic industry gains the necessary
capabilities and competences from such an offset, and the system was to malfunction at some point during its lifetime, the purchasing country does not have to rely to the seller. The purchasing government will initially end up paying more in order to get this assurance, but will probably be worth the risk of being stranded by the supplier. Taylor (2003) finds offsets of co-production and subcontracting to ex-post transaction cost lowering in a study of defence procurements at a general level. On the contrary, this study is focuses on a specific market, in which the base goods are of great longevity and technology intensity. This may explain why offsets of technology transfers and training are found to be the economically sound forms of offset. Another reason for this finding is probably that the lack of a buyer’s perspective.

Notwithstanding there are cases where offsets can reduce transaction costs, it should be stressed that offsets generally complicate procurements, as emphasized by the respondents. Offsets bare similarities to the market imperfections labelled as externalities by Groenewegen et al. (2010). If the procurement is treated solely in terms of the main contract, the transaction of the base good, the offset is an external factor affecting the price of the main transaction. This comparison is ambiguous though, since offsets may be seen as a natural component in procurements of fighter jets due to the political and military influences. In essence, it demonstrates the problem in treating offsets just in terms of market functionality. We shall return to this topic in the next section of this chapter. Another aspect to consider is that offset may add transaction costs to the procurement transaction as a whole. If the offset is to be defined by an agreement, there may be extra transaction costs to consider in term of the entire procurement. As identified by Williamson (1985), there are transaction costs appearing ex-ante, related to negotiation, drafting and safeguarding the offset agreement. There are also ex-post transaction costs to an offset also. The offset presents its future uncertainties of its own, for instance whether the purchasing country will absorb technology from a technology transfer, as respondent B notes. Thus, there are reasons to believe that the logic presented above on the lowering of ex-post transaction cost follows with an equal level of risk as benefit. Overall, it remains ambiguous whether offset could lower total transaction cost.

6.4 What are the implications of Directive 81 at the European fighter market?

North (1997) argues that institutional change implies an altered economic reality. A new institutional setting affects actors in different ways, since they do not have the same preconditions or informal rules. Consequently, when Directive 81 was implemented into national law, the Member States, were affected in different ways. Some of the respondents
argue that many Member States were dissatisfied when the EC issued Directive 81, since it limited countries possibilities to demand offset activities. They argue that the countries protesting the most were those with a low defence industrial capacity, whereas countries with a high defence industrial capacity did not mind implementing it. This disinclination might be related to the late implementation of Directive 81 into national law among many Member States, pointed out by Karock (2015).

Directive 81 is the first step to transform the European defence market in line with the EU’s core values. In other words, to achieve a common defence market where defence procurements are only to be judged on the price and quality of the goods. Some respondents argue that a prohibition on offsets would push down the price of defence procurements. Theoretically, this would create a more efficient market, and be beneficial to the taxpayers as less would be spent.

According to North (1997), an institutional change forces actors to modify their behaviour in order to survive under the new conditions. The new institutional setting for defence procurements within Europe, thus produces both winners and losers, depending on which perspective one chooses. Several respondents issued the potential benefits of offsets to buying countries, and argued that less developed countries with low developed industries were affected the most by the institutional change. Offsets have frequently been used as a mean for these countries to strengthen their domestic industries, create jobs or strengthen their economy. As Directive 81 limits the possibilities to demand offsets, with the exemption from what still can be motivated through the security of supply, countries lose the opportunity of receiving benefits that can strengthen their economy in areas outside of the main defence procurement. The ban of offsets could also create internal political problems for purchasing countries, since the WTP might be unequally distributed between governments and private sectors in Member States. As respondent B mentions, offsets have in the past been used to motivate expensive defence procurement to the civil segment, through employment creation or industry development. Without those possibilities limited, the spending of taxpayer money becomes harder to justify, especially in times of peace.

