Exploring Impact of Government Intervention on Growth in a Multisided Platform

A comparative case study on Copenhagen Airport and Zvartnots Airport

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Abstract

Every day we are surrounded by multisided platforms; when chatting with friends over Facebook, buying a book at Amazon, booking a room using Airbnb, and paying for our daily activities using our Visa cards. Although these successful companies sell different products, they have one important thing in common: They create value by enabling interactions between two or more customer groups. Furthermore, since successful multisided platforms have strong network effects, they tend to grow and tip towards a single dominant platform creating high barriers for entry, thus motivating an increasing number of policy makers to intervene. This is where the heart of this study lies: Exploring impact of government intervention on growth in multisided platforms. The research is based on a comparative case study assessing airports as multisided platforms. Since airports operate in a highly regulated industry, they serve as a prominent example for government intervention and growth. This study proposes three growth factors that impact growth in multisided platforms: I) Government involvement in operations; II) Government control in market access; and III) Government investment efforts. Where the two first growth factors display negative impact on growth when governments intervene, growth factor three reveals positive impact on growth. The purpose of this study is to inspire the development of an economic model where the discovered growth factors can be tested and thus complement the limited literature on the topic.

Key words: Multisided platforms; government intervention; airports; aviation industry.
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1. Introduction

In the past two decades, the world economy has been met with significant changes due to growing globalisation of markets and industries. This has subsequently led to increasingly fierce competition, changing the existing “rules of the game” and forcing companies to redefine markets, restructure operations, and modify their business models in order to survive (Wiersema & Bowen, 2008; Govindarajan & Gupta, 2011). As a consequence of this period, a “multisided-platform bubble” emerged delivering significantly higher percentage profit margins than those enjoyed by traditional resellers. Multisided platforms (MSPs) are defined as technologies, products or services that create value primarily by enabling direct interaction between two or more customers or participant groups (Hagiu, 2014). Some of the most well known examples of the new business model are eBay (buyers and sellers), Airbnb (dwelling owners and renters), the Uber app (professional drivers and passengers), Facebook (users, advertisers, third-party game or content developers), PayPal (merchants and consumers), shopping malls (retail stores and consumers), Ticketmaster (event venue and consumers) and many more. The MSP business model differs from the more-conventional denotation of a “one-sided” market. In one-sided markets, the merchant acts as an intermediary that buys from sellers and resells to buyers, whereas multisided platforms act as intermediaries that enable affiliated sellers to sell directly to affiliated buyers. MSPs are more complex entities than one-sided markets because they involve more players, each with their own interests to be served. Furthermore, the value that customers experience on one side of the platform typically increases with the number of participating customers on another side. This is often referred to as indirect network or cross-side network effects. Multisided platforms are continuing to play an increasingly important role in the global economy; as a result, in the past decade, they have become one of the most active areas of research in economics and strategy, while also drawing a considerable amount of interest from practitioners (Hagiu, 2014/2011; Hagiu, 2007; Appold & Kasarda, 2011; Schmalensee, 2010; Bolt & Soramäki, 2008).

The majority of existing literature within the field of multisided platforms is based on what management can do to design an MSP that serves the needs of all their constituents, thereby attracting growth. For example, Hagiu (2014) suggests how management can regulate the behaviour of the platform’s participants by raising questions such as “who is allowed to join” and “what are the various sides allowed to do?” However, these questions
and the general economics of multisided platforms are also highly relevant and important for an extensive variety of policy issues. For example governments have played a vital role in enacting policies concerning antitrust enforcement in MSPs. These policies have especially dealt with pricing issues to avoid monopolization and vertical contracting. MSPs are particularly at risk because they are likely to tip towards a single dominated platform due to network effects (Hagiu, 2006; Rysman, 2009). This study aims to inspire general growth parameters for an economic model, which could complement the limited findings on government intervention in MSPs. The idea is to move beyond the traditional management focus towards exploring what impact policy makers have had on attracting (or distracting) growth in MSPs. This leads to the research question that this paper will address:

**Figure 1: Contribution to the research field**

“How does government intervention affect growth in multisided platforms?”

The research question will be answered through an exploratory comparative case study on Copenhagen airport (located in Denmark and operating since 1925) and Zvartnots Airport (located in Armenia and operating since 1961). The cases are found to be highly compatible because they share an ambitious growth vision, while offering both interesting and contrasting situations in terms of the changing roles of policy makers. Both airports are privately operated, however Copenhagen airport was liberalised in 1997, while the domestic civil aviation sector in Armenia has only recently (October 2013) become liberalized (DK04_r1; Arka, 2013a). Answering the research question by looking at international airports through the lens of multisided platforms is interesting because despite liberalization, the sector is still highly regulated by both national and international policies affecting potential growth opportunities. Staniland (2003) goes as far as calling airlines “government birds” because the government has played a crucial role in the evolution of
the industry since the 1920s: “Air service has long been seen as the driver of economic development just as economic development is a driver of air service” (Appold & Kasarda, 2011: 99). Based on the mentioned interlink between airports and policy makers, Gillen (2011) and, less directly, Starkie (2001) have suggested that the MSP framework can provide important insights for both airport management and policy makers. Both groups have a stake in guiding airports to add value through active engagement in matchmaking, for example, between airlines on one side and passengers on the other, rather than acting as passive infrastructure providers or local monopolists. The reason is that airlines search for and benefit from large passenger pools, just as passengers search for and benefit from a large choice of airlines and routes. Both parties obviously gain from each other’s presence and the relationship also incorporates other wide-ranging MSP constituents, such as retail outlets and hotels. Serving all sides well is beneficial for both the airport operators and their constituents in terms of profit-making, as well as for policy makers aiming to increase the passenger flow to the country, thereby enhancing business and tourism opportunities (Appold & Kasarda, 2011; Ivaldi et al, 2011). Nevertheless, the discourse surrounding MSPs in regards to airports remain a controversial topic of discussion, as evident from Fröhlichs (2010) critical contribution to the topic. However, the discussion is outside the scope of this paper.

The paper is structured as follows: The next section is a literature review divided into three parts. The first two parts provide an overview of the main components of the paper by briefing on what multisided platforms are, whilst illuminating three central views on state-business relations. The learning derived from the first two parts is relevant for understanding part III, assessing the limited literature on government interventions in MSPs. The following section illuminates the method and research design that is critical for understanding on which basis the research question is based upon. Obviously, the heart of the study lies in the analysis section, where three main propositions (or growth factors) are suggested for answering the research question. And finally the discussion of the findings serves as the catalyst linking the theoretical and empirical findings.
2. Literature review

In the past decade, the economics of multisided platforms has been established as a substantial area of research, leading to the development of rapidly expanding literature in economics, antitrust and strategic management. Evans & Schmalensee (2013) have identified more than 200 articles on multisided platforms, which have appeared in print or in the form of a working paper since they last surveyed this area in 2007. The article list is available for review in Appendix E. This is not a surprising development considering that MSPs, such as Amazon, eBay, Facebook and Google, are behind some of the fastest-growing businesses in the past decade. These companies are playing an increasingly important role in the global economy, inspiring governments around the world to enact policies that have implications on their evolution. This is for example evident with the rising popularity of the open source software movement, where governments have been promoting open software systems at the expense of proprietary systems (Hagiu, 2006). Nevertheless, at this stage no papers have directly focused on how government intervention can enable or deter growth in MSPs and this obviously has implications on the literature review below. The purpose with the first two sections is to serve the understanding of the two main actors in this study: Section 2.1 will illuminate the characteristics of multisided platforms and section 2.2 will study the evolution and distinct views on government-business relations in general. The aim of this section is not to be exhaustive on the topic, but rather to state the relevance of dealing with government intervention in businesses. Subsequently, section 2.3 will assess the limited findings of government intervention in MSPs and exemplify the ambiguity that policymakers are faced with in terms of multisided platforms compared with traditional businesses.

2.1 Brief insights into multisided platforms

This section will firstly focus on illuminating what multisided platforms are and what determines whether or not a market is multisided. To gain more profound knowledge of the topic, the following section will cover Hagiu’s (2014) framework that identifies four main strategic decision challenges characterizing MSPs. The framework draws on more than 10 in-depth case studies conducted over the last five years by one of the most quoted researchers within MSPs.
2.1.1 What is a multisided platform?

Despite the fact that research on MSPs is one of the most active areas of research in economics and strategy, relevant literature has struggled with the lack of agreement on a proper definition. Existing definitions suffer from excessive specificity, over-inclusiveness, or too much vagueness to be of use. This vagueness has left the term to be disconcerted with the common question “after all, isn’t every market two-sided?” (Hagiu & Wright, 2011: 2).

Hagiu (2014) recently proposed a concise and clear definition that is used for this study.

“Multisided platforms are technologies, products or services that create value primarily by enabling direct interactions between two or more customer or participant groups (p. 71).

Evans and Schmalensee (2007) propose a less formal definition of MSPs, which has the purpose to capture the key features of platform businesses: “A multi-sided platform (which they call an economic catalyst), has (a) two or more groups of customers; (b) who need each other in some way; (c) but who cannot capture the value from their mutual attraction on their own; and (d) rely on the catalyst to facilitate value-creating interactions between them.” Armstrong (2006) uses the term two-sided markets instead of MSPs and defines it as “two groups of agents who interact via ‘platforms’, where one group’s benefits from joining a platform depends on the size of the other group that joins the platform”. It may confuse the reader that multisided platforms are also often referred to as two-sided platforms, but in this paper the use of MSPs is more prevalent because the focus on two sides is unnecessarily restrictive. Also, most use of two-sided markets has referred to businesses as “platforms” despite that not all platforms are MSPs. Platforms are more broadly defined as essential products, services or technologies upon which other products or services can be built (Hagius & Wright, 2011; Gaver & Cusumano, 2008). This paper focuses specifically on MSPs including relevant literature on two-sided markets and not platforms in general. When the word ‘platform’ is used, this study still refers to ‘multi-sided platforms’.

As previously stated, MSPs are behind some of the fastest-growing businesses that have emerged over the past decade. Due to these circumstances the research has drawn considerable interest from practitioners that are trying to replicate successful business models based on MSPs (Hagiu, Wright, 2011): “Airbnb was valued at about $2.5 USD in its
private funding round in October 2012. That’s the gold at the end of the multisided platform rainbow that many seek” (Hagiu, 2014; 79). Nevertheless, most replication efforts fail because building and managing a winning platform is not an easy gain. Successful MSPs are rather the exception than the norm because they are based on highly complex organizational structures that serve the needs of multiple sides simultaneously (Hagiu, 2014). MSPs are not restricted to regular businesses, but also encompass groups of firms, not-for-profit organizations and even cities that create a valuable interaction service (e.g. credit card networks) (Hagiu & Wright, 2011). MSPs differ from the more conventional terms “one-sided markets” and “input suppliers”. In one-sided markets, as e.g. grocery stores, merchants act as intermediaries that buy from sellers and resell to buyers, whereas MSPs act as intermediaries that enable affiliated sellers to sell directly to affiliated buyers. Input suppliers only have one customer group affiliated as opposed to multiple. An example of a MSP is the online video platform, Brightcove, which enables media companies such as Discovery Channel, Fox, Sony Music to create and post high-quality videos on their websites to be watched by users. However the users do not need to install or subscribe to Brightcove and can automatically play Brightcove-powered online videos from any website, while the content providers control all the important aspects of the video. Thus, although Brightcove enables direct interactions between online content providers and users, there is no meaningful sense in which users are affiliated with the Brightcove platform (Hagiu, 2007 in Bolt & Soramäki, 2008; Hagiu, 2006; Hagiu & Wright, 2011). Figure 2 simplifies the key distinctions between MSPs, re-sellers and input suppliers.

**Figure 2: Differences between MSPs, re-sellers and input suppliers**

![Diagram showing differences between MSPs, re-sellers and input suppliers](source: Hagiu & Wright (2011))
Amazon.com is one of the best examples to use when distinguishing the three organisational structures. Initially, Amazon simply started as an online retailer, reselling books sold by its publishers. Today Amazon’s business model has evolved to encompassing all three structures. The company acts as a) a re-seller, when it buys and resells products under its own name; b) an MSP, when it enables third-party sellers to sell on its website, thereby giving the seller and buyer the opportunity to interact directly while Amazon simply takes a cut from the corresponding revenues; c) an input supplier, when it supplies its Amazon Web Services (e.g. data storage, computing power, APIs for e-commerce applications) to thousands of third-party developers and website operators. Furthermore, Amazon also serves as a good example of products and services, which are one-sided, but hold the potential to be expanded into an MSP. Moving from one-sided to MSPs can be particularly powerful because it can be exceedingly difficult to get both merchant and consumers to adopt it simultaneously. A business having a strong existing relationship with either side (merchants or consumers), which can be leveraged, is in a much better position to become a successful MSP (Hagiu & Wright, 2011; Hagiu, 2006b).

2.1.2 Main strategic challenges characterizing MSPs

As previously stated, Hagiu’s (2014) framework identifies four main challenges that characterize multisided platforms: The number of sides to bring on board, pricing structures, multisided platform design and governance rules. The first challenge, the number of sides to include in the platform, is one of the basic questions that any management team should consider when building an MSP. In some cases the choice is obvious and constrained by the industry itself, while in other situations, the management has to face critical decision-making challenges. Illuminating previous studies on MSPs, one general assumption seems to be certain: “In practice most successful multisided platforms evolve relatively slowly […]” (Evans, 2003: 350) because they have to solve the key challenge known in the literature as the chicken-and-egg problem. This refers to the need to at least attract a critical mass of users to ratify their existence. The payment card industry provides a clear example, as the card will be worthless to individuals if few merchants accept it, and likewise worthless to merchants if few individuals use it. Due to the indirect network effect on the demand side and fixed costs of establishing the platform, in practice, most successful MSPs tend to grow and tip towards a single dominant platform creating high barriers for entry (Evans, 2003; Bakos & Katsamakas, 2008; Rochet & Tirole, 2003; Hagiu, 2014).
The second challenge refers to price setting in MSPs, which to this date, is one of the first and most dominant areas in economics and strategy work on MSPs. One can argue that a market is multisided if the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by the other side by an equal amount. For example, this is relevant when illuminating the airport industry where passengers are better off if there are more airlines, and airlines are better off if there are more passengers. Therefore, it is more attractive for airports if they can earn revenues from both sides by obtaining a positive margin on the airline side, and negative margin on the passenger side to encourage an increasing volume of transactions, and thus increasing the total airport revenue. At first this may seem counterintuitive, but this is not the case when considering the fact that costs can be cross-subsidized in two-sided markets. From this it can be derived that there is no meaningful economic relationship between benefits and costs on each side of the market when considered alone. Change in demand or cost on one side of the market will inevitably affect the level and relationship of prices on all sides (Hagiu, 2014; Appold & Kasarda, 2011; Evans, 2003). Thus, Hagiu (2014) suggests three pricing principles that the management is ought to consider in MSPs. Firstly, in multisided platforms, the price sensitivity should be considered individually for each side of the platform and can be estimated by the availability of substitute services or simply by bargaining power. Secondly, if there is no priced transaction between the sides, then the side that stands to benefit more of the presence of the other side should be charged more. On the other hand, if there is a priced transaction between two sides, then the side that extracts most value should be charged more. Selecting the right pricing strategy is difficult because it includes considerations of multi-faced factors that are strongly ambiguous in a MSP setting (ibid.).

The third challenge is platform design, which can comprehend a remarkable variety of functionalities and features that serves its multiple sides by performing two fundamental functions, which are reducing search costs and reducing shared costs. Search costs are defined, as costs that are incurred by the multiple sides before they actually interact, whereas shared costs are costs incurred after the search is over and the transacting parties have found each other. Search costs can enable the sides to determine the best “trading partners”, which is the case in a matchmaking context such as eBay, with buyers and sellers, and Match.com, with men and women. Shared costs (also referred to as duplicate costs) represent expenses that can be allocated between different members of the relevant
sides of MSPs. PayPal (acquired by eBay in 1999) serves as a good example for reducing both search and shared costs by offering a convenient way to settle transactions while reducing asymmetric information through their Feedback Forum. Decisions on which functionalities and features to include in the MSP when deciding on cost reduction can be centered on a straightforward cost-benefit analysis: "If the cost of building and implementing is less than the value created for the multiple sides served, include them" (Hagiu, 2014: 74). The greatest challenge when designing an MSP is to ensure that all the interests of the sides are served because it is common that some features can create strategic trade-offs for the MSP because they generate positive value for some participant groups or for the MSP itself while creating negative value for other participating groups (Hagiu, 2006; Hagiu, 2006b; Hagiu, 2014).

The fourth challenge is governance rule, or more specifically nonprice governance rules, that can play a major role in MSPs because their core value is facilitating interactions between third parties. These rules can be regulating access (who is allowed to join) and interactions (what are the various sides allowed to do). There is considerable variance across MSPs in terms of how loose (or tight) their governance rules are, even within the same industry, which can clearly affect the entire ecosystem and customer proposition. The purpose of having tighter governance is often to pursue quality rather than quantity, but the benefits of higher quality have to be weighed against the costs of implementing tighter governance rules. This point is well explained when considering the two leading online dating sites in the US, Match.com and eHarmony. Match.com places minimal restrictions on who can sign up on their platform and how their members interact, whereas eHarmony has implemented some of the tightest governance rules among online matchmaking services in terms of both access and interactions. When visiting eHarmony the users are required to complete a questionnaire of approximately 250 questions. This information is then processed and used to screen the applicants in terms of their access criteria. This means that the platform provider has the option of refusing membership to some applicants, even if they are willing to pay the membership fee. Furthermore, once granted admission, eHarmony’s members are not allowed to view profiles and communicate freely. Instead, the company uses a matching algorithm to generate potential matches for every member, and each member can communicate only with her or his potential matches. Governance rules, such as those imposed by eHarmony, are indispensable and should be considered by the management. Hagiu (2014) mentions three situations where market failure cannot be
regulated through e.g. pricing, and therefore active governance becomes central in order to prevent the ecosystem from not functioning properly or collapsing: a) Insufficient information and transparency in the market with respect to the quality of the goods and services exchanged through the MSP, which can enable low-quality suppliers to drive out high-quality ones; b) too much competition on one side of an MSP reducing incentives to invest in developing high-quality products or services; c) without some form of strict governance by the MSP, each constituent might fail to take actions or make investments that would have positive spillover effects for the MSP and its other constituents (Hagiu, 2014; Hagiu, 2007).