Whether prime contractors benefit under the new conditions or not depends on their relation to offsets. Although offsets might be incriminating for sellers, they also present opportunities, as explained by the respondents. Especially for sellers from smaller countries, lacking the political muscles of a more powerful country. Some of the respondents argue that since Saab use offsets as their competitive edge, a prohibition of offsets rather benefits the competitors who prefer not
to offer them. As Directive 81 changes the way countries conduct their defence procurements, the beneficiaries in this new setting are large countries which do not need offsets in order to sell and maintain their industries, as well as the producers who prefer not to supply them. As previously mentioned, a new form of offsets of a political nature has been identified in this study.

Sellers that belong to a smaller country are unable offer these, since their governments cannot offer political services to the same extent as larger prime contractors. As Directive 81 reduces offsets to those linked to security of supply, one might speculate that the only other offset-like arrangement that will appear in procurements are the ones which are hard to identify. Namely, the offsets associated to countries’ political power. Those able to offer these will probably gain even more market power, since companies like Saab would lose their strategic competitive edge. This could cause the European fighter market to become even more polarized than it already is and a future monopsony market structure would not be out of the question. Thus, the difference in companies’ attitude to Directive 81, and whether or not they win or lose, largely depend on the country of origin and the level of political power. There is also the possibility of offsets being driven underground, as mentioned by some of the respondents and Matthews and Ansari (2015). In such a case, the market would be less transparent – the opposite what the EC strived for.

Offsets can be viewed upon from different perspectives and in different contexts. The EC treats offsets in the context of the functioning of the internal defence market, from the perspective of a regulating authority with a market philosophy that contradicts the use of offsets. The market actors, on the other hand, face the offset in another context. The buyers and sellers are driven by their economic reality, and the offset have thus far been a part of that reality. Selling companies treat offsets in terms of maximizing profits, i.e. how the offset enables or limits their ability to compete and the effects of offset as a future obligation. As buyers, governments are more complex as they have mixed agendas and different opinions on offset. Either way, the defence and security aspect is the primary concern in a defence procurement, but there are also political and economic factors to consider.

North (1997) explains institutional change with the continuous interaction between actors and institutions. Old institutions are replaced with new institutions if they are perceived as inefficient and do not provide the proper incentive structure for the actors acting under the competition of scarce resources. Institutional change is therefore a reflection of the economic
reality the actors are facing. According to the gathered material, there seems to be no indication of a general consensus on Directive 81. Most Member States are faced with the economic reality of declining defence budgets and increasing costs of defence material, according to Bialos et al. (2009). Maintaining a domestic defence industry requires either a national program, i.e. financial backing from government, or export sales. Bialos et al. (2009) also note that governments consider national security, employment, access to technology, the maintenance of economic capabilities, and operational sovereignty over key defence systems. Following the reasoning in the first section of this chapter, decisions are not just made on the basis of the price and quality of the product. The respondents argue that procurements on the fighter market concerns large, long term, high technological investments. Procuring governments want to ensure a domestic capability to protect its investment. Consequently, there are motives for purchasing countries to choose the offset over a price reduction. Offsets present important components for the long-term maintenance of fighter jets, as well as an opportunity to motivate expensive defence procurements by achieving economic objectives.

Groenewegen et al. (2010) view institutional change as driven by endogenous factors or exogenous factors. The endogenous factors allude to North’s (1997) reasoning on institutional change. The factors outside of the institutional setting driving institutional change are culture, technology and the state. The latter exogenous factor is interpreted as the regulating authority; whose task is to set market premises. In this case, the regulating authorities are the EC. Directive 81 was encouraged by the EU to enhance the single-market principles in defence procurements. As stated in the Guidance Note to Directive 81, the directive cannot tolerate measure that go against the principles of EU primary law. The functionality of the market is essentially prioritized over the individual interests of European Member States. Groenewegen et al. (2010) reasons that an institutional change by the state could be driven by either a desire for efficiency or vested interest. Directive 81 seeks to improve the efficiency of the European defence market by removing the restrictive measures in offsets. Even though the directive may be driven by efficiency interest, it also reflects the core values of the EU, which is their ideological perception of how markets should function. The institutional change is therefore interpreted as partly driven by the values of regulating authority.