2.2 Incentives for government intervention

In order to understand the incentives of government intervention and thus meet the research gap of this study, it is relevant to go back in history and recognize the general implications of how state-business relations have evolved. The relationship between state and business can also be referred to as: capitalism versus communism; privatization versus nationalization; or markets of business versus controls of governments (Mintzberg, 1996). This section provides a brief and descriptive synopsis, which takes a look at three distinct views on state-business relations to understand the roots of policies concerning government interventions today. Examples are provided to establish an even deeper understanding of these economic theories in practice. The aim of the section is neither to give thorough definitions of the mentioned terms, nor to distinguish “rights from wrongs”. Instead, the section provides different perspectives on the nature of interactions between state and business, and how this relationship has evolved over time. This section will mostly serve as background knowledge for understanding the challenges and contradictions that businesses and policy makers face today.

2.2.1 Three central views on state-business evolution

Historical developments reveal that the interrelationship between government and business is highly relevant to consider in terms of wealth creation. The synergistic interaction between government and business entities can yield more favorable results. Successful exchange between both actors can lead to a more effective deployment and allocation of resources, more appropriate management of industrial policy, the removal of significant obstacles and barriers to growth, and the creation of a better model for wealth generation.
and distribution. Conversely, the failure to collaborate can lead both parties to engage in harmful behavior, causing social and economic deficiencies and disproportionate wealth distribution favoring a few beneficiaries (Velde, 2010ab). This points towards a context where the opportunities for cooperation between the public and private sector are becoming increasingly prevalent. “Business can learn from government no less than government can learn from business […]” (Mintzberg, 1996: 83), emphasizing an increasing relevance for an effective collaboration between the government and business sectors, one that can support stable economic conditions. Effective government-business relations that support stable economic conditions are linked to growth and learning through three main functions: a) addressing market and coordination failures, b) addressing government failures, and c) reducing policy uncertainty (Velde, 2010ab; Mintzberg, 1996; Lin & Monga, 2010).

British economist John Maynard Keynes (5 June 1883 – 21 April 1946) was the first to argue for the importance of a balanced partnership between the government and business to afford welfare in the society: “Keynes thought that capitalism was brilliant, but left to its own devices it could also go seriously wrong. It was up to the governments to step in and get the economy back on track” (GD12_v1: 1:18). In his book “General Theory of Employment, Interest and Money,” Keynes supports government intervention during unstable economic conditions, where the government bears a responsibility in revitalizing the economy through funding initiatives, albeit at the expense of incurring debt (Keynes, 1936). Modern Keynesianism is acknowledged as the government’s attempt to increase control over economy, making it a controversial and relevant topic of contemporary debate. For the first time since the 1930s, we are facing the same problems that plagued Keynes’ lifetime: market failure, banking and financial crises, long-term economic slump, and increased unemployment, to name a few. Keynes believed that an economy was characterized by unpredictability; when an economy became predictable, it would most often lead to an economic disaster or shock. This was apparent in 2007, before the financial sector collapsed after a historical boom, and similarly in 1929 before the Great Depression. Furthermore, Keynes realized that the market economy could not stabilize itself without government intervention. He stated that in case of a crisis, the solution is for government and business sectors to start initiatives together to save the economy (Keynes, 1936; GD12_v1). The construction of the Hoover Dam is one of the most iconic examples that represent a period when the economy was failing and the U.S. government intervened. In 1907, President Theodore Roosevelt proposed that the federal government would play the key role in developing the Colorado River as part of the
New Deal (Hiltzik, 2010). President Hoover launched the construction of the dam, making it as the largest construction project in the world during that time. Initially, President Hoover was opposed to the idea of the government generating electricity when private utility providers could supply it. However, he was under great pressure to create a federal public works program to create new jobs and revitalize employment (Hiltzik, 2010), and the 165 ml. USD investment did just that, producing billions in economic growth: “The Hoover Dam is a monster of cement and steel, but has also become a symbol, conjuring up a time when politicians could react to economic calamity not with paralysis […]” (GD11_a1: section 2). Although the project signified the government’s ability to complete such a large-scale undertaking, it also brought to light the pivotal role of government. The Hoover Dam project intended to benefit Western states by securing a water supply; however, the very people who benefitted from the construction of the Dam lost control over managing the resources, such as the water, provided by the Dam (Hiltzik, 2010). As the main investor, facilitator, and manager of the Hoover Dam construction, the federal government still maintains control of the historical infrastructure (ibid.), highlighting the long-term effects of government involvement. The Hoover Dam project is a helpful example for analyzing and anticipating both the positive and negative benefits the role of the federal government can play.

Where Keynes is recognized for encouraging government-business interactions, two additional viewpoints are critical to mention: Free Market and State Control. A free market economy is based on supply and demand with little or no government control, often referred to as the “invisible hand”. The Scottish inventor of the term, Adam Smith (5 June 1723 - 17 July 1790), is referred to as the world’s first free market capitalist. Contrary to Keynes, Smith saw the responsibilities of the government being limited to defense of the nation, universal education, public works (infrastructure such as roads and bridges) and the enforcement of legal rights (property rights and contracts) and punishment of crime. Hence Adam Smith was a major proponent of laissez-faire economic policies (Smith, 1776). One of Smith’s successors in the free market thinking, the Austrian (and later British) economist and philosopher, Friedrich Hayek (8 May 1899 - 23 March 1992), spent his life in disputes with John Maynard Keynes, because he believed that trying to solve the debt problem in the 1930s by incurring even more debt was equivalent to using “fire to turn off fire”. Hayek believed that almost any government intervention in the market, such as setting state tariffs to support businesses or manipulating the level of the interest rate, would end in disaster, even during periods when the economy is troubled. His idea was to
free the market to avoid power becoming centralized in the government. He believed the market would do a far better work in regulating itself, if only government would leave it alone (Hayek, 1944; GD12_v2). In his book, “The Constitution of Liberty,” published in 1960, Hayek states, “it would scarcely be an exaggeration to say that the greatest danger to liberty today comes from the men who are most needed and most powerful in modern government, namely, the efficient expert administrators exclusively concerned with what they regards as the public good” (p.262). More recently, Mintzberg (1996) argued that looking back in time, the free market and privately owned corporations have served the distribution of goods and services well by letting the open-market forces lead the way.

Lastly, the paradigm where the state has full control is predominantly guided by Marxian and Marx-inspired economics, initially developed by Karl Marx (5 May 1818 – 14 March 1883) and Friedrich Engels (28 November 1820 – 5 August 1895), both born in Germany. On a basic level, Marx acknowledged and explained the downside of capitalism, stating that capitalist systems were not the most efficient or functioning. Through his writings, such as The Communist Manifesto (1848) and Das Kapital (1867–1894), Marx criticized the capitalistic tendency to overproduce, thus diminishing profit realization. Furthermore, he pointed out that a capitalist system encouraged pyramidal distribution of wealth, where a few players at the top of the pyramid were the most profitable at the expense of society. He claimed that economic success was a more achievable goal if the public and private sector were one, where government owned and controlled businesses. In his viewpoint, the market alone is not inherently good for society, and therefore, state control is necessary through a centralized economy. The establishment of communism and the Soviet Union is the most notable example of state-controlled economics, such as state ownership of production supplies and collective farming (Davies, 1994). The economic plans, also known as the Five-Year Plans, were based on a system of centralized planning to fuel the national economy, and could be financed by taxes, also known as “centralized social income” (Manasta, 1968).

The three paradigms of economic thought briefly presented above are meant to display the different levels of involvement a government can exercise within economic policy making, while showcasing the development of the relationship between the private and public sectors. In the face of the current economic crisis, the three views of Keynes, Hayek and Marx offer varied approaches in considering the dynamic nature of markets, and can
significantly impact future actions taken by both the state and the business. For example, Mintzberg (1996) argues that the strict state control of all organized activities during the Soviet era subjected the countries within the USSR to an internal imbalance since there was little or no counteracting force to promote equilibrium. Nevertheless, Mintzberg believes that currently, there is a similar imbalance in the West as the opposite effect of the Soviet era is taking place. Suddenly, companies are treated more favorably than the state, causing more rights to be compromised as people lose more of their individual freedom (ibid.) Considering these three views and applying them within this specific context creates an opportunity for both governments and businesses to further explore a holistic approach in designing and maintaining effective policies that further promote healthy state-business relationships, and in turn, can strengthen the current economic state. For the purposes of this research, the influence of these three views will be indirectly and directly drawn upon throughout the paper when relevant.

2.3 Government intervention in multisided platforms

Multisided platforms are increasingly playing an important role in the global economy by delivering significantly higher percentage profit margins than those experienced by traditional resellers. However, whilst they are prospering, MSPs also bring up several new challenges that have proven to have implications on social efficiency. This is often measured by social welfare, which consists of welfares of all parties involved in the market. Consequently an increasing number of policy makers are starting to devote considerable attention to some of these markets, with the aim of enacting policies that improve social welfare distribution. Hence, as in traditional one-sided markets, the government interferes with regulatory actions in multisided markets with the aim of affecting decisions made by individuals, groups, or organizations regarding social and economic matters (Hagiu, 2006; Hagiu, 2013; Rysman, 2009; Hayashi, 2008).

2.3.1 Determining market power

Due to strong network effects, successful MSPs have a tendency to tip towards a single dominated platform by reaching equilibrium where all agents sign up exclusively to a single platform (cf. section 2.1.2). This often leads to high entry barriers, which can have important implications for market power and thus motivate antitrust regulators to intervene and determine whether the platform has enough power to engage in certain
anticompetitive tactics, and whether those tactics will lead to an increase in market power: “[…] a firm has monopoly if it has the power to control prices or exclude competition” (Evans, 2003: p.362). When examining market power in multisided platforms it is important to define whether the agents choose to single-home, where they connect to only one platform to transact on, or multihome, where they connect to several platforms (Bolt & Soramäki, 2008). For example, in the payment card industry it is found that consumers prefer single-home and thus put a great majority of their payment card purchases on a single network. The level of concentration only varies slightly with the choice of network or consumer characteristics such as income, education, and spending. This means that the only way for the other side (the merchant) to reach those agents (the consumers) is through their preferred platform. Thus, in the case of single homing, the MSP has substantial market power over the merchant. On the contrary, the power of the platform becomes considerably less when assessing agents that multi-home. In practice, however, only few consumers regularly use multiple networks; therefore, one can argue that the majority of MSPs are characterized by closed, proprietary and monopolistic platforms with high entry barriers (Rysman, 2007b; Song, 2013).

In terms of social efficiency (defined in section 2.3), there is a widely held view among policy makers and economists that open platforms are intrinsically more desirable than closed, proprietary and monopolistic platforms. Competition among platforms is favored because by encouraging competition, policy makers can hinder monopolists in earning abnormal profits at the expense of consumers and society. Despite being against government interventions, Friedrich Hayek (cf. section 2.2.1) would have supported this view on competition. He believed that every market participant faces knowledge problems due to imperfect information, but that these problems can be solved with the help of competition (Lindstädt, 2009).

Today, the necessity for policy makers to regulate multisided platforms that devise anticompetitive strategies is not different than in one-sided market platforms, but the implications are more complex, less transparent and not fully understood. Antitrust studies on multisided platforms have surprisingly found that, because of the two-sidedness, encouraging competition in one or both sides (consumer or merchant) may negatively affect social efficiency. Welfare analyses in two-sided markets follow a very different logic from those in one-sided markets and may lead to counterintuitive conclusions (Carbó-
Valverde, 2009). One example is linked to when the United States’ government strongly considered intervening with Microsoft’s growing market power. Intuitively the tens of thousands of software applications that run on Windows demonstrate the existence of significant entry barriers and market power, which could directly lead to antitrust issues. Nevertheless, the government viewed their growth as socially efficient and pro-competitive because it made the platform product more valuable for all customer communities. Hence the government decided to look at the Windows platform as an efficient structure because it enabled welfare of all parties involved in the market. Conventional competition policies would have disrupted welfare because regulating business monopolies can hinder the emergence of a platform and deprive consumers of benefits (Rysman, 2006a/2009/2007b; Evans, 2003; Hayashi, 2008). This learning has implications on what is the most optimal intervention approach for governments in terms of multisided platforms. Two main approaches that are prevalent are: ‘The Rule of Reason’, which tends to analyze each case individually and ‘Per Se Rules Approach’, which sets up rules for antitrust authorities to follow when evaluating competition issues. In terms of MSPs, Christiansen and Kerber (2006) suggest a competition policy that lies between the two mentioned approaches. That is having a certain set of rules, which are applied, but also leaving space for case specific analysis in order to do justice for the differentiation of individual cases. This solution has two advantages because on one hand it considers differences and complexity, which is missing when applying per se rules, and on the other hand it limits the time and costs spent for purely single case analysis (Lindstädt, 2009).

2.3.2 Antitrust regulation of pricing
The section above stated the importance for policy makers to determine market power in terms of deciding when to intervene in multisided platforms. However, understanding the price structure is one of the most conventional and direct tests of market power. When considering traditional one-sided markets, policy makers can simply determine market power by testing whether the price increases in markets with less competition. In this case, economic theory predicts that prices will go up if the market becomes more concentrated, leading consumers to be worse off. In terms of policy makers the situation could be relevant in case of mergers where the antitrust authorities often play an active role in approving or disapproving the merger strategy based on the outcome. Nevertheless, it is significantly more complex for policy makers to evaluate the pricing structure and its
implications on social welfare when looking through the lens of a MSP (Rysman, 2009; Song, 2013). For example, the Canadian newspaper industry has been empirically tested on whether prices for circulation and advertising has gone up following their mergers, and it was found that greater concentration did not lead to higher prices on either side of the market. Furthermore, welfare calculations on magazines in Germany (serving readers on one side and advertisers on the other side) shows that despite higher ad prices, advertisers were not necessarily worse off as magazines usually obtained “enough” extra readers with lower copy prices. In fact, the results showed that larger reader bases may even increase advertisers’ demand to a level where magazines can still attract more advertisers with higher ad prices.

Hence the economics of platform businesses suggests that certain practices that may appear anti-competitive – recouping losses from “low prices” on one side through “high prices” on the other side – are natural, pro-competitive practices. This can have important implications on when and how policy makers should decide to intervene in MSPs. It can especially be confusing because in certain situations MSPs can act as traditional businesses that raise their prices to exploit their market power, while in other cases they can instead choose to subsidize prices to attract more agents on one side and thus make even higher profits from agents on the other side. If attracting one group of agents (say sellers) makes the platform particularly attractive to the other group (say buyers), then sellers will be subsidized (Song, 2013; Hagiu, 2014; Armstrong & Wright, 2005). This is for example the case with American Express. In 2004, the firm reported that it had earned 71 percent of its card-related revenues from the merchant side of the business, whereas in contrast cardholders paid no annual fees. If the industry is particularly important for the function of the society, then local governments or the local business community are sometimes willing to subsidize low costs in order to increase output, although the practice sometimes runs afoul of competition laws. This is the case for the aviation sector where governments have subsidized costs to increase the flow of tourists (Appold & Kasarda, 2011; Weiner & Wright, 2005; Song, 2013; Rysman, 2007b; Evans, 2003;). John Maynard Keynes would most likely have supported such a wider perspective and intervention in multisided platforms, especially during times of crisis.

From the findings identified above, it can be derived that in terms of MSPs, policy makers should be aware that analysing the price structure of one market in isolation without
considering the other market might be misleading. Therefore an emerging literature on two-sided networks focuses on the appropriate pricing to coordinate the two sides, and thus induce participation while maximizing the intermediary’s profit (Bakos & Kastsamakanas, 2008). At this stage, studies have found that the most efficient pricing structure that maximizes social welfare can create strategic trade-offs generating positive value for some participant groups or for the MSP itself, while creating negative value for other participating groups. For example, considering the payment card industry again, consumers who use alternative payment methods instead of cards (such as cash and checks) would most likely be worse off, if the product price they face is higher due to the introduction of payment cards. To avoid such a situation, merchants can price differentiate (or in other words surcharge) between payment methods, thereby maximizing social welfare. This pricing policy has been implemented in the payment card industry in Australia, Switzerland, Sweden¹ and the United Kingdom. In order for this pricing policy to become effective, it requires widespread practice among merchants, which is not always the case. “Empirical evidence from other countries, such as Netherlands and Sweden, suggests that although merchants are allowed to set different prices to their customers, many of them do not do so” (Hayashi, 2008: 11). According to the Reserve Bank of Australia, surcharging card customers is becoming more common among merchants, but larger merchants are more likely to surcharge than smaller counterparts. Hence, the experience in these countries may imply that setting prices across payment methods is costly for merchants. Furthermore, in order to effectively set different prices, merchants need to know the exact level of both merchant fees and cardholder fees, which can be difficult to attain. In the United States, for example, even the “average” cardholder fees in the industry as a whole are difficult to obtain (Hayashi, 2008). In summary, it can be concluded that pricing in MSPs are strongly ambiguous, thus making it highly demanding for policy makers to evaluate the price settings in terms of welfare.

¹ Today, surcharging is not allowed in Sweden (Hayashi, 2008)
3. Method and case description

In the previous section, existing literature on government interventions in multisided platform was elaborated. It was learned that government impact on growth in MSPs has not systematically been addressed in prior research. Therefore this study is likely to be the first to systematically explore how government interventions impact growth in multisided platforms. This finding has convincing implications on the chosen research design illuminated in figure 3. However the figure below does not attempt to fully imitate the research process, but rather aims at easing the readers understanding with a structured approach.

**Figure 3: Illustration of research design**

![Illustration of research design](image)

3.1 Qualitative research design

In order to meet the research gap of this paper a qualitative research design was adopted with the aim of discovering how policy makers have caused or deterred growth in multisided platforms. To reach this objective an inductive approach was used to identify the unknown variables in the research question. The inductive approach is a systematic method for analysing qualitative data, which is highly suitable considering the lack of previous experience from similar projects. This approach is appropriate when the aim is to seek new insights, to ask questions, assess phenomena in a new light and gain knowledge about a topic of interest. Notwithstanding, that no clear theoretical framework was
deduced in the literature review section, in practice the paper has included some elements from the deductive approach. This is was for example the case when developing a theory-based interview guide (cf. section 3.4.1).

Using the inductive method, no propositions were found at the initial stages of the research and the researcher was not sure about the type and nature of the findings until the study was completed. Consequently, the research process was iterative rather than linear with ongoing feedback between data collection and data analysis enabling the flexibility to alter the direction of the research when it was necessary (Saunders, Lewis & Thornhill, 2012; Eisenhardt, 1989; Huberman & Miles, 2002). The basic idea of the inductive approach is to move from the specific to the general; most inductive studies report a model that has between three and eight main categories in the findings. Correspondingly, this study has discovered three main growth factors related to government intervention in MSPs (cf. figure 4 in section 4.4). In search for these categories the researcher began with specific observations gathered at the initial stage of research, more specifically during her feasibility visit to Armenia in April 2014. The process then moved into the development of tentative propositions that were identified and explored during in-depth data collection. Throughout this stage important, themes, patterns and relationships created the foundation for the growth factors to be discovered (Robson, 2002; Saunders et al., 2009; Yin, 2009; Huberman & Miles, 2002; Thomas, 2003). When gathering qualitative data, the researcher held an epistemological position called interpretivism, which respects the difference between people and objects of the natural science and therefore requires the social scientist to grasp the subjective meaning of social action. Simply put, the epistemological position indicates that we know something exists because of the knowledge we have about it and it answers the questions that begin with “how” or “what”. In contrast, a quantitative study consists of sampling numerical data and exhibiting the relationship between theory and research through deductive reasoning (Bryman & Bell, 2003, Lor, 2011).

### 3.2 Comparative case-study approach

Considering the complexity and changing nature of the research question and the context in which it operates, the research is applied to case studies. The reason is that the case study approach has the ability to deal with “how and “why” questions that often explain contemporary events. The broadly acknowledged definition of case studies is provided by
Yin (2009): “A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 18). In this study, the comparative case study approach has deliberately been selected to fill in the missing gaps in the analysis and not to seek a direct replication of a case (Eisenhardt, 1989). Nevertheless, in any case study research, two important factors have to be considered: The choice of the cases and the number of cases selected.

Beginning with the latter, the number of case studies selected in comparative case study approach is closely related to the chosen research design. Qualitative-oriented researchers as in this paper tend to see advantages of few-case comparisons in relation to more quantitative-oriented researchers who seek to conduct variable-oriented studies of many cases. In this paper two case studies have been selected to look more closely into the complexities of the research question. By contrast in variable-oriented studies many cases are studied and the focus is on a limited number of variables removed from the concrete reality and context of the cases studied (Lor, 2011; Ragin, 1987). The weakness of quantitative many-case comparisons are that the variables tend to be conceptualized and measured at a shallow level. The findings can show some degree of confidence that relationships exist between the variables, but this may not tell much about the nature of the relationships, which can be more easily determined with the few-case selection (Lijphard, 1975 in Lor 2011). On the other hand, while the qualitatively oriented case-study research may include several cases, the number of cases is limited by the extent to which they can be investigated intensively. Numerous scholars argue that few-case selection cannot represent a valid sample of the population, bluntly criticizing and showing skepticism towards its ability to generalize. However, Flyvbjerg (2006) and Lor (2011) state that it is possible to generalize from case studies if cases are strategically selected, meaning that they are strongly related to the problem identified in the research question. Hence few carefully selected cases can compensate with the inability to sample from a large population. Therefore one of the most critical questions for qualitative-oriented researchers is to ask themselves, which case studies they should select in order to make the study useful for generalization (ibid.).
3.3 Case selection

The research question will be answered through an exploratory comparative case study on Zvartnots Airport (located in Armenia and operating since 1961) and Copenhagen airport (located in Denmark and operating since 1925), because despite their similar vision they offer interesting and contrasting situations in relation to the research question. Sartori (1991) states, that in order for entities to be compared they should both have shared and non-shared attributes. Hence they should at the same time be “similar” and “incomparable”. It is intuitively obvious that there is little point in comparing entities that are so different that hardly any commonality can be found. Neither is it useful to compare entities that are so similar that little difference of interest can be found (Lor, 2011). Both airports are serving small nations with ambitious growth visions. Copenhagen Airport envisions to become the preferred gateway to Northern Europe and Zvartnots Airport has an ambitious vision to connect Europe to Asia due to its lucrative location. Both airports are known in their regions for high quality, efficiency and precision. Furthermore in 2014 they have shown impressive, record-breaking growth rates, and now they work towards their goals of serving almost twice as many passengers in the future. By working towards those goals, both airports have a special focus on attracting more transit passengers by investing largely in space and better facilities (e.g. Intv_DKae1; Intv_AMae1). Although they are highly different in the number of annual passengers they serve, it is found that their similar vision and objectives make them highly compatible for a comparison.

Having stated the similarities, Copenhagen and Zvartnots airport differ in terms of the key research area: Government impact on growth. However, these differences are timely bound, because where the role of the Danish government changed substantially in the 90s due to airport privatization and market liberalization, the same changes came later in Armenia. Zvartnots Airport was privatized in 2002 and the Armenian domestic civil aviation sector has only recently (late October 2013) become liberalized. Before that, due to state regulated market, the airport experienced immense challenges attracting growth (e.g. Intv_AMae2; Intv_DKpm1). Moreover, since growth in the aviation sector is highly impacted by government policies enabling economic development in the country, it is important to understand the context the airports operate in. Both countries are small and independent, but where Denmark is a developed country in the West representing world-leading firms in pharmaceuticals, maritime shipping and renewable energy; Armenia is a developing country that only recently (in 1991) became independent from the Soviet
Union, still struggling with a narrow export base, and pervasive monopolies in important business sectors and is continuously highly depended on Russia (DK13_w1; AM13_w1). These differences have strong implications for understanding the context of the analysis. As a final note, it shall be mentioned that in addition to both cases being carefully selected for the purpose of this study, a determining factor was simply that the researcher is familiar with both cases and has been able to get access to relevant data (Lor, 2011).

3.3.1 Case description A: Copenhagen Airport

Copenhagen International Airport (CPH) was founded in 1925 and is considered one of the first civil airports in the world. The airport serves the small, but modern and prosperous country, Denmark. The Kingdom of Denmark is located in Northern Europe bordering the Baltic Sea, the North Sea and borders Germany on a peninsula (Jutland) in the south. The country size is 43,094 sq. km and the population in July 2014 was estimated to be 5,569,077. The country has been a member of the EU since 1973 and therefore the Danish aviation market was liberalized along with other member states in the 90s. Copenhagen airport is located on the island of Amager, just a 12-minute train ride to the heart of Copenhagen, and 20-minute train-ride to the center of the Swedish city Malmö (DK14_w1, w2; w15). The airport handles 60 scheduled airlines and has set a passenger record in 2013 with 24.1 million passengers (62,000 per day), which corresponds to a year-on-year growth rate of 3.1% and passenger record for the third consecutive year. This makes the airport the busiest international airport in Scandinavia, and the preferred hub of Northern Europe. Furthermore, the growth numbers at Copenhagen Airport are higher than most other European hub airports (DK14_w1; DK14_r2, r3). More recent numbers indicate that 2014 will likewise become a record year for CPH. From January to June 2014, the airport increased the number of passengers with 7.3 pct. (serving 12.36 ml. passengers) compared to the same period in 2013. Furthermore June 2014 became the busiest month in the history of Copenhagen Airport with a flow of more than 2.5 million passengers (DK14_a2).

The initial foundation for growth was established from a strong collaboration with its Scandinavian peers. After the Second World War, the big dream was to reach the USA; however, due to financial constraints in reaching this goal, the Scandinavian states decided to collaborate. The hub airline, Scandinavian Airlines (SAS), that was founded by the three
states, Denmark, Norway and Sweden, soon became the first airline company to fly over the Northern pole (DK13_v1). The growing SAS enabled tremendous growth to Copenhagen Airport due to an agreement signed in 1946 between the three Scandinavian governments. In the agreement, SAS meant “infrastructure” for Norway and an “industrial company” for the Swedes, while the main objective of Denmark was to make Copenhagen airport a big workplace: “When we were joking in SAS. We said the Danes get the traffic, the Swedes get the head office and the Norwegians had the option to be proud of it. This was a joke between the Danes and the Swedes and the Norwegians didn’t like the joke” (Troels Rasmussen, SAS 1985-2005, Chief of Information in DK13_v1). Today the collaboration has changed substantially and Gardermoen airport in Oslo and Arlanda airport in Stockholm have become one another’s competitors. Where the airports in Norway and Sweden have remained government-owned the Danish authorities only holds a minority share 39.2 pct. The majority share of 57.7 pct. is owned by the holding company, Copenhagen Airports Denmark, which is jointly owned by the Canadian Pension Fund Ontario Teachers’ Pension Plan Board (OTPP) and Macquarie European Infrastructure Fund III (MEIF3) (DK14_w16; w17; w9; DK14_r4).

Unlike the other Scandinavian airports, a considerable share of the passengers at Copenhagen Airport are international: “On a flight from CPH to Bangkok often only 40% of the passengers are from Denmark or Southern Sweden: The remainder have flown in from the rest of the Nordic region, Germany, the Baltic States or elsewhere in Europe” (DK14_r3: 11). Copenhagen Airport has become a hub for Scandinavian Airlines, Norwegian Air Shuttle and EasyJet. This coupled with the airport’s 23,000 employees serving in the many companies has made Copenhagen Airport one of the highest-ranking airports in the world (DK14_r2). In 2013, Copenhagen Airport received a number of awards for the “world’s best security processing”, for being “the most efficient airport in Europe” and “the world’s best airport at route development” in the 20-to-50-million passenger category. Furthermore, CPH was the proud winner of three of the prestigious Food & Beverage Awards “FAB Awards” at the 2013 ceremony held in Dubai (DK14_r3). The worldwide recognition of CPH is important in terms of attracting growth and reaching the ambitious plan revealed by the management team in 2012, under the title “World Class Hub”. The plan aims at handling almost twice as many passengers (around 40 ml. passengers) per year. However, it is unclear when the goals will be reached. According to the CEO, Thomas Woldbye, it may take 15 or 25 years (DK14_a3/a8; DK14_r3). In connection with this goal a recent
agreement affirmed that Copenhagen Airports A/S would invest 250bl. in expanding the capacity of CPH. All these steps, and the collaboration with airlines, passengers, policy makers and business community, are vital for moving towards reaching their ambitious growth plan, that will further put Denmark on the map as an international metropolis (DK14_r2). Hence Copenhagen Airport is constantly evolving and much has happened since the airplanes landed on the few grassy meadows kept short by a herd of sheep in 1925. Today the airport would be unrecognizable for the many Copenhageners who found the airport an extraordinary attraction in the pioneering years, where flying was only for the privileged few (DK14_w2).

3.3.2 Case description B: Zvartnots Airport

Zvartnots International Airport began its operations in 1961 solely serving the territory of the Soviet Union. Nevertheless Armenia’s aviation history dates back to 1933 where the first regular flight from Yerevan to Tbilisi was carried from Southern Airfield (former name of Erebuni Airport). Today Zvartnots Airport has become the main port to the Republic of Armenia. The airport is located 12 km west of the capital city, Yerevan, and it takes around 20 minutes to reach the city center by taxi. Currently driving is the only possible means of transportation to the airport (AM14_w4; AM14_v1; AM13_a1; AM04_a1). Armenia is a developing, unexplored and “young” economy in the sense that it declared its independence from the Soviet Union in 1991. The country is placed in the Southwest Caucasus region, at the crossroads of Europe and Asia. It is bordered by Georgia to the north, Azerbaijan to the east, Iran to the south, and Turkey to the west. Placed in a landlocked location with limited road and train connectivity the civil aviation is vital for the country. Armenia’s land area is 29,800 square kilometers (the size of Belgium) and the population consists of 3.1 million inhabitants. Nevertheless, it is estimated that more than 10 million Armenians live abroad (primarily in Russia, USA and France) and they are behind most of the traffic at Zvartnots and thereby act as an engine of growth for the airport (AM13_r1; AM10_p1; AM14_w1). The owner of Zvartnots Airport, Eduardo Eurnekian, is a member of the widespread Diaspora being a second-generation exile born in Argentina who has amassed a $1 billion portfolio of businesses, including 53 airports in the world. His company Corporación América (CASA) is an Argentine investment group active in airport business, cargo, fuelling terminal and more. The company is the parent of Armenian International Airports (AIA) that in 2001 signed a 30-year concession agreement
with the Armenian government for the management of operations at the airport. When the company took over Zvartnots Airport, it was in a very bad condition and needed completely new facilities in order to meet its natural position as the stopping point between east and west, between Asia and Europe, as well as north and south, between the Middle East and Russia. Therefore, the building of a new terminal started later same year and was finalized in 2011 (AM14_w3; AM14_v1; AM09_w1). The new terminal is now based on the highest international standards comprising a two-story building with departure and arrival halls, registration offices and shops. The building is entirely wrapped in glass, giving it an ethereal beauty, while also specially designed to keep the building cool in the summer and retain heat in the winter, thus cutting down the energy use. Before the renovation, Zvartnots Airport could serve two million passengers annually, now the airport has the capacity to serve three million passengers per year (AM09_w1; AM09_a1). Furthermore, the CEO of the airport states that the infrastructure is built in a flexible way that makes it easy to double in size: “This airport was built for many more passengers than we actually have, so this is what we are expecting and what we are working towards” (AM14_v1: 02:45). One of the main reasons for the expected growth is that the domestic civil aviation sector in Armenia has recently (in late October 2013) become liberalized (AM03_a4). Before the liberalization the Armenian hub airline, Armavia announced its bankruptcy and the airport lost a key customer that flew 100 times a week to over 40 destinations in 20 countries. But surprisingly, the vast gap was instantly filled in, and as a result of the “open sky” policy, Zvartnots airport has experienced substantial growth in the first 6 months of 2014 with an increase of more than 25% in the number of passengers and flights. Comparing the month of June in 2013 and 2014 the number of flights rose by 42% moving from 1,405 flights to 1,995 flights. Almost all airlines increased their frequencies to all destinations and six new companies started operating on a regular basis; one of the most recent examples is Etihad Airways (AM14_a1; AM14_a3). In 2013, Zvartnots Airport was named the best airport in the category of “Russia, the Commonwealth of Independent States (CIS) and the Baltic States” in the context of the 2nd Annual Airports Conference and Exhibition held in Dubai, and furthermore the airport has demonstrated best practices in energy management and environmentally sustainable design in the region and beyond (AM10_p1; AM09_w1).
3.4 Data collection

The data collection in this paper is three fold: a) in-depth interviews, b) selected, public archival data. Furthermore there are a limited number of non-publicly available documents.

3.4.1 Primary data

In order to study the research question interviews have deliberately been conducted with two distinct groups of stakeholders: “Airport experts” consisting of airport management, consultants and airline representatives, and “policy makers” representing the main government bodies dealing with the local airports in both Denmark and Armenia. Understanding both groups and their relationship serves well in terms of MSPs because it enables the researcher to understand the indirect network effects that link them (Evans & Schmalensee, 2013). In total eight semi-structured open-ended interviews and five unstructured interviews were conducted with both airport experts and policy makers. Table 1 and 2 in Appendix A provides an overview of their positions, the institutions they represent and the interview- date, format, evidence and coding. Due to the discretion of the respondents, the names are marked confidential. Furthermore, respondent ‘Intv_DKam2’ requested special discretion, and therefore the institution he represents is also marked confidential. Moreover, the results of the confidential interview are only used as background knowledge and are not directly referred to in the paper. To meet this gap the researcher has deliberately identified other sources stating the same arguments.

The interviews were primarily conducted face-to-face in Danish/English in Denmark, but also Armenian/Russian/English during the feasibility trip to Armenia (cf. section 3.1), and the majority of the meetings required between one to two hours with each respondent. Overall, the respondents representing both countries approached the interviews with high openness and interest and followed up on their contributions at later stages with additional data. However, it must be noted that despite the openness of the respondents, some findings may have been lost or misinterpreted, because recordings and extensive transcripts are not available for all interviews. Furthermore, the interviews were conducted in four different languages with different audible features such as intonations and emphasis. These factors can obviously prevent the accuracy of the findings, particularly in the case of the unstructured interviews (Heaton, 2004; Saunders et al., 2009).
Together the conducted interviews represent the core of the data collection aiming at answering the research question. The semi-structured interview guide (cf. section 3.1.) can be found in Appendix B and was constructed with broad theme related questions followed by more concrete questions facilitating the respondent to more easily understand the core question. This format was chosen as the main and most valuable method for inductive learning because it guided the respondents to express them freely while staying focused on the core topic defined by the research question. The semi-structured interview method also permitted the interviewee to discuss the answers of the respondent more in depth. However, this method does not come without disadvantages. Even though the same interview guide has been the guiding point in the semi-structured interviews, the exact same questions have not been posed to all the respondents. The questions have been asked in a different order and pursued to varying degree of depth because of the respondents’ different level of expertise (Heaton, 2004; Saunders et al., 2009). In terms of the unstructured interview, the researcher attempted to follow up by requesting a skype interview, but was not successful due to professional and timely reasons. Nevertheless, although the interviews were unstructured, they contributed more or less during all phases of research. In total, ten unstructured interviews were conducted during the feasibility trip to Armenia, but only half were found relevant after the formulation of the research question.

For each interview, the researcher spent substantial time preparing to understand the professional context of the respondent, with the aim of increasing the credibility around the research and creating a safe environment for the respondents to share data. The researcher also managed expectations by clearly communicating the requirements of each interview with the interviewee (cf. Appendix B). Details such as time duration, interview approach, and interview objectives were clearly communicated before the interview. Furthermore, the full transcripts of the semi-structured interviews were sent to the respondents allowing them an opportunity to review their answers. It was not possible to send the notes from the unstructured interview to all the respondents (Bryman & Bell, 2003; Kvale, 2006; Saunders et al., 2009).
3.4.2 Archived data

The archival data applied in this study is primarily, publicly available data, and too much lesser extend, non-publicly available documents. More details on both types of sources and their availability can be found in Appendix C that consists of an extensive list with 200 selected and registered data sources used in this study.

In this study, non-publicly available data is limited and comprises of internal documents as email attachments provided by the respondents’ of the primary data interviews or their colleagues. This data is strictly confidential and can only be requested by the academic advisor of this study. Furthermore, non-publicly available documents and primary data are challenging to validate because: “While organizations may argue that their records are reliable, there are often inconsistencies and inaccuracies” (Saunders et al., 2009: 274). These inaccuracies are difficult to detect, but when in doubt, the researcher has looked for pressures on the original source that might have biased the data. Therefore, the researcher was also impelled to collect public archived data for this study.

The purpose of collecting the publicly available archival data was to put own findings within a more general context and increase the validity. When possible the findings were triangulated with other independent data sources, because where data from two or more independent sources suggest similar conclusions, one can have more confidence that the data on which they are based are not distorted. This is also sometimes referred to as crosscheck verification. In this study the publicly available archival data was based on browsed news articles and reports from nearly all acknowledged sources covering almost 30 years of publicly available data, running from January 1987, which was the year before the initial liberalization processes started in Denmark until 15th October 2014. Dealing with data collected during a large span of years and in two distinctively different geographical locations, has created immense boundaries for interpretation and comparison. For example, the liberalization processes started in 1987 in the EU, but only recently in October 2013 in Armenia. During these years, major structural changes have occurred in the EU (relevant in terms of Denmark), and Armenia has become independent from the Soviet Union. When applicable, these boundaries have been mentioned in the findings section. While browsing all data sets, the main search words used were Copenhagen Airport, Zvartnots Airport in connection with regulation and government policy. The results were further used for identifying more specific search inquiries at later stages during
the analysis. Though many more examples can be provided, more specific searches were done on the airport owners: Eduardo Eurnekian, Corporación América, Ontario Teachers’ Pension Plan and Macquarie European Infrastructure Fund. These searches have been found worthwhile as the airport sector and its constituents are frequent users of the media to inform the public or/and put pressure on their peers during negotiations (intv_DKpm1). This has been apparent when browsing through the main databases used for this study, Factiva Inc. and Infomedia. It was clear to see that the highest peaks in number of available articles both in Denmark and Armenia were correlated with important historical years as e.g. 1997 and 2014 when the market liberalization was fully implemented in Denmark and Armenia, and in 1990 and 2001 when the Danish and Armenian government took the first nascent steps to move from government ownership to private. Finally, it shall be stated that quality national newspapers or online sources are also often a good source to identify summaries of recent government and country reports. These types of reports have been highly relevant in terms of understanding the context in which the data has been shaped (Saunders et al., 2009).

3.5 Data reduction and coding

During the initial stage the researcher aimed at identifying a research question that had not previously been dealt with in academic literature; as a result, a vast amount of papers on multisided platforms were investigated. During the same period of time, in April 2014, the researcher had the opportunity to embark on a feasibility visit to Armenia where she conducted 10 unstructured interviews (cf. 3.4.1) that later became an important source of inspiration for formulating an academic research question close to recent industry developments: “The use of interviews can help you to gather valid and reliable data that are relevant to your research question(s) and objectives. Where you have not yet formulated such a research question and objectives, and interview or interviews may help you achieve this” (Saunders et al., 2009: 318). After the research question was formalized the researcher understood the necessity to identify comparative cases to reach the essence of the problem. The next phase of preparing, collecting and analysing data was where the heart of the study was developed. The process of preparing and collecting data was time-consuming because the researcher had to first identify the key experts within aviation and the relevant government officials in both Denmark and Armenia, convince them of the importance of the study and then adjust to their busy schedules over the summer. Simultaneously, the archival data collection was
conducted and all relevant data sets were saved electronically. In order to ease the understanding of the extensive and complex raw data derived from using the inductive approach, twelve summary themes were developed. In practice the new patterns emerged after reading full interview transcripts and notes and then highlighting the arguments in archival data that either supported or obstructed the preliminary patterns. Hence only data that was supported by more than two sources were included in the findings section (Thomas, 2003). After closer examination of the summary themes, three main growth categories were identified and compared to existing theoretical research, and during this process the researcher observed that only one growth category had previously been examined in relation to government intervention in MSPs: User charges and their implications on antitrust legislations. Before commencing to the findings section of this study, all data sets, including interviews, were manually codified in an Excel spreadsheet to enable the reader to distinguish data by country, date, type and expertise. As seen in Appendix A, the interviews were codified with [Intv_country abbreviation_background]. Country abbreviation was defined as either DK for Denmark, AM for Armenia and the background of the interviewees were defined as ae for airport expert and pm for policy maker. Archival data was codified with [Country abbreviation_year_type]. The country abbreviation was kept the same as the latter and the year was coded between 1990\textsuperscript{2} and 2014, but referred to as 90, 91, 92 and proceeding consistently in this manner. When the data was not related to any country, it was coded GD for general data. The data types were denoted to as a - article, r - report, w - website, v - video, p - presentations and m - public minutes. At the final stages of the study, excess raw data was discarded because during closer examinations the data sets were found either not appropriate for this study or identified as repeating data.

\textsuperscript{2} In section 3.4.2, it was stated that the browsed news articles and reports covered almost 30 years of publicly available data, running from January 1987, which was the year before the initial liberalization processes. However, it shall be noted that no relevant data sources were identified between 1987 and 1989 (both years included).
3.6 Drawing conclusions and verifying data

The case study approach has often been subject for criticism and is referred to as a challenging method to construct validity and generalize from. In this study a vital question to answer is whether the comparative cases selected will be applicable to other multisided platforms. The critical scholars point out that single or few cases cannot contribute to scientific development because the researchers involved in case studies often fail to develop a sufficiently operational set of measures, and “subjective” judgments are used to collect the data (Yin, 2009; Flyvbjerg, 2006). Furthermore, Saunders et al. (2009) state that findings derived from the case study method are not necessarily intended to be repeatable since they reflect the dynamic and complex reality at the time they were collected. However, according to Yin (2009) this criticism is based on the comparison with survey research in which a sample is intended to generalize to a larger universe. However, this analogy to samples and universe is incorrect when dealing with case studies because survey research relies on statistical generalization, whereas case studies (as with experiments) rely on analytical generalization: “In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory (Yin, 2009: p43). Therefore, some scholars suggest that the qualitative data derived from case studies may directly suggest theory and is suitable at understanding the rationale underlying relationships. In the circumstances where the case study researcher is able to relate the study to existing theory, it will be possible to demonstrate findings that can have a broader theoretical significance that moves beyond the cases selected for the study (Huberman & Miles, 2002; Saunders et al., 2009; Flyvbjerg, 2006). Correspondingly, the aim of this paper is not to establish generalizability in its traditional sense through survey research, but rather conduct in-depth research and identify growth factors that are easily transferable and valid for other contexts. Nevertheless, generalization is not a natural endeavor and the findings must be replicated and tested in other MSPs, but this would require additional studies.
4. Findings and analysis

Based on the exploratory research design and the selected research question, three growth factors have been identified and thus serve as the catalyst structuring this section. The structure is as follows: Government involvement in operations (section 4.1); government control of market access (section 4.2); and government investment efforts (section 4.3). All three government impacts are recognized generally as government interventions. Each section ends with a proposition I-III. A graphical illustration (figure 4) for quick overview can be found in section 5.

4.1 Government involvement in operations

4.1.1 Moving from public- to private management

Major changes are occurring in the global aviation sector in terms of public and private management and its impact on operations and industry growth. For most of the 20th century, with an exception of the United States, the standard practice within aviation was that government bodies owned and operated both airports and airlines (Staniland, 2003). Now the trend has changed towards governments withdrawing the aviation business by privatizing airlines and airports. The reason for this is the presence of greater competitive pressures, which requires them to reduce costs (notably labor costs), while making new large-scale investments and forming strategic alliances in order to survive. The execution of these procedures is more feasible for a private company to enact because a private company generally has fewer political and financial constraints. Hence, a “destatization” process is occurring, leading to less involvement by the government in airport operations (Staniland, 2003; Neufille & Odoni, 2013; GD12_v1). This evolvement is illustrated in four airport ownership and management models presented by Neufille & Odoni (2013). Where the first two models, “a branch of a national government” or “a branch of a local or state/regional government”, were dominant in the past, today the global trend is moving towards partial or full airport privatization. This is either done through airport model three or four “a company specializing in airport management, acting as a contractor to a national, state, or local government” or “a corporate entity, often known as an airport authority, created especially for the purpose of acting as an airport operator”. An airport operator is referred to the organisational or corporate entity that has management control of an
airport, hence responsibility for developing and maintaining the airport’s infrastructure and operating the airport on a daily basis (Neufille & Odoni, 2013).

Elaborating on the latter airport model 4, Copenhagen Airport serves as a good example. Until 1990, Copenhagen Airports (consisting of Copenhagen- and Roskilde airports) were operated by a public corporation under the Danish Ministry of Transport. Since then, the government ownership has gradually decreased to 39.2%. The airport has become a for-profit company and today, Copenhagen Airports Denmark ApS (CAD) owns the majority share of 57.7%, which is jointly controlled by Ontario Teachers’ Pension Plan (OTTP) and Macquarie European Infrastructure Fund III (MEIF3) (Gillen, 2010; DK14_w9/w10/w11; DK05_a2/a3; DK14_r4; GD12_a1; Intv_DKae2). Before the takeover, it was feared that the investment funds might have plans of draining the company in order to recoup their investment and enhance the private actors, leaving Denmark with no benefit. However, despite commercial interests, the private investors had the same objectives as the Danish government; which was simply to attract growth (DK05_w1). Airport Expert II confirmed this notion:

“It would never happen, because that would be offering the customers a bad product. And when you offer a bad product then the customers have a tendency not to come back” (18:57).

After the privatization of the airport, the role of the government has decreased considerably in both daily operations, as well as in long-term strategizing. Today, the Executive Management is in charge of the day-to-day management of Copenhagen Airport, while the Board of Directors lays down guidelines and directions. The role of the government has become two-fold. On one hand, the Danish Ministry of Finance handles the commercial aspects of the relationship as a shareholder in Copenhagen Airport, whereas the Transport Authority, operating under the Danish Ministry of Transportation, manages aviation regulations and monitoring (Intv_DKpm1; DK14_w12/14; DK14_w4). In general, the ownership form applied by Copenhagen Airport (cf. airport model four) is known to be applicable for some of the busiest airports in Europe and has proven to be largely successful in partially insulating airports from political interference and in promoting effective management (Neufville & Odoni, 2013). This statement complies with Copenhagen airport (cf. section 3.3.1).
Zvartnots Airport is also referred to as privatized, but this term is not a particularly accurate description. In December 2001, the Armenian Government signed an agreement with the Argentinian billionaire, Eduardo Eurnekian, placing Zvartnots Airport under his control for the next 30 years. This means that Zvartnots Airport remained 100% state-owned, whereas Mr. Eurnekian’s company, Corporacion América S.A., (CASA), the mother company of Armenian International Airports, was granted management rights (Intv_AMae2). These rights generally include developing, maintaining and operating the airport during the concession period, and in return, having the rights to residual income from airport property, referring to any profits that are generated from the airport. Hence, more simply affirmed, the airport operators of Zvartnots were given the right to act as a contractor for the Armenian Government. This decision did not come without criticism. Within a year after signing the concession agreement, government bodies claimed that the aviation sector had become uncontrollable, with over 60% of flights carried out by foreign companies, rising tariffs, the dismissal of 1,000 employees, and thriving corruption (AM01_a1/a2; AM03_a3/a4/a5; Neufille & Odoni, 2013). Nevertheless, the Government kept its trust to the management of the airport, most likely because the owner of Corporación América, Mr. Eurnekian, is Armenian by descent and had a long-term almost personal interest in getting the concession (Intv_AMae3). Mr. Eurnekian himself confirms this:

“During my life, I have built many airports and buildings. I have made investments all around the world. I can say only one thing for certain. In no other place nor on any occasion have I felt as much satisfaction and joy as my initiatives in Armenia. […]” (AM11_a1).

Nevertheless, when asking Airport Expert III whether the project is philanthropic in nature, the answer is a clear no. His Armenian roots have played an important role for Eurnekian wanting to take on the project, but as Airport Expert III states: “I wouldn’t go as far as saying it is a money losing charity project. […] I think he runs it so it’s profitable. Which is a good thing because it ensures it’s sustainable in the long-term” (34:15). In comparison to his investments in 52 other airports around the world (cf. section 3.3.2), Airport Expert III states that Zvartnots Airport might not be the most profitable business. However, Mr. Eurnekian has a collection of interests in Armenia, including investments in banking, the postal service, wine, and real estate. Therefore, his investment in the Airport is also seen as a business
decision contributing to the expansion of his portfolio of assets in Armenia (Intv_AMac3; AM11_a1; GD12_a1; AM14_w5).

Albeit the Armenian government still owns the airport infrastructure, the role of the government has become significantly less since the 30-year concession agreement was signed. Similar to Denmark, the airport operators are responsible for daily operations and strategy formation, whereas the Ministry of Economy of Armenia is responsible of the commercial aspects of Zvartnots Airport. Furthermore, the government-owned entity, General Department of Civil Aviation of the Republic of Armenia, deals with aviation regulations and monitoring (Intv_AMac2; Intv_AMpm3). Although it may be contradicting with the fact that Zvartnots airport is still government owned, the management team appointed by Mr. Eurnekian seems to have more decision-making power than the Executives in Denmark. The Armenian Executives are both in charge of daily operations and strategy formation, whereas in Copenhagen Airport, the Members of the Board are responsible for long-term strategizing. The four Armenian Board Members selected by Corporación América are only informally involved during major decision-making (DK14_c1).

In general, the ownership form of Zvartnots Airport (cf. airport model 4) enables the local government to obtain expert airport management, as well as work with a contractor that is responsive to local conditions and cognizant of best practices elsewhere. Historically, this ownership format has been best applied to secondary airports in developed countries or to major airports in some developing nations (Neufville & Odoni, 2013). This description complies with Armenia being a developing country (cf. section 3.3.2).

4.1.2 Is privatization of old state-owned monopolies good or bad for growth?

The Danish Government began their modernization programme in 1983 with the purpose of conveying tasks from the public sector to the private sector if firms rather than public institutions could better solve those tasks. One of the major differences between private and public ownership was their views on growth. Where private firms were able to generate profits, the public sector was constrained to execute tasks at the lowest possible expense without the purpose of generating profits. In the 1990s, many executives, including the Deputy Director at Dong A/S, Hans Duus Jørgensen, encouraged the government to generate profits from government-owned firms and only partly use the profits to
consolidate growth inside the firm, releasing the remaining amount as government payout, just as in private firms. At the time, this idea was controversial; but looking at the current developments, one can argue that the Danish government has slowly started to move towards that direction. According to the Ministry of Finance, at the end of 2013, the Danish government either partially or fully owned shares in 19 firms where profits were highly welcomed. The list of the companies is available in Appendix E. Interestingly, four of the firms are related to aviation: Copenhagen Airport, Navair (air traffic management), Scandinavian Airlines and Air Greenland. Hence the government holds stakes in both airport infrastructure and airlines (DK90_a1/a2; DK93_a1; DK14_r4).

In Armenia, the privatization process started after the collapse of the Soviet Union in 1991, during which the country started transitioning from plan economy, where government ownership was more strongly encouraged than a market-oriented economy (complying with Marx’s perspectives cf. section 2.2.1). The dissolution of the old system took place in a rather short period of time, whereas building up new links, new products and new production methods demanded immense resources. Moreover, because many market institutions are still not fully developed, the Armenian market is volatile with high uncertainty about future developments. This makes it difficult to provide a fair valuation of assets, resulting in bottlenecks during the process of privatization (Mygind, 2011).

In general, when assessing privatization of government-owned monopolies in Denmark and Armenia, there are different perspectives among policy makers on what is considered good or bad. In both countries, some policy makers argue that government engagement in commercial activities should be limited to only include tasks that cannot be solved by the private sector, while other policy makers explain that there is a need for government ownership in areas that have significant societal impacts on the country (DK02_a1; AM06_a1). In this study, ten out of thirteen respondents were asked to reflect on their opinion on airport privatization and nine of them, consisting of both Danish and Armenian airport experts and policy makers, confirmed that privatization has overall been good for the operational efficiency and growth in the airport (Intv_AMae1/2/3; Intv_DKae1/2/4; Intv_AMpm1/ Intv_DKpm1/2). Following statements were prevalent in terms of airport operations:
“With the current ownership structure the airport is a well managed company. It is efficient and customer focused. Its livelihood depends on the customer. I also worked in the airport when it was state-owned and the attitude was that: ‘this is how it works here and if you do not wish to be here then leave’. […] State organizations have never been good at doing business. Now only the best is good enough. That’s a big ambition” (Intv_DKae1: Q5).