Groenewegen et al. (2010) view values, norms, conventions and laws as interrelated hierarchically. Norms, conventions and laws are not unilaterally connected to values, however. Respondent A argues that the problem of fulfilling the EU’s ambitions of an offset-free defence market is that Member States prioritize their national interest above the EU’s. Countries act in
their own self-interest by demanding offsets in defence procurements. This causes a friction in the fulfilment of the EU’s ambition. Essentially, the priorities and values are not corresponding, as explained above. This makes it difficult for the defence markets to function on a strict market philosophy. Going back to the first section of this chapter, the institutional setting of defence markets seems to be influenced more by countries’ individual political, economic and military motives rather than international market policy. As Matthews and Ansari labels it; market pragmatism versus economic orthodoxy. This leads to the question if it is suitable to regulate the European defence markets on principles of economic efficiency. The EU is a customs union and may issue directives for how trade should be conducted. However, the EU is not a defence union, and thereby lacking the authority to regulate Member States’ national defence. Since defence procurements is an overlapping area, involving both trade and defence related aspects, regulation becomes problematic. Directive 81 accounts for this, by considering the defence aspect by allowing exemption on the basis of security of supply. The directive is nevertheless ambiguous, since it does not define or explain offsets or what constitutes exemption on grounds of “national security”. All in all, since offsets unrelated to defence is no longer tolerable, purchasing governments are limited in fulfilling their economic objectives and motivating expensive defence procurements.
7 Conclusion

Our study concludes that offsets can be seen as a by-product of the existing market imperfections and political transactions, and a natural component in procurements of fighter jets. Certain forms of offset can be used by purchasing governments to neutralize existing market imperfections and thereby lower the transaction costs. However, this is only one dimension to offsets since they may appear in several forms with different purposes and risks attached to them. The institutional change on the European fighter market will produce both winners and losers in the years to come. Selling companies which may utilize political power to secure deals might end up benefiting from the directive, since smaller companies lacking the political strength will have less to offer compared to before the implementation of the directive. Similarly, the industries of small European defence economies, which have been depended on offsets in the past, will face challenges going forward. Whether eliminating offsets will lead to a more open and transparent fighter market remains ambiguous.

7.2 Policy recommendations

Directive 81 acknowledges the importance of the security of supply, though it does not put offsets in that context. In order to create clarity in its ambition, offset should not be treated homogenously. Offsets may be seen as too wide of a concept to be treated at an overall level, since the functionality differs between the known forms. Some forms of offsets neutralize the market imperfections and may be interpreted as essential for the long-term use of fighter jets. Clarifying the view on offsets will facilitate future regulations and the ambition to create a more efficient European defence market.

7.3 Future research

As this is a case study, giving the perspective from Saab Aeronautics, there is great potential for future research to get a deeper understanding of the role of offsets and why it occurs within defence procurements at the fighter market by extending the sampling. We consider that collecting thoughts and opinions from other fighter jet producing companies, even subcontractors, as a great analysis potential. It would enable future researchers to compare similarities and differences of opinion. Furthermore, from our study we have acknowledged that countries political power tends to influence how defence procurements are conducted. Thus, it would be interesting to get the perspective of an authority, since defence procurements and offset demands are made by governments. To further comprehend the overall functioning
of offsets in defence procurements, future research on other European defence markets is needed. Since Directive 81 is relatively new, and defence procurements are negotiated over long time periods, it is difficult to draw any major conclusions on how it has affected defence procurements within Europe thus far. Future research is needed to analyse the exchange settings within Europe, and will provide an understanding whether the transformation of the European defence markets has succeeded.
References


Appendix 1

Interview Guide – Saab Aeronautics

The circumstances are changing on European defence markets. The EC has issued Defence and Security Directive 2009/81/EC, which seeks to improve competition, transparency and market integration by banning offsets. Our intention is to investigate and analyse the role of offsets in procurements of fighter jets, to get a better understanding of the present situation at the fighter market.