“I came here 10 years ago. We received the airport in a very bad condition. We were working, building the airport, teaching all the employees how to work, how to develop the schemes, and at the end we have the results and we see this through the award (“Best Emerging Airport”). It had different meaning to everybody – for the country, all the people that are working at the airport are very happy, very proud” (AM14_v1: 01:31)

The developments in Cases A and B support the general arguments that there are no examples of successful running businesses initiated by the Government. That is why many countries leave aviation business and give it to private owners, that are better at serving the ever-changing needs in a fast manner, which governments are not able to (AM03_a4; Intv_DKae1; DK08_a4). Government owned and operated airports are, for the most part, known for lacking flexibility, large centralized bureaucracies, limited responsiveness to local issues, limited control over airport-specific finances, and have few incentives to increase revenues or reduce costs (Neufville & Odoni, 2013; Intv_DKae1). Nevertheless, the Danish Airport Expert III showed concerns related to the Danish Government only holding minority shares in the airport, even though he is usually against government-owned monopolies. The respondent argued that the Danish government should not have sold the ownership of such a vital piece of the country’s infrastructure, also representing Denmark’s largest workplace. He also mentioned that, considering the valuation of Copenhagen Airport, it is too late to recover from this mistake because the Government will never be able to buy the shares back (Intv_DKae3). The opinion of the respondent highly correlates with a number of the reasons explaining why the Danish government is showing no interest in selling their minority shares, continually claiming to keep 39,2 pct. ownership of Copenhagen Airport. According to a number of policy makers, privatization does indeed enable efficiency, but this does not mean that the government should sell all of its shares in firms that are vital for the country (DK06_a1; DK07_a1; DK05_l1).
In general, government shares, also referred to as “golden shares,” have become more ubiquitous since privatization and are enabling governments to maintain influence with the power to block foreign takeovers despite owning a minority share in the company. Hence, the Danish government argues that they can still continue driving the airport towards a direction that serves the interest of Danish society (DK05_a1; DK03_a1; DK05_m1). However, one can also argue the opposite, considering the composition of the Board of Directors at Copenhagen Airport. The Board consists of nine members, including six members elected by the company during General Meetings and three members elected by the employees. Although the Danish government has the largest standalone share in Copenhagen Airport, there is no government representation in the board and management. Consequently, the government has no direct impact on the overall strategic management of the airport. The Danish Ministry of Finance advocates that the board of Copenhagen Airports consists of professional members and not ministry officials, retired politicians and ambassadors, as was the case in the beginning of the millennium. Nevertheless, during the latest General Meeting held in April 2014, Mr. Rasmus Lønborg, who is representing the Danish State's ownership of shares in Copenhagen Airport, stated that Copenhagen Airports does not fulfill the Danish rules for “good governance”. The expertise of the candidates was not criticized, but the composition of the Board of Directors as such does not meet the recommendation that half of the six members elected at the General Meeting must be independent. Currently, four out of six elected members are employed as executives in the two investment funds that have shares in the airport (DK14_w12; DK14_w13; DK14_r1; DK00_a1).

In the case of Zvartnots Airport, limited public information can be found about the Board of Directors because the airport is not publicly traded, and therefore, the Armenian law does not require this form of transparency. Nevertheless, during a follow up conversation, Airport Expert II stated that the four board members are not government officials and these representatives have been appointed by the concessioner, Corporación América (Intv_AMae2).

In summary, the section above clearly argues that currently, due to privatization, the local governments in both Cases A & B have limited or no direct influence on airport operations and growth. Nevertheless, the nature of the aviation sector implies government regulations of particular business strategies that may enable or constrain growth. This could include
regulation on e.g. aircraft noise, emissions, wildlife, safety and more (Neufville & Odoni, 2013). In the two cases in this study, government regulations on users’ charges are found to be the most evident examples on growth. This is illuminated in the section below.

4.1.3 Pricing and anti trust

User charges at airports are classified into two categories: aeronautical and nonaeronautical. As the name suggests, the former are charges for services and facilities related directly to the processing of aircraft and their passenger and cargo (e.g. landing fees, aircraft parking, security), whereas the latter refers to charges related to the numerous ancillary commercial services, facilities and amenities that are often available at an airport (aviation fuel and oil, car parking, shops) (Neufville & Odoni, 2013: 220). Since privatization, both airports have been subject to ongoing criticism from airlines arguing that the high airport fees are constraining their growth: “The low cost carrier, Easy Jet says it is the high charges that prevents them from expanding their activities [in Copenhagen airport]” (DK13_a7: line 1). What is more, on March 6, 2012, the Armenian national carrier, “[Armavia] went on strike saying that services of Yerevan’s Zvartnots Airport are too expensive” (AM12_a2). As a response to the claims, the airport experts representing Copenhagen and Zvartnots Airports implied that this is a general misconception in the industry. They argued that the airport fees are very fair, especially, when the regions in which they operate, are taken into consideration. Further they argued that no matter how low the prices go, airlines are motivated to lower them even further (intrv_DKae1; intrv_AMae1/a2).

When evaluating pricing and potential conflicts in the aviation industry, it is vital to understand whether airports are following the recommendations of the International Air Transport Association (IATA), in terms of applying non-discriminatory charges to airlines. This means assessing whether airports have different charges for e.g. national and international carriers operating in the market. Performing on-the-surface assessment of the pricing structures in both Cases A and B, the airport operators seem to be following the IATA recommendations. For example, the Armenian Airport Expert II argues: “[…] our tariffs are public, they are published, so we don’t have any hidden tariffs. They are established considering the ICAO Airport Manual Economics standard requirements, so we do not discriminate between airlines and our tariffs were established when we signed the concession agreement” (56:32). Additionally, Danish Airport Expert I illustrates with an example: “There are only price differences in relation to transit passengers (where the charge is half the regular charges), domestic passengers and of course in our low cost
terminal “GO”, because the airlines get a less attractive location” (Q8). Nevertheless, it is observed that the airport operators do attempt to support their local hub airlines. Airport Expert III representing Scandinavian Airlines says: “We do get a big discount. Not many people in SAS know the exact agreement. I don’t. But it is clear that there are some major customer benefits” (Intv_DKae3: 23:24), and Airport Expert II from Armenia supports this statement: “All the airports try to find some ways to support those airlines that take the biggest share of operations, because if you are someone that is looking for five flights per day and there is someone that wants one flight per week, it’s quite fair to give some special discounts to this particular company to encourage them to do more [...] (1:13:38).

It is not surprising that both airports in Cases A and B have pricing challenges in common. The root of the problem seems to be the fact that the regulatory and statutory framework of international civil aviation lacks specificity when it comes to the subject of user charges, because each individual airport or national government must determine their own policies, cost bases, and revenue targets. Hence the question of user charges is a global problem, which has led to widespread conflicts between airlines and airport operators (Neufville & Odoni, 2013). Nonetheless, despite disagreements, airports are natural monopolies, and in the Cases A and B the prices are subject for additional supervision with the purpose of protecting airlines and passengers against their dominant position. For example, it is common procedure in Denmark that the Danish Transport Authority observes the user charge negotiations between airlines and Copenhagen Airport to facilitate any possible conflicts. As a government institution, they have the authority to approve or disapprove negotiated user charges, while also applying a “forth back” model authorizing them to set a price in the case that the parties do not reach an agreement. (Intv_DKpm1; Intv_DKae2; Intv_AMae2). Hence, in case of conflicts, the local government can have an impact on enabling or deterring growth through interventions. However, Danish Airport Expert III added that only recently Copenhagen Airport ended its successful negotiations with its customers, and government intervention was not needed:

“At this moment there is a voluntary agreement between us and the airlines. The negotiations have been good and we have decided that the agreement will last for five years. This means that the prices are fixed and will not be touched upon” (31:12)

The pricing in the aviation industry in Armenia is likewise regulated and monitored. For example, since fuel is only provided at the airport, the State Commission for Protection of
Economic Competition in Armenia supervises the airport charges on fuel (AM08_a4). Fuel prices are of high importance in the industry. When Armenian Airlines management (Airport Expert IV) was asked what could be the potential barriers of establishing a new route to Armenia, the answer was clear:

“[…] there is a fueling monopoly in Armenia. Fueling is high here compared to for example Tbilisi airport. For us, 40% of the operating costs are fueling” (Intv_AMae4: Q5).

However, Airport Expert I and III argued that fueling is expensive in Armenia because the country is landlocked and the only port for fuel is through neighboring Georgia, who charges the fuel price plus an additional 120 USD for each transit (Intv_AMae1/ae2/ae3).

Based on the above, it may be argued that there is a need for government price regulations and monitoring to protect airlines, and thereby indirectly support growth in airports. However, considering the Cases A and B, the evidence for this is weak, because no examples on positive results, from government interventions in price regulation and monitoring, have been identified. In contrast, situations where the local government has directly threatened growth by imposing special taxes have been identified. Generally, IATA argues that unjustified taxes and charges imposed by local governments around the world place a risk on the benefits gained by users of aviation services and the wider economy:

“Governments can best achieve their economic objectives by reducing airport costs/charges to stimulate growth, not by penalizing the aviation industry that acts as a major catalyst for this growth” (GD07_r1: 11). In Armenia, the local government has imposed a 10,000 AMD charge (20 EUR\(^3\)) per passenger in state duty tax, more conventionally referred to as “air tax”. As a response to the introduction of the tax in 1998, the president of the national carrier Armavia, Mr. Mikhail Baghdasarov, said that the “so-called air tax” is unfair and “repels” tourists. Initially (before March 2009) the tax was paid upon departure by each traveller leaving Armenia, but has later been added to the flight ticket (Intv_AMae2; AM08_a3; AM07_a1.).

“If you buy a ticket now to Armenia, you will see the [10,000 AMD] tax in your electronic itinerary. So probably you will [think] that the airport charge this. Or at least you will think, that this money is paying for aviation infrastructure. But in our

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\(^3\) Armenian Central Bank interest rate October 3\(^{rd}\) 2014: 1 EUR = 514.62 AMD (AM14_w6).
case that money is charged by the government and spent somewhere else. They
[government] artificially increase the final price for the user” (Intv_AMae2:
58:02).

Data received from Zvartnots Airport for this study states that 454,795 passengers have departed the airport from January – June 2014 (both months included) (AM14_e2). This means that the government has collected more than 23.4m EUR worth of state duty tax. However, when asking Airport Expert II what the tax is for, he replied that he does not know. This question was not posed to the Armenian policy makers due to the unstructured manner of the interviews. Nevertheless, in general it is common that the aviation industry can be seen as an easy target for taxes, sometimes with no direct relation to the industry itself (GD07_r1).

Similar taxation disputes were prevalent in Denmark regarding a charter tax or a so-called “sunshine” tax imposed by the government on the airlines operating charter routes. The tax was introduced in 1977 and further expanded to include discounted tickets in the beginning of 1990. The airlines were charged 300 DKK (40 EUR) for flights in Europe and 400 DKK (54 EUR) for flights outside of Europe and the government had expected to collect 600b DKK (80b EUR) from the tax in 1990. However, 17 major airlines such as Lufthansa, British Airways and Air France boycotted the charge, and the charter companies in Denmark could not understand why their industry was imposed while travels by bus, trains and cars were not touched upon. Together, with the airlines, the charter companies claimed that the Danish government was violating the European Economic Community legislation on free competition. This situation had an immense impact on growth. According to the CEO of SAS, Michael Mørch, the sales of SAS’s discounted tickets in the Nordics fell in 1989 from 46,426 to 8,687 tickets: “What is the purpose of selling tickets of 600-800 DKK from Copenhagen if we have to put 300 DKK in taxes on top?” (DK90_a4: 1). In 1991, the government finally decided to abolish the tax, but suggested alternative, cheaper

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4 Danish Central Bank interest rate October 3rd 2014: 1 EUR = 7.44 DKK (DK14_w18)
5 The EEC later changed its name to the EC (from ‘the European Economic Community’ to ‘the European Communities’). This change was made with effect from 1 November 1993, when the Maastricht Treaty came into force. The change of name reflects the fact that the cooperation was no longer merely economic in nature, but was gradually extended to include fields such as transport policy, taxes and excise duties, social policy, employment policy, education, culture, health and consumer protection, research, the environment and development aid. The Maastricht Treaty established the European Union and extended cooperation by making provision for an economic and monetary union, a common foreign and security policy for the EU, cooperation on justice and home affairs, a social dimension, etc. (DK08_w1)
charges that were imposed (DK91_a1; DK90_a3/a4/a5/a6). Based on these findings regarding government intervention in airport operations, the following proposition is suggested in terms of multisided platforms:

**Proposition I:** Government involvement in operations of privately managed multisided platforms decreases growth.

### 4.2 Government control of market access

For decades, government regulation of airline fares and services has constrained market access and growth of passenger traffic. The regulatory framework from the aviation sector existed before the first airlines were setup (and in fact, before World War I), inspired by the fear that foreign aircrafts might attack domestic cities and military installations. This meant that every country gained absolute sovereignty over use of its air space. However, with commercial flights it later emphasized the need to trade rights for passing traffic between countries. Furthermore, The Chicago Convention in 1944 discouraged competition in the airlines industry in Europe by adopting a general policy that each country could operate only one airline. A web of bilateral air service agreements shaped the industry by specifying routes and airports, agreed aircraft types, fares and frequencies, and designated carriers. In effect, capacity on the majority of routes were artificially restricted, fares were offensively high, and entry into markets by non-flag carrier airlines was virtually impossible. This caused low productivity, lack of innovation in route development, and absence of low-cost airports and airlines. The turning point for the industry transpired after the implementation of the U.S. Airline Deregulation Act of 1978 and has since spread to most regions in the world (Neufville & Odoni, 2013: 21; Doobory, 2005; Staniland, 2003; Sinha, 2001; DK04_r1). Today, the political and economical deregulations including implementation of “open-skies” bilateral agreements are becoming increasingly widespread. These agreements between countries remove most of the regulatory constraints on the scheduling and pricing of international services. They effectively allow airlines to operate flights between any two points in the countries involved. For example, this means that SAS can serve any airport they wish and are not constrained to serving the Scandinavian countries exclusively. This degree of freedom contrasts with previous conventions, which limited foreign airlines to a few gateway airports in each country (Neufville & Odoni, 2013: 15).
4.2.1 Assessing government role in market liberalization

Beginning with one of the most recent liberalization examples in the global aviation industry, the liberalization of the Armenian aviation market was implemented in late October 2013. Hence, only a year ago, the Armenian market was highly regulated and controlled by the local government, national airlines and the aviation authorities. In practice, this meant that international carriers would only be able to enter the Armenian market if they could find an agreement with the national carriers (Intv_AMae1/ae2/pm1/pm3). This was the case with Polish Airlines (LOT) when they started their route to Armenia in 2011. Because the market was not yet liberalized they requested permission from the national carrier, Armavia, to start operating their flights. In order to receive this permission, the airlines made an agreement that LOT could fly as many times per week as they wanted, and in exchange, Armavia was entitled to a number of seats on each flight, including the profits of those seats. While Armavia collected their earnings from LOT, they did not fulfill their part of the contract of paying the taxes and expenses calculated for each seat: “So at the end, LOT dropped the route in 2012, and the explanation was ‘it is because Armavia cheated us...they owe us 80,000 dollars’” (Intv_AMae2: 18:29). This example clearly illustrates how the monopolized market situation constrained growth in Zvartnots Airport, which resulted in higher prices and fewer flights.

In 2012, Armavia started having financial problems (Intv_AMae1; DK13_a4) and for many people this was not surprising: “I doubt with Armavia in various capacities including as a customer. It was an incredible badly managed company, so I am not surprised that they’re growing very fast, but couldn’t manage the financing” (Intv_AMae3: 38:59). Furthermore: “For Armenians the most important factor is the price. Other important factors are trust, frequency, cancelation and time. Armavia was not good at this; they had many delays and offered no compensation to the passengers” (Intv_AMae1: Q11). Despite the ongoing conflicts that ascended from the restricted market, the Armenian government continuously wanted to protect Armavia, which led to heated discussions: “Everybody was fighting because of the government’s self interest in the local carrier and they didn’t want the deregulation, the fight lasted more than one year” (Intv_AMae1: Q1). Nevertheless, despite the recent discussions, the notion of a deregulation in the Armenian market is not novel:
“For the past decade, it’s been an idea that people have talked about; during the last five years the pressure has increased; and then after the collapse of Armavia it became possible to pull it off” (Intv_AMae3: 40:08).

The airport management played an important role in convincing the government to consider market liberalizing. On one hand, they argued that more flights and reduced prices would essentially help in developing the tourism sector, and improving the overall economic situation in the country. On the other hand, the management made it clear to the policy makers that the opportunities of the newly built terminal (cf. section 3.3.2), that was set to be completed in the same year (in 2011), would end up being useless without market liberalization. Finally, in 2013, when the contract between Armavia and the government expired, the government accepted the airport operator’s demands and decided to declare “open skies” later the same year (in October 2013). This meant new market entrants, changes in traffic patterns, and increasing competition:

“Now everyone can come without restrictions, all airlines are increasing frequencies, they don’t have to ask anymore, tickets are going down, in Moscow mostly. New airlines can only ask and they will get the permission to fly to Zvartnots Airport” (Intv_AMae1).

Armavia filed for bankruptcy 1st of April 2013 (AM13_a9), less than six months before the market became liberalized. Despite the fact that the company had a considerable share of the operations at Zvartnots Airport (100 flight per week to over 40 destinations in 20 countries), the bankruptcy has not stopped the Airport in experiencing extraordinary growth. Currently, almost all already-operating airlines are increasing their frequencies to all destinations, and six new companies have started flying on a regular basis. Hence, the slots that became available after Armavia’s bankruptcy were filled in rapidly by other airlines (Intv_AMae1/a2 and e.g. AM14_a5; AM14_a6). The liberalization in the Armenian market for aviation has resulted in 32% increase in the number of passengers in the first 6 months of 2014, and when comparing the months of June in 2013 and 2014, the number of flights has risen by 42% (Intv_AMae2; AM14_a1).

On the contrary, the liberalization processes in Denmark was not encouraged by the airport’s management, but instead imposed by the European Union (EU). Becoming a member state of the EU in 1973, The Danish market was liberalized alongside with other
member states. The European Commission started the deregulation process in December 1987 and ended it 1st of April 1997 with the purpose of implementing a “Single European Sky”. As a result, European carriers obtained practically unlimited freedom to choose their routes, capacity, schedules, and fares. Interference from national governments in these decisions was reduced to a minimum. Commercial considerations became the primary incentive for airlines to open/close a new route, to add/reduce capacity, and to increase/lower fares. Furthermore, it gave the European aviation industry the opportunity to diversify outside its core business and into the international market. (Sinha, 2001; Doobory, 2005; DK04_r1). In Denmark, liberalization meant that the old “Danair-monopoly” consisting of Scandinavian Airlines (SAS), Maersk Air and Cimber Air lost their exclusive rights in the Danish market. However, upsettingly, while the big European airports were drowning in applications from airlines requesting new flight routes, the interest for new routes to Denmark was very limited, and liberalization seemed to have failed for Copenhagen Airport (DK95_a1; DK97_a1/a2; DK98_a1). Furthermore, the survival of the main and most successful national carrier, Scandinavian Airlines, was highly questioned, putting the airport in an even bigger threatening situation.

SAS was established in 1946 by the Danish, Swedish and Norwegian states and at that time there was almost no competition. The successful company pioneered in flights over the Atlantic Ocean to reach New York, the North Pole, Los Angeles, and Tokyo, being the first to fly nonstop to the Far East. SAS was a national symbol of Scandinavia and was known for its traditional values as security, quality, attractive destinations and well-educated staff. However, the turning point from a successful to struggling airline came as a consequence of liberalization and the entry of low-cost companies. In the beginning of the 90s (few years before liberalization was fully achieved), there was no doubt that the major companies, British Airways, Lufthansa and Air France, would survive the new forms of competition, whereas SAS, KLM, Swissair and Austrian Airlines were expected succumb to it. As a result, steps were taken to merge the four weakest airlines to create a strong European airline that could survive and become the biggest airline in Europe. This idea was highly welcomed by the Danish government and the former Minister of Finance, Mogens Lykketoft, stated that an agreement would have the potential to secure the future of SAS and Copenhagen Airport. Nevertheless, the agreement never happened due to operational issues at KLM that are not relevant for this study (DK93_a2/a3/a4; DK12_a1). This meant that the initial discussions about the potential sale of SAS emerged
among policy makers. In 2008, however, the management of Copenhagen Airport warned the Prime Minister on the societal consequences it would have for Denmark in case of selling SAS. The Danish ownership in SAS was particularly important for Copenhagen Airport to maintain its hub status. Two Danish respondents confirmed this:

“If you do not have a hub, what is Copenhagen Airport then? What do they really have to offer? They will only be able to sell some fuel and do baggage handling” (Intv_DKam1: 1:04:49) and “[…] as a country we clearly have strong interest in supporting Copenhagen Airport. The situation between the airport and SAS is like an old marriage. You have SAS that pays 60-70% of the expenses at Copenhagen Airport, and if SAS is gone then the airport has a problem” (Intv_DKae3: 51:09).

Among other reasons, this meant that alongside the most dominant EU member states, the Danish government did not welcome the consequences of liberalization and therefore exposed resistance by pursuing interventionist policies to secure public interests. They perceived the transport sector as too vital for the economy to be left to the market forces. This perception is still prevalent among Danish policy makers:

“The Danish Ministry of Transportation has a clear position in terms of Copenhagen Airport, which does not necessarily go towards 100% liberalization, but rather a mix of monopoly and liberalization. Despite that Copenhagen Airport requests this, from a political point of view free competition is not possible” (Intv_DKpom1: 57:43).

Therefore, since liberalization until today, the Danish government has been actively supporting SAS in avoiding bankruptcy. In the early ages of liberalization it was feared that SAS would suffer the same future as the national carrier for Belgium, Sabena Airlines, who went bankrupt and was replaced by a less ambitious company. The new Belgian carrier lost one third of the market, closed a number of intercontinental flights to Brussels and 17,000 people were fired from their jobs, and as a result Belgium’s BNP declined with one percent (DK14_w15; Mitra et al, 2007; Sinha, 2001; Doobory, 2005; DK08_a1; DK12_a1). Therefore, since liberalization, the Scandinavian governments and owners of SAS have used government subsidies to save the company from severe bankruptcy threats. However, this is a very sensitive area for the EU and they have been assessing whether the subsidies
of many airports and airlines comply with EU regulations. The most recent and relevant example was prevalent three month ago, when the EU commission responded to a subsidy complaint received from European Low Fares Airlines Association (ELFAA) against the state warranty of three billion DKK (almost 404m EUR\(^6\)) issued to SAS in 2012\(^7\) by the Danish, Swedish and Norwegian governments. The ELFAA secretary general, John Hanlon stated: “The credit concerned is being deployed to support an ambitious program of fleet renewal and expansion of the SAS network, significantly distorting competition with SAS’s competitors which have no recourse to such state support” (DK13_a1). This was not the first time that ELFAA filed a complaint against SAS. It also happened in 2009 and 2010, when SAS received a total of 11 billion DKK (almost 1.5b EUR) in government shares. Nevertheless, despite that the actions of SAS were considered severe, in all three cases the EU confirmed that the subsidies did comply with EU legislations because they did not give SAS a considerable advantage (Intv_DKa3; DK14_a5; DK10_a1; DK13_a1/a2/a3).

In summary, looking at the short-term impacts of liberalization in terms of airport growth, it is clear to see that it had negative implications for Copenhagen Airport. However, recent data confirms that Copenhagen Airport has achieved passenger records for the third consecutive year with a year-on-year growth rate of 3.1%. This can obviously be explained by the fact that the global aviation industry is growing. However, had Denmark not taken part in the liberalization processes in the 90s, they would probably not have gained as much from the current industry growth (DK04_r1; Intv_DKae1). Moreover, one can argue that due to liberalization, Copenhagen Airport is no longer as dependent on SAS for growth:

“In principle, Lufthansa could easily serve all of Scandinavia. 15 million people is not a problem at all. One must admit that in the long-term Scandinavia may be too small to have its own airline. To put the numbers into perspective the city of Manchester, alone serves more passengers than all of Scandinavia (Intv_DKpm1: 1:04:49).”

With the adoption of liberalization, Case A and Case B portray contrasting developments in growth; however, one must not forget that 17 years have passed since the Danish market was

\(^6\) Danish Central Bank interest rate October 3\(^{rd}\) 2014: 1 EUR = 7.44 DKK (DK14_w18)  
\(^7\) The state warranty was not needed and therefore cancelled 4\(^{th}\) March 2014.
liberalized, and the EU as an institution has foregone major changes. Nevertheless, when assessing the current situation, liberalization has enabled both airports to experience immense growth deriving from a rapidly thriving industry.

4.2.2 In the name of national security – constraints on liberalization
The section above argued that both the Danish and Armenian markets are no longer constrained in terms of scheduling and pricing of international services, and that both have benefited greatly in terms of growth. Nevertheless, one can argue that liberalization is increasingly constrained due to safety regulations imposed by policy makers. The incidents of September 11, 2001 have changed the way countries look at aviation security:

"Aviation security has truly become a national security issue (Zellan, 2003: 34)."

Historically, policy makers have maintained that providing security is the responsibility of airlines and airports as part of their cost of doing business, but this has recently stirred immense criticism due to the crash of Malaysian Airways MH17 in Ukraine on July 18th 2014. Safety authorities in the United States and Europe had warned pilots and airlines in April about potential risks flying in or near Ukrainian airspace. Nevertheless, both Malaysian Airways and other operators continued to fly across the zone because it was the quickest, and therefore cheapest, route (GD14_a1). The crash has resulted in heated discussions questioning who should have the responsibility for providing security at airports: local governments, ICAO\(^8\), IATA\(^9\), airlines or airports? (GD14_a2/A3; Zellan, 2003) According to Chief Executive at Emirates, Sir Tim Clark: "We cannot continue to say 'Well, it's a political thing'. We have to do something. We have to take the bull by the horns" (GD14_a3: 1).

In the case of Denmark, liberalization or no liberalization, the Transport Authority has the responsibility to approve any entry to Copenhagen Airport, and to follow up on existing players utilizing the infrastructure of the airport. In this decision-making process, the risk acceptance in the field equals zero, where this is not the case with railways and roads in Denmark (Intv_DKpm1). This has obviously resulted in constraints and implications on growth. For example, in December 2003, the US issued a requirement to enable the use of

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\(^8\) ICAO: International Civil Aviation Organization  
\(^9\) IATA: International Air Transport Association
armed air marshals on transatlantic flights from Europe. An air marshal is a security officer who travels undercover on commercial flights to prevent hijacking. Though many European member states accepted the requirement, the Danish government objected, viewing guns on board planes as increasing the security risks (DK08_a5; DK06_a3). Nevertheless, in 2011 WikiLeaks published documents revealing that the US Embassy in Copenhagen had been advising the US Government on how to put pressure on Danish policy makers to allow armed air marshals on board planes leaving from Denmark to the US. For example, as a result of this advice, the US Secretary of Homeland Security, Janet Napolitano, visited Denmark in November 2009 with the purpose of discussing the case. One year later, on December 2010, the Danish Minister of Justice published following statement in the media:

“I can confirm that the Government intends to enter into an agreement with the United States on the use of so-called ‘air marshals’ (armed guards) on flights between Denmark and the United States” (DK11_a3: p.5).

This statement seems to contradict with a recent situation explained by Danish Airport Expert I, who stated that an Israeli airline has shown interest in establishing a route to Copenhagen, but the Danish government has rejected this request due to the presence of armed air marshals. Despite the airport management’s efforts to convince the government to approve the route, they did not succeed. This implies that there is still an ongoing political game in the aviation sector although the Danish market has become liberalized.

Case B provides a different example, but re-confirms the implication of a political game. In 2011, it was announced that a new regular flight route would be established from Stepanakert (located in the enclave of Nagorno-Karabakh) to Armenia. The inaugural flight was planned on May 9th 2011, but was obstructed due to threats from the neighboring country, Azerbaijan. The Azeri government claimed that they would shoot down any civilian plane leaving from Stepanakert because they consider the sky over Nagorno-Karabakh to be Azerbaijani space. This threat occurred despite that members of the International Civil Aviation organization (ICAO), including Armenia and Azerbaijan, made a commitment to never shoot down civilian aircrafts (AM11_a2/a3/a4/a5; AM13_a11; AM14_a20). Nagorno-Karabakh is a landlocked mountainous region with an ethnic Armenian majority and the region is the subject of an unresolved dispute between
Azerbaijan and Armenia. In 1988, towards the end of Soviet era, Azerbaijani troops and Armenian secessionists began a bloody war, which left the de facto independent state in the hands of ethnic Armenians when a ceasefire was signed in 1994. So far the negotiations aimed to produce a permanent peace agreement have failed, and the dispute remains one of Post-Soviet Europe's "frozen conflicts" (AM11_a4; AM13_a12). Although numerous policy makers in Armenia argue that the threats from Azerbaijan are not grounded, it has still created a climate of fear among the people who could become potential passengers of Yerevan-Stepanakert flights. As a response to the fears, the president of Armenia, Serzh Sargsyan, has volunteered to be the passenger of the first flight to scatter doubt and phobias in society in relation of safety. However, this flight has not yet occurred (AM13_a11). The example clearly portrays how the aviation sector is a vital component in national security, which can lead to constraining growth.

Proposition II: Government control of access to markets in which multisided platforms operate decreases growth.

4.3 Government investment efforts

Looking at the rapid developments in the aviation sector, economists have reached a general consensus that airports share a strong relationship with the economic developments of cities, regions and countries:

"Just as in the past, shipping, railway and the highway systems have played vital roles in determining a city's economic power, global air transportation systems will do so in the future for cities, regions and countries" (GD99_a1: 1).

Air travel not only connects people, but also economies across borders through its rapidly moving transportation network. On a global scale, the annual economic impact in 2013 from aviation (direct, indirect, induced and tourism catalytic) was estimated at $2.4 trillion, equivalent to 3.4% of world gross domestic product (GDP). Furthermore, these numbers are expected to grow at a fast rate. 100 years have passed since the first commercial passenger boarded a plan, and since then, 65 billion passengers have been served. However, considering the rapid developments, the next 65 billion passengers will be reached within the next 15 years (GD14_r1). Based on these impressive numbers, governments around the world are investing in projects that enhance and support their
growth - regardless whether the airports are owned by private or public entities. They understand that the airport either serves or can serve as an economic magnet attracting higher income, employment, capital investments and tax revenues, all of which can lead to spin-off effects, such as business and tourism development. On a global scale, the total value of goods transported by air in 2013 represented 35% of all international trade. Furthermore, statistical findings demonstrate that 52% of all international tourists travel by air. Nevertheless, it is challenging and unclear what determines the exact cause-and-effect between airports and economies (GD14_r1; Neufville & Odoni, 2013).

Looking at Cases A and B (cf. case description, section 3.3), both airport operators have similar ambitions aiming to double the number of annual passengers. For example, the target of Copenhagen Airport is to increase from serving 24 million passengers (in 2013) to serving 40 million passengers within the next 15 or 25 years (cf. 3.3.1). This will increase the number of people employed in the airport from 23,000 to 40,000. In general figures the airport management states that 1 million passengers create 950 new jobs at the airport, while 550 jobs are created outside of the airport (Intv_DKae2; DK14_r3; DK14_w19; DK14_a7). As previously mentioned this will result in a more competitive economy that benefits from more tourists and international corporate investments:

“...one new route can bring around 60 – 200 million DKK [8.1 – 26.9m EUR] in value for the Danish society (Intv_DKae2: 04:08).”

In the case of Armenia, an Economic Impact Study based on the expected results from liberalization, estimates to bring $330 and $410 million [262m EUR – 325m EUR] in GDP in 2016, while the creation of 18,000 to 23,000 new jobs are projected, mostly in the aviation and tourism sectors (AM14_a18). The numbers illuminate that the economic benefits in both Denmark and Armenia are expected to be immense, and by understanding the effect, policy makers can enhance their decision making processes in terms of which potential areas to invest in: 1) Direct or indirect promotion of new routes; 2) new airport facilities, 3) off-site infrastructure such as road or rail links. In this paper, investments (or funding) are simply defined as time, money and effort. In practice, although all

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10 Danish Central Bank interest rate October 3rd 2014: 1 EUR = 7.44 DKK (DK14_w18)
11 European Central Bank Interest rate October 8th 2014: 1 EUR = 1.26 USD (GD14_w5)
governments recognize the national, regional, and local benefits generated by airports, the extent to which they provide direct or indirect funding varies greatly around the world (Neufville & Odoni, 2013; Graham, 2003; GD14_r1; GD99_a1). The following paragraphs will illuminate the most significant examples about investments made in Cases A and B aimed to attract growth. The results of those efforts will be included when applicable.

4.3.1 Attracting sales through promotion

All thirteen respondents from Case A and Case B agreed that in general terms, both Copenhagen Airport and Zvartnots Airport are fully treated as commercial businesses. Therefore, the key processes to attract routes are performed by the airports’ sales people visiting airline headquarters and meeting with potential partners, a practice, which was formerly determined by political interests and influence. Nevertheless, looking at specific situations, cf. the findings in Analysis B, one may argue that there are indirect, political impacts from government regulations. However, this will not be elaborated any further in this section. In practice, the aviation industry is one of the most transparent industries in the world, and the analysts working in airports and airlines have access to precise statistics on global traffic flows that they can use to determine their expansion strategy: “It is tough business decisions for airlines where they decide to develop a route” (Intv_DKae2: 04:08). The World Route Conference held every year in September is usually highly fruitful in terms of creating sales leads for the future. When discussing growth, the conference was one of the first things airport experts from both countries mentioned:

“First thing what we do, we always participate at these conferences, where we meet the airlines, we discuss with them, so this is one of the best tools; even, just to know key people in different airlines, to know if they are interested to fly or not” (Intv_AMae2: 07:18).

This year, the conference was held in Chicago between September 20-23 with approximately 3000 delegates, 300 airlines, 800 airports and 200 tourism authorities. Delegates from both Copenhagen- and Zvartnots Airports were among the guests. This year, the delegates from Copenhagen airport held the impressive number of 93 presentations (DK14_e1) during the three-day conference, and were highly commended. In 2013, during the World Route Conference, Copenhagen Airport had the honor of being awarded the “Best Airport at Route Development” award among the category of airports
serving 20-50 million passengers a year. The decision was made by airlines that found Copenhagen Airport best in determining whether a new route would be profitable or not (Intv_DKae1/ae2/ae3; Intv_AMae2; DK14_a6). However, comparing the less famous airport, Zvartnots, that has just liberalized its market, to a major airport like Copenhagen would be unjustifiable in terms of the World Route Conference: “It’s not easy to represent Armenia because it’s not a well-known destination, even if we show them that it’s interesting there is some possibility, there is a potential, it takes some time for the airlines to really discover us on the map, and then they have to go farther to make those decisions. In case of Etihad it took them like three years to come” (Intv_AMae: 09:11).

Looking more towards the government in terms of attracting growth, both Danish and Armenian policy makers have a more facilitating role:

“For example when I travel to meet an airline I can take with me either a local travel agency to help me present some tourism parts or I can take someone from government to have more influence […], [we] always try to collaborate [with the government]” (Intv_AMae2).

This is also the case for Copenhagen airport that collaborates with the Danish Foreign Ministry in terms of organizing a feasibility visit to a country where there is an interesting potential for routes development:

“If we are for example interested in establishing a route to India, then we ask the Foreign Ministry to organize a delegation to India that consists of, for example, a Danish CEO, an Ambassador, Minister, a representative from Wonderful Copenhagen, Confederation of Danish Industry and so on” (Intv_DKae1: Q2).

The purpose of such delegations consisting of leading policy makers and representatives from the industry is to strengthen the position and arguments for establishing a new route. However, contrary to Zvartnots Airport, Copenhagen Airport has to pay the Foreign Ministry a consultancy fee for their collaboration. Zvartnots Airport simply covers the travel costs of policy makers from time to time (Intv_DKae1; Intv_AMae2). Nevertheless, the respondent representing Danish policy makers argues, that the most important role the government can play is to do what the commercial players are not able to - lobby for
changes in the EU that can make it more commercially attractive to operate in Copenhagen Airport:

“We do a lot of lobbyism work in terms of EU and in the future I think we should do more. The reason is that in the EU there are strong countries like France, Germany and the United Kingdom. They invest a lot of resources in driving the EU legislation in their direction, [...] and therefore it is important to know when our “visiting hours” are, when can we have an impact, when are decisions made. If we are not there we do not have an impact” (Intv_DKpm1: 39:08).

An older example linked to Policy Maker I’s recommendations, occurred in connection with liberalization efforts in 1993, where the Danish business authority recommended the policy makers to ensure that local transport suppliers were not worse off than their colleagues in other EF (EU) countries in terms government aid, which could distort competition (DK93_a5).

Where the paragraph above illuminates the general processes of attracting growth, this paragraph will assess specific government activities that have been executed and their results. Case B presents a clear agreement among airport experts that a close collaboration between government and airport is important in terms of activating the market and attracting growth. However, there is a disagreement among experts in determining the expected level of government effort:

“I think the government here could do more in attracting new airlines. A good example of this is when the president of Georgia sent 20 letters to Alitalia proposing that they should fly to Georgia and then it happened. I believe the government can do something (Intv_AMae1: Q3).

In contrast, Airport Expert III argued a more positive outlook on the government’s efforts in using its diplomatic channels to attract a higher number of carriers. When airline operators were pulling out of the Armenian market, the government was trying to help by reaching out to their embassies with the purpose of lobbying for the route in the home market. Nevertheless, their efforts were not successful because the most common reason for airlines not operating in the Armenian market is purely due to business. For example, British Midland (BMI) used to fly to Armenia, but they pulled out of the market after
British Airways acquired them. The new owners decided that the flights to Yerevan did not meet their required demand for business class travels, which was their most profitable service at the time (Intv_AMae3; AM12_a1):

“[…] they had the choice between Georgia and Armenia and they chose Georgia because there was more demand there. The government tried to intervene, but these companies are very business driven so it does not help very much” (Intv_AMae3: 22:07).

Furthermore, a more recent example of government effort is based on Armenia’s presence at the “Route Silk Road 2014 Forum” held in Tbilisi in July. The purpose of the forum was to unlock aviation and tourism potential of Asia, the CIS, Central and Eastern Europe and the Middle East. Armenia’s participation was organized by the private-public organization, The National Competitiveness Foundation of Armenia (NCFA)\(^\text{12}\), jointly with the Ministry of Economy, and the event was highly successful with market entry negotiations with 12 airlines (AM14_a18). However, as the event is recent, the actual results, whether or not the airlines will open routes, are not yet visible.

Looking at government efforts in Denmark the most clear and recent examples can be derived from the Global Connected Route Development Partnership Program\(^\text{13}\). According to records from the end of August 2014, the program has attracted 12 international routes to Copenhagen, whereas six of them are intercontinental flights to growth-markets, such as Toronto with Air Canada, Dubai with Emirates, Bahrain with Gulf Air and Shanghai, Tel Aviv and San Francisco with SAS. The project has attracted 200,000 extra international inbound passengers to Copenhagen and the expected return in 2012-2013 is, in regional tourism revenues, estimated at around 1.9 billion DKK [255,4m EUR]. Obviously, not all efforts of Global Connected were successful. For example the route to Bahrain closed down after 19 months and the marketing efforts targeted the Russian market did not lead to any new routes (DK13_a5/a6). Nevertheless, the Danish Airport Experts I & II are both very positive towards the efforts of Global Connected

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\(^{12}\) The National competitiveness Foundation of Armenia (NCFA) is an independent, public-private entity founded through a partnership between the Government of Armenia and a group of leading representatives of the private sector from the United States, Russia, the European Union and the Middle East has been working with the mandate to achieve bring development opportunities to the country and enhance its competitiveness in key areas of economic activity (AM14_a18; AM14_a19).

\(^{13}\) Global Connected is a route development partnership program between The Capital Region of Denmark, Copenhagen Municipality, The Zealand Region, Ministry of Business and Growth, VisitDenmark, Copenhagen Capacity, The Skåne Region, Wonderful Copenhagen and a number of private companies (DK13_a6).
because they “warm up the market” and assist the airport in making the business case better towards the airlines. For example, this could be by subsidizing marketing awareness campaigns in the target country in order to ensure that flights are filled up and become successful (Intv_DKae2). The Danish Airport Expert III informs:

“There is no doubt that it is expensive to start-up a new route. One cannot fill up a plane from day one. At least it is very rare in these days because of competition. [Subsidizing] is something you do in all airports. It is not unique for Copenhagen (01:50).

From the above it can be concluded that growth in Cases A and B are generally derived from commercial sales activities where the government only has an indirect, facilitating role. However, there are examples where both the Danish and Armenian governments have actively pursued attracting growth to the airports.

4.3.2 What comes first: Infrastructure or growth?

In the section above, the processes of how the airport operators and policy makers have pursued growth were specified. This section will focus on the importance of meeting the infrastructure needs of passengers in terms of airport growth. The Council of International Civil Aviation Organization (ICAO) highly supports government policies aimed at financing airport infrastructure: […] practically every nation in the world subsidizes to some extent, directly or indirectly, the development of infrastructure at its airports (Neufville & Odoni, 2013: p.219). However, one of the key questions that challenge both airport operators and policy makers is what comes first: Infrastructure or growth? According to Airport Expert I (Q8) in Case A, the answer is clearly growth:

“We invest when there is a need. We do not believe in ‘just’ building an airport”

The airport expert argues that, indirectly, the customers are paying for infrastructure expansions through user charges (cf. Analysis A), and since the user charges are government regulated, it is not possible to invest in large-scale projects that result in overcapacity issues, as it is seen in Asia. The user charges have to reflect the value that is delivered: “We take small steps at a time […] because we have a responsibility towards our customers and it is unnecessary to make it expensive for them. This means that we cannot spend money on ‘maybe’ projects” (Intv_DKae1: Q4). The airport expert illuminated with an example:
“[…].” we have been criticized for not having runways that are ready to receive F-category planes, but if our customer, for example SAS, do not need it, there is nothing in it for us. Those who have F83 planes have given the criticism, but it does not matter if there is no commitment from their side. Normally route developers meet with the directors and it is only when there is 95% security that we start acting” (Intv_DKae1: Q4).

In strong contrast, Zvartnots Airport invests first and expects growth thereafter. In July 2009 (more than three years before market liberalization), the airport operator invested in a new terminal that stood ready two years later in 2013. Before the reconstruction, the airport could serve 2 million passengers, whereas the new terminal is designed with a capacity to serve 3.5 million annual passengers. However, assessing total passenger numbers between 2009 and 2013, the numbers range from slightly less than 1.5 million passengers to almost 1.7 million passengers. Hence when the airport operators started building the terminal, they had not yet reached their full capacity (Intv_AMae2; AM14_e2; AM09_a1). However, investing first, despite its risks, has meant that the airport operators are ready for the growth generated by the liberalized market. Airport Expert I stated: […] we have 50 landings and take offs every day, we can do 100 every day. […]” (Q4). And the airport management is ready to finance an expansion when needed: “We can have even more flights than the current capacity allows us, if it is necessary, because we have some land around the airport that the government has reserved for us” (Intv_AMae1: Q4). On the contrary, this is an example of a contemporary challenge for Copenhagen Airport. Despite high growth ambitions, the airport infrastructure is not yet ready to serve the growing number of passengers.

When asking the respondents regarding the government’s role in terms of airport infrastructure investments, both airport operators in Case A and Case B stated that they do not receive any financing (Intv_DKae2; Intv_AMae2). The previous President of The Regional Council of Copenhagen, Vibeke Storm Rasmussen, criticizes this: “The situation is that growth and development follows a good infrastructure, not the other way around” (DK12_a1: 3). She depicts the example of the transformation of Dubai from a desert to a transport hub, which was enabled by political willingness. “These traffic hubs are crucial in terms of growth” (ibid.) Despite this, governments have no financial influence in terms of investments and instead, in both Cases A and B, policy makers have an important role in terms of approving infrastructure changes (Intv_AMae1; Intv_DKae1/ae2; AM02_a1). Airport
Expert I from Denmark states:

“Generally when we make changes in the airport infrastructure we need to have a convincing case towards the authorities. [...] In the framework of ‘Expanding CPH’ we are conducting countless negotiations, doing studies on environmental impacts [...]. [For example] we are looking towards a future with more bad weather conditions, which demands our attention. If we make the runway more difficult to land and take off from, the airport will more often be closed due to bad weather” (Q1).

These topics are currently discussed between Copenhagen Airports, the airlines, and the Transport Authority (Intv_DKae1). The processes to approve infrastructure changes are similar in Armenia, but there is a recent example where the government approved a change, which was then overruled by the municipality. The conflict is linked to ongoing discussions about demolishing the old terminal building, which does not meet modern standards of air navigation and is a dangerous construction due to its low seismic resistance. The decision to demolish the building was approved as part of the “master plan” for Zvartnots Airport for 2013-2017. Nevertheless, the Armenian Public Council, an advisory body formed by the President of Armenia, appealed to the government with the requirement to reject the decision on demolishing the building. This resulted in the Mayor’s Office-affiliated urban planning council to unanimously reject the application for the demolition of the building. The old terminal, Building N1, which Yerevan citizens refer to as the “round building” or “tower,” is considered one of the best samples of Soviet postmodernism architecture, which is why many citizens feel an emotional attachment to the building. In January 2014, the prime minister informed that they are considering various architectural options to solve the issue (AM14_a4). This example reflects the amount of power and influence the government has regardless of privatization.

The section above examined the processes around investments in airport infrastructure. It was found that the governments in both Cases A and B are important in terms of providing permits for infrastructure changes, but they do not participate in any financing. This section will elaborate on the role of the government in off-site infrastructure investments, more specifically, in the surrounding transportation system. This is of high importance because most airports cannot achieve the desired scale of passengers by
attracting only those in close proximity to the airport. Besides accommodating the needs of local citizens, they also need to go further afield to achieve a profitable scale of operations by appealing to passengers from other airports in neighboring countries. In the past, policy makers have played a crucial role in developing road network infrastructure and rail connections to airports in order to improve their catchment areas: “Catchment area for a facility includes all the places that have easier access to it, in terms of time, distance and expense” (Neufville & Odoni, 2013: 116; DK12_r2).

In terms of Case A, Copenhagen Airport ranks as one of the best airports in Europe served by public transportation. In 2012, more than 58% of departing passengers travelled to the airport by public transport. That equals to roughly five million departing passengers that annually use public transport to get to the airport (DK14_r3). Nevertheless, according to Danish Airport Expert II, calculations on catchment area illuminate that Copenhagen airport is significantly weaker than neighboring Hamburg. The number of people that can reach the Airport within two hours transportation time calculates within the catchment area. The airport in Hamburg serves 13 million passengers annually and 10 intercontinental routes, whereas Copenhagen Airport serves 24 million passengers and 27 intercontinental flights. However, where the catchment area of Hamburg is 10 million passengers per year, it is only 4 million in Copenhagen Airport:

“We usually say ‘we are punching above our weight’” (Intv_DKae2: 15:30).

With the growth ambition of serving 40 million passengers per year, at least nine million travelers are expected to take the bus, train or Metro to the airport, which is a significant increase of 80% (DK14_r3). Considering the number of the current catchment area, the transport infrastructure surrounding the airport is not ready to handle such a growth. Moreover, due to the required length of time to plan and build infrastructure, Copenhagen Airport management urges local and national politicians in both Denmark and Sweden to take joint action now (DK14_r3): “With more passengers, pressure will increase on Metro and train services, which will have to be expanded over time. In the long term, the airport should also be linked to the European high-speed rail network, a matter that requires immediate political attention” (DK14_r3: 32: 33). According to Airport Expert II, it is extremely important that politicians are aware that there is a weakness and Copenhagen Airport is standing on a fragile foundation. The government has a crucial role to play in terms of expanding the catchment area and thus
ensuring that the airport development is more robust. The Fehmarnbelt that links Scandinavia and Germany will be one of the world’s longest automobile routes through a tunnel, and serves as a good example of what Copenhagen Airport needs in order to grow (DK14_a8; DK12_a1). Copenhagen Airport Managing Director, Thomas Woldbye argues that the tunnel will be a growth catalyst for the Airport: “Our attitude is essentially that improved infrastructure is a good thing for Copenhagen Airport. It should be remembered that the trains’ travel in both directions, and anything that can expand our catchment area is a good thing. It is our job as a region and as an airport to make us so attractive that more people come here than leave” (DK14_a8: 1). The Director strengthens his points by linking the project to Oresund, which is the best example of the synergistic opportunities that infrastructure investments can trigger. He argues that the fixed link across Oresund has had a huge positive impact on the whole region. Over half of the largest Swedish companies are located in southern Sweden, and they see Copenhagen Airport as their preferred airport instead of Stockholm’s Arlanda. The Oresund link has created a region, and the Fehmarnbelt link has the potential to do this as well (DK14_a8: 3).

In Case B, the government is interested in making Zvartnots Airport a “multi model hub”. This includes getting a railway linkage and better ground transportation to the Airport. The idea is that the project could be an offshoot of The Eurasian North-South Transport Corridor Program, which has a potential route to link India to Russia via Iran and Central Asia. The goal is to catalyze trade across Eurasia by linking expansive markets while significantly reducing transport costs. This project is of high importance for Armenia, as it would allow truck traffic to come easily from neighboring Iran to the airport and the railway (AM14_a21; Intv_AMae2). Although a passenger railway would be beneficial, the interesting aspect of the project is to establish a station at the airport for cargo shipments. The complete technical design for using existing routes and creating new routes to connect Zvartnots to the central railway station in Yerevan is ready on paper and the government is keen on implementing the project. The problem is finding and securing the financial resources: “I think the government is eager, but they are poor” (Intv_AMae3: 09:39). They are not able to generate enough tax revenue for various reasons, resulting in a constant strain to search for privatization deals around concerting of rights that would incentivize others to invest. Airport Expert III participated in the negotiations with the Southern Caucasus Railway Company, which is the Russian company that manages the railway system in Armenia. However, the Russian operator did not seem to have any real incentives to invest
in the project, even when presented with a business case that would generate revenue. This means that everything is left on the airport operator, who would bear sole responsibility to finance the project. However, they were not interested in putting all the financing themselves (Intv_AMae3: 14:15). This is apparent by the fact that although the government encouraged airport operators to invest in a cold storage facility, only 50% of the facility is being used currently. The government believed that if the infrastructure was already built, it would produce more activity. Unfortunately, this proved not to be the case, as it is insufficient to build a facility without establishing accompanying economical developments. This was very discouraging for the airport management (Intv_AMae3: 09:39)

Proposition III: **Government investment efforts in projects linked to multisided platforms increase growth**

### 4.4 Summary of findings

To the authors’ knowledge, this is the first study to explore how government interventions impact growth in multisided platforms. During the research process, three growth factors were developed to guide the analysis. Figure 4 summarizes the findings from the exploratory study of Cases A and B in a graphical illustration to facilitate a quick overview.

**Figure 4: Government impact on growth in multisided platforms**

![Figure 4](image)

The first growth factor discovered, government involvement in operations, is based on the progressive shift from public to private management in airports. The findings display that general airport operations have significantly improved since privatization. The majority of
the respondents (airport experts and policy makers) argue that during government management, airport operations were highly bureaucratic, lacked flexibility and disregarded the customer. It was further confirmed that government interventions aimed at improving social efficiency through price regulations, seemed to have the opposite effect. The second growth factor, government control of market access, elaborates on the transition from a restricted market, based on regulatory constraints on scheduling and pricing to protect local airlines, to a liberalized market, where competition is welcomed and restrictions are relaxed. Recent abnormal growth numbers experienced in both Cases A and B can be interpreted as the direct results of the local governments’ willingness to liberalize the market. Nevertheless, it is seen that despite liberalization, policy makers can still restrict market access in the name of national security. The third growth factor, government investment efforts, indicates that policy makers can positively impact growth by investing in general projects that expand transport access and connectivity. However, where the first two growth factors are confirmed by historical data, the third factor is based on recent or current initiatives and therefore principally displays expectations rather than actual results. These considerations are mentioned in section 3.6 as limitations derived from conducting case studies.

5. Discussion

In the previous section, the three growth factors discovered in this study were summarized. The following section relates the findings to existing literature in order to question whether the growth factors are applicable to other multisided platforms. This endeavor is challenging because as mentioned in the literature review (cf. section 2.1.2), multisided platforms lack a proper definition, provoking the common question: “After all, isn’t every market two-sided?” To meet this challenge and increase the validity of the findings, the discussion will only include examples of MSPs that have been cited in numerous studies. Furthermore, to enhance the level of clarity, each growth factor is assessed through both the lenses of traditional resellers and multisided platforms. It is especially important to determine whether there may be a difference in the treatment by governments of multisided platforms versus one-sided markets.
5.1 Academic implications

Assessing growth factor I and II, it is clear that even though both airports in Cases A and B are no longer publicly managed and the aviation markets have become liberalized, local governments continuously impact business strategies through imposed industry regulations. The government interest to regulate can be explained historically by looking at the aviation industry, but more importantly, it is because airports are considered natural monopolies with high entry barriers. Consequently, airport operators may be motivated to charge higher prices, restricting access through high entry barriers, and as a result, distorting social welfare. These findings comply with the vast literature on antitrust in multisided platforms. Due to strong network effects, successful MSPs tend to tip towards a single dominated platform generating significantly higher profit margins than those enjoyed by traditional resellers. In other words, the constituents of multisided platforms prefer to single-home, where they connect to only one platform to transact on, rather than multiple. For example, in the payment card industry, consumers prefer to single-home, thus placing a great majority of their payment card purchases on a single network. This means that the only way for the other side (the merchant) to reach those agents (the consumers) is through their preferred platform (cf. 2.3.1). This has shown to have important implications on governments’ motivation to intervene. Nevertheless, the interest to regulate multisided platforms is not different from traditional one-sided markets that have enough market power to engage in anticompetitive processes, but the assessment process is significantly different in MSPs. The widely held view among policy makers and economists is that open platforms encouraging competition are intrinsically more desirable than closed, proprietary and monopolistic platforms. However, antitrust studies on MSPs show the exact opposite. Encouraging competition in one or both sides (consumer or merchant) in MSPs may negatively affect social efficiency and thus welfare. In section 2.3.1 in the literature review, the situation is illustrated well in the example of the United States’ government assessing Microsoft’s growing market power. The tens of thousands of software applications that run on Windows demonstrate significant entry barriers and market power, which could directly lead to antitrust issues. However, unlike traditional one-sided markets, the government viewed Microsoft’s growth as socially efficient and pro-competitive because it made the platform product more valuable for all customer communities. Conventional competition policies would have disrupted welfare because regulating business monopolies can hinder the emergence of successful platforms and deprive the constituents of benefits. The
findings in this study support this notion. For example, the argument for policy makers to intervene in airport operations is to improve social efficiency by enacting policies that protect airlines and passengers from excessive airport charges. However, one can argue that governments cause more harm than good because they use their authority to subsequently impose a number of taxes on both the airport operators and airlines. In general, the aviation industry can be seen as an easy-target for new taxes, sometimes with no direct relation to the industry itself. These taxes have proven to be harmful not only for the aviation industry, but also for the greater economy. For example, in the context of multisided platforms, when governments charge the airport more, it naturally drive airline charges to increase, leading to higher ticket prices for passengers and a decreasing number of available flights. Furthermore, experts in the field argue that even marginally small changes in price can have a significant impact on the greater economic value created by the aviation industry. As mentioned in the literature review (cf. section 2.1.2), the purpose of having tighter governance is often to pursue quality, but the benefits of higher quality have to be weighed against the costs of implementing tighter governance rules.

The third growth factor indicates that government investment efforts can impact growth positively. In Cases A and B, local governments invest in, or at least encourage the expansion of, transport access and connectivity, since it can significantly increase the number of passengers and positively impact regional development. In general, it is found that airports cannot achieve the desired scale of passengers by attracting only those very close to the airport. They also need to appeal to passengers from other airports in neighboring countries, and this requires government investment efforts (cf. 4.3.2). However, deciding which projects to invest in can be highly challenging for policy makers because they have to consider the overall welfare effects, and these can be contradicting in MSPs. On one hand, their investments can create strategic trade-offs for the MSP and some participant groups, but on the other hand, it can create negative value for other participating groups. This is in contrast to one-sided markets, where the effects of the investment will be more obvious for the policy maker. Hence, in the MSP literature it is found that investment strategies must optimize output by harvesting the indirect network effects available on both sides. Historically, policy makers have played a crucial role in developing road network infrastructure and rail connections to airports. However, infrastructure investments are often long-term, include various stakeholders, and entail substantial risks: What if infrastructure is built, but never utilized? Who should take the risk
and invest? This challenge is referred to as the chicken-and-egg problem, which is one of the most difficult challenges to solve in MSPs. It means that no side will join without the other. For example, in Case B, the government failed to finance a new railway route connecting Zvartnots Airport to the central railway station in Yerevan, the capital city of Armenia. This meant, that despite that the airport operators had shown interest in possibly co-financing the project, they did not want to bear the sole responsibility. In other words, the project failed because one of the sides failed to finance the project, although the other side was ready (cf. 4.3.2).

In summary, while governments do not always practice it, there is an incentive to treat multisided platforms differently from one-sided markets when considering growth factor I, II and III.

5.2 Managerial implications

The managerial implications in this study may be applied in general, but in this section they are demonstrated focusing on the two main target groups of this study: Airport operators and policy makers. Major changes in the global aviation industry points to emerging challenges that aviation stakeholders must consider. For example, increasing competition has led to a current, trend in the global aviation industry where an increasing number of governments are withdrawing from the aviation business by privatizing airlines and airports (cf. section 4.1). Subsequently, the incidents of 9/11 and more recently, the crash of MH17 in Ukraine, have changed the way governments and airport operators look at aviation security (cf. 4.2.2). Therefore, the industry is regaining its status as an important component in national security discussions, leading to a dialogue about how governments can secure national security through privately owned or managed airports. Furthermore, airports are viewed as an important economic driver attracting tourists and businesses to the country (cf. 4.3), eliciting a discussion about what role, if any, governments should play in attracting growth for commercial airports. Considering the current processes in the aviation industry, the most plausible solution to these challenges would be for policy makers to enact new policies, or modify existing policies and regulations, which meet the emerging challenges. However, in this study, regulations have weakened growth in both Cases A and B. Therefore, policy makers and airport operators are suggested to assess the challenges through the lens of multisided platforms. This can help policy makers develop
policies that support social efficiency and growth rather than taking the “obvious” one-sided market decision. Subsequently, airport operators can better argue for or against regulations imposed on them by the government. Moreover, if airport operators and policy makers better understand the dynamics in the aviation industry, together they can better lobby for changes in e.g. international legislations, thus benefitting the local airport in becoming more commercially attractive.

5.3 Further research

As mentioned in the introduction, the purpose of this study is to discover growth factors that can complement the limited literature on government intervention in MSPs. Illustrated in figure 4 above, this study proposes three growth factors that can be applied in an economic model for further research on the same topic. However, at this stage these factors are not quantitatively measurable and therefore require relevant proxies to be identified. Furthermore, as the economic model seeks to explain growth in MSPs, it will also be relevant to discuss how growth can be measured considering all the constituents. Below, possible proxies are suggested.

Beginning with the latter, it is vital for the researcher to determine how to measure growth in MSPs. In relation to Cases A and B, it would be convenient to use only the growth in passenger numbers as a proxy. However, it is acknowledged that this does not necessarily reflect the aggregated growth of the MSP. Therefore it can be suggested to use the change in revenues of the MSP as growth proxy, as it is comprised of quantity and price. While growth is a measurable factor, it can be a challenge to find quantitative proxies for government intervention. Proposition I suggests that government intervention in operations will have a negative impact on growth in the MSP. In section 4.1.3, examples for both Case A and Case B were related to government intervention in pricing with weight on special taxes. Thus, a fair proxy could be state imposed taxes that only the MSP or its constituents are subject to. In Case A and B this could be the tax imposed on the aviation sector, but not competing transportation forms such as the railway. The second proposition indicates that governments controlling market access will decrease growth in MSPs. The examples on this issue are single incidents of airline routes that have been prohibited by government. Because these incidents are far apart in time and often based on political and subjective decisions, it is difficult to suggest a measure. A way to mitigate this
issue could be to use a dummy variable, depending on whether there is government control or not. From the findings in section 4.2, the anticipation is that government control of any kind will make a dummy variable in an economic model decrease the expected growth. Finally, proposition III indicates that government investment efforts positively affects growth in MSPs. This does not necessarily demand a proxy, as investments can be measured directly in monetary form. It is up to the researcher to define and filter government investments to the MSP and the constituents that are relevant for the model.

6. Conclusion

On 1 January 1914, Abram C. Pheil, former mayor of St. Petersburg, Florida became the world’s first fare-paying airline passenger. Little did he know that 100 years and some 65 billion passengers later, air transport would shape the lives of people all over the planet. Equally nobody would have guessed, that from its founding 10 years ago, Facebook would start changing the way billions of people communicate on a global scale. For better or worse, airports, Facebook and other multisided platforms are evolving today from simple infrastructure providers to complex multiproduct, multiservice enterprises that drive economic development and wealth creation. Nevertheless, governments around the world do not seem to be prepared for their extensive growth and impact. Policy makers are attempting to enact policies that will support their success, while aiming to ensure overall welfare for society. However, it can be questioned whether governments are causing more harm than good in multisided platforms. The results of this study can only provide an ambiguous and rather speculative answer to the question. In terms of government intervention, the findings comply with the disagreements prevalent among leading macroeconomists and traditional businesses. Some argue that governments should intervene during times of crisis; others are more strongly against any interventions that are not related to, e.g. defending the nation and building roads and bridges; and finally, a more extreme perspective encourages state-ownership and control. While this study can endorse that state control of (at least privately-owned) multisided platforms is not a sustainable model, it is more difficult to make a distinction between arguments for a free market or a balanced partnership between government and business. The two first growth factors identified in this study: I) government involvement in operations and II) government control in market access indicate that government intervention has a negative impact on growth. The third
growth factor: III) government investments efforts exposes a positive impact on growth. However, the positive results of growth factor III could be linked to the fact, that airports are considered an important element of a country’s infrastructure and national defense system. These types of government interventions are even supported by more extreme “free market” thinkers. Nevertheless, for more clarification, this research hopes to inspire the development of an extensive economic model where the growth factors from this study, including other relevant growth factors, can be tested.

6.1 Acknowledgements
I would like to express my profound gratitude and deepest thanks to my advisor, Marion Poetz, for her exemplary guidance throughout the course of this thesis. This work would not have been possible without her guidance and support. I feel incredibly privileged to have her as my supervisor. Furthermore, I am grateful for this golden opportunity made possible by Danish and Armenian airport experts and policy makers, who have shared with me their extensive knowledge and insights throughout this amazing journey. Their willingness and dedication to help has been a great source of inspiration for me in my intellectual growth. Moreover, I gratefully acknowledge the helpful suggestions, comments and thoughts provided by Shoushan Tavlian, Stina Moquist, Victor Moquist, Kirsten Bruun and Monica Villaume. Their unequivocal support would fill me with enthusiasm and energy during times when I needed it most. And finally, a warm thank you to my parents, who have given me their blessing, help, and guidance throughout my studies. Especially for supporting (or sometimes accepting) my eagerness to learn from unconventional paths, often including interesting, but risky, projects and travels. This will carry me a long way in the journey of life on which I am about to embark.

Thank you to you all — Mange tak til alle — Հարցինային մեծ ձեռքիներին:
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Appendix A
Primary Data Collection (2 pages)
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Appendix C
Archived data (14 pages)
Appendix D
Danish Government Ownership (1 page)
Appendix E
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## Appendix A: Primary data collection (part 1)

### Table 1: Interview with airport experts

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# Appendix A: Primary data collection (part 2)

## Table 2: Primary data collection: Interview with policy makers

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Appendix B: Interview guide for airport experts & policy makers

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<th>Introduction</th>
<th>I am very pleased to meet you and thank you very much for taking your. My name is Tatevik Revazian and I am a student at Copenhagen Business School, studying a double degree in Management of Innovation and Business Development &amp; International Management. I am really passionate about airports both as a frequent traveller and as my possible work place in the future. I actually worked in Copenhagen Airport during my bachelor studies at the check in desk, boarding, translating Russian documents and even guarding planes when that was relevant! I love the environment and “stress” around airports and this is what has motivated me to dig deeper into this area with my master thesis.</th>
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<td>Our connection</td>
<td>I was recommended by […] to meet you; I found your profile very relevant on Linkedin and noticed that we have […] as a mutual friend.</td>
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<td>Pitch line for Armenian respondents</td>
<td>I visited Zvarnots airport with 25 innovation students from Copenhagen Business School along with an associate professor in 2012 during a study trip I organized to Armenia. I still remember how inspired we all were and I am excited to getting to know you and the airport better.</td>
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<td>Pitch line for Danish respondents</td>
<td>I consider Copenhagen Airport as my second home. When working there I didn’t notice the daily changes, but now its very clear to me that there are constant investments to improve the infrastructure, and I have noticed a lot of positive changes making the workflow more efficient at the check-in area.</td>
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<td>Practical information</td>
<td>The interview will take around 1 – 1.5 hours and I will not follow all the questions slavishly, but would prefer that we have an informal conversation guided by the questions. Is that ok with you? Please stop me if you have questions or comments on the go. Also, if you wish I can sign a confidentiality clause and will not share the thesis without your consensus.</td>
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<tr>
<td>Questions</td>
<td>[…] is either Zvarnots/Areni/Armenian or Copenhagen/Denmark/Danish</td>
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| Topic A: Basic information | Before we start could you please shortly introduce yourself?  
   a) What is your background and how did you end up dealing in the aviation sector?  
   b) Please describe what your main tasks are during the day  
   c) In your opinion, what are the strengths and weaknesses of your job?  
What are the main characteristics of the […] aviation industry?  
   a) Please classify […] airport according to its economic impact. Choose between: International gateway airport, national hub airport, regional airports, tourist generator airports, tourist receiver airport and transit and interline airports.  
   b) How do you picture the development of the […] aviation industry and the role of […] airport in this development? |
| Topic B: Attracting growth to multisided platform considering the role of public policies | How are constituents (e.g. airlines and passengers) attracted to […] airport?  
   a) How are routes attracted to […] airport and which role (if any) do policy makers play in this?  
   b) It is often said that airports are economic drivers of a country. Can you please elaborate on this thought in connection to the vision of […] airport in developing or/and sustaining a hub airport? Please define what role (if any) policy makers’ play in developing an airport hub.  
   c) Does […] airport have the infrastructure needed to handle an increase in number of travelers? In any case consider this question in relation to investments. Please describe what role policy makers’ play or have previously played in attracting investments for e.g. airport expansion, building new hotels, railways etc. In other words is there a chicken and egg problem in the airport-government relationship when considering investments, and if so how do you solve it. Please use examples.  
   d) Considering the airport ownership structure, do you think it enables or hinders growth? Please elaborate on previous questions (e.g. relationship between ownership structure- and attracting routes; investments and developing a hub. How does the future look like – will […] airport have more or less governmental ownership/management power?  
   e) Consider the recent political developments with the EU/Eurasian Economic Union. Do you think this will influence the growth of […] airport, or at least the direction you will look towards? If so, how?  
   f) In your general opinion what is more prevalent: Public policies enabling or hindering growth in […] airport. |
Can you please describe factors that have impacted the design of […] airport?

a) Do you have examples where policy makers have helped […] airport reduce search-, transaction- and product development costs? If so, please argue which, how and why.

b) Have you experienced conflicts between […] airport and constituents (e.g. airlines & passengers) because the constituents felt that their needs have not been properly served? If so, did the airport management or policy makers assist in resolving the conflict and how? Please provide examples.

Can you please describe the pricing structure in your platform?

a) Where do you get most of your revenue from: aeronautical or non-aeronautical charges? Are the aeronautical charges dependent on non-aeronautical charges?

b) Are the aeronautical charges for hub airlines (such as SAS, Air Armenia) different from regular airlines? If so, how and why? Furthermore please answer the question considering any governmental ownership in hub airlines.

c) Considering the price sensitivity of airlines and passengers, are your aeronautical charges low, medium or high compared to industry averages and do you get any governmental support to keep the prices down?

d) How does competition (or the lack of competition) influence airport charges? Please relate this question to situations where policy makers have protected local airlines through investments and legislations.

e) In general are you subject to international legislations (e.g. EU, ICAU) on how you charge different platform constituents (e.g. airlines & passengers). Please describe the process and identify strengths and weaknesses considering your growth.

How loose or tight are the governance rules in the airport?

a) In percentage how much of your daily work is approximately regulated by national and international policy makers and how big of an influence does the airport management have? Please consider the ownership structure of the airport in your response. In your opinion, is the future more or less regulated by the government?

b) Please elaborate specifically on policies that may regulate access to- and interactions on the airport platform:

1. What are the selection criteria when attracting routes and which role (if any) do policy makers play in determining these criteria? Please consider the process of developing bilateral agreements with countries around the world

2. What determines how many sides can join the airport platform? What are the limitations (if any) based upon? Do policy makers have a role in constraining access?

3. Who develops internal airport policies for constituents who already have access to the platform (e.g. security policies, environmental impacts, ground handling policies and many more).

4. Furthermore how do you e.g. allocate time slots for airline companies – please answer the question by considering situations where the governments are shareholders in local airlines.

c) Do you consider the airport-government relationship structure hierarchical or flat? Especially relate this to the internal processes established for information and knowledge to flow. Do you consider the efficient internal flow of information between airport-government as an important growth factor?

d) In your opinion do you have access to vital knowledge from the global airport industry? Please elaborate whether the political situation in you country has an influence on your access to global industry information?

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**Topic C: Additional data**

Can you please share any data (could be established practices, rules, laws and standards, reports, airport charges, data on passengers, future estimations etc.) that you may have access to.

**Closing**

Is there anything more you would like to add? The hand-in date for the thesis is October 17th and I will gladly share the findings with you. Thank you so much for taking your time.
## Appendix C: Archived data

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<td>Yerevan, November 1. ArmInfo. A new safety fee - 2 EUR - has been introduced at Zvartnots Airport.</td>
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<td>Armenia Vaces Trade Blockade as Georgia Conflict Widens</td>
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<td>Armenian Carrier Cuts Fares amid Falling Fuel Prices</td>
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<td>Free Economic Zone Project to be ready in Armenia this year</td>
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<td>Information</td>
<td>EU-kommission undersøger om SAS har fået ulovlig støtte</td>
<td>19-06-2013</td>
<td><a href="http://www.information.dk/telegram/464257">http://www.information.dk/telegram/464257</a></td>
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<td>DK13_a3</td>
<td>Berlingske Tidende</td>
<td>SAS-plan indklaget for ulovlig statsstøtte</td>
<td>07-02-2013</td>
<td><a href="http://www.business.dk/transport/sas-plan-indklaget-for-ulovlig-statsstoette">http://www.business.dk/transport/sas-plan-indklaget-for-ulovlig-statsstoette</a></td>
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<td>DK13_r2</td>
<td>Danske regioner</td>
<td>Regional turismeudvikling skaber værkst i hele Danmark</td>
<td>01-01-2013</td>
<td><a href="http://www.regioner.dk/~/media/Medibibliotek_2011/REGIONAL%20UDVIKLING/Kultur%20og%20turisme/Regional%20turismeudvikling%20skaber%20v%C3%A6rkst%20i%20hele%20landet.aspx">http://www.regioner.dk/~/media/Medibibliotek_2011/REGIONAL%20UDVIKLING/Kultur%20og%20turisme/Regional%20turismeudvikling%20skaber%20v%C3%A6rkst%20i%20hele%20landet.aspx</a></td>
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<td>Denmark</td>
<td>01-12-2013</td>
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<td>DK14_e1</td>
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<td>Email regarding World Route Conference 2014</td>
<td>18-09-2014</td>
<td>Unpublished email from Airport Expert updating on the plans of Copenhagen Airports during World Route Conference</td>
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<td><a href="http://www.trafikstyrelsen.dk/en.aspx">http://www.trafikstyrelsen.dk/en.aspx</a></td>
<td>07-09-2014</td>
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<td>Navair</td>
<td>NUAC - Nordic Unified Air Traffic Control</td>
<td>01-01-2014</td>
<td><a href="http://www.naviair.dk/--nuac.294.aspx