This interview will initially start off with questions concerning your experience and knowledge of offsets and defence markets. The interview will then treat questions concerning the Aerospace and Defence industry, defence markets, offsets and the future of the European fighter market.

Background

- What is your position and area of expertise at Saab?
- What experiences do you have of international defence markets and offsets?

The market

- How do defence markets differ from other civil markets?
- What complexities do sellers and buyers face at the fighter market?
- Why are the number of producers limited within the Aerospace and Defence industry?
- How would you describe the competition at your market?
According to us, offset refers to additional agreements to a main contract, defining transactions of economic activities demanded by purchasing governments. For example, it could be an agreement of technology transfer, training of the procured defence system, subcontracting, co-production, among other things. Does our definition correspond with the way you look upon offsets?

Offsets

- Why do offsets exist at defence markets today?

- What problems do you associate with offsets?

- What problems do direct offsets solve for the buyer?
  - Indirect offsets?

- What problems do offsets solve for the seller?

- How does offset affect competition in procurements of fighter jets?

- Which actors benefits of offsets?
  - Who loses?

- Why has not a defence market without offsets emerged?
The future – The European defence market and offsets

Directive 2009/81/EC, issued by the European Commission, may be interpreted as a first step to evolve a common European defence market. The directive reflects the European Union’s fundamental values and principles. The European Commission motivate the directive by stating that the European defence markets should be not be treated differently than other European commercial markets. Furthermore, the European Commission consider the following of offsets:

“Whether they are civil or military direct or indirect in nature, and whatever their legal connection with the main contract is, offset requirements are restrictive measures which go against the basic principles of the Treaty, because they discriminate against economic operators, goods and services from other Member States and impede the free movement of goods and services. Since they violate basic rules and principles of primary EU law, the Directive cannot allow, tolerate or regulate them.”

(Guidance Note, DG MARKT, 2009)

- Were you familiar with Directive 81 before our meeting?
- What are the noticeable effects of Directive 81 at the European fighter market?
- What problems would emerge if the possibilities to use offsets would be restricted?
- If offsets were not to be tolerated at the European defence markets; which actors would benefit?
  - Which actors would lose?
- How do you look upon the future for offsets and the defence market?

Thank you for your participation!
Appendix 2

Table 3 and figure 2 presents 20 current EU Member States’ military expenditure as percentage of GDP. Excluded Member States either lack data or were part of another federation during some point of the period 1988-2014. The data is collected from Stockholm International Peace Research Institute. Data available at: http://www.sipri.org/research/armaments/milex/milex_database (Accessed: 2016-04-05)

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Military expenditure as percentage of gross domestic product, 20 current EU Member States, 1988-2015

Figure 2: Military expenditure as percentage of GDP during 1998-2015.
Appendix 3

Table 4 and figure 3 demonstrates R&D intensity in high-technology industries. The data is collected from the OECD. Data available at: http://www.oecd.org/sti/inno/48350231.pdf (Accessed: 2016-04-05)

Table 4: Demonstrates the R&D intensity in high-technology industries.

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<tr>
<th>High-technology industries</th>
<th>R&amp;D divided by production</th>
<th>R&amp;D divided by value added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft and spacecraft</td>
<td>10,3</td>
<td>29,1</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>10,5</td>
<td>22,3</td>
</tr>
<tr>
<td>Office, accounting, computing machinery</td>
<td>7,2</td>
<td>25,8</td>
</tr>
<tr>
<td>Radio, TV, communications equipment</td>
<td>7,4</td>
<td>17,9</td>
</tr>
<tr>
<td>Medical, precision, optical instruments</td>
<td>9,7</td>
<td>24,6</td>
</tr>
</tbody>
</table>

Figure 3: Demonstrates R&D intensity of selected OECD countries, 1999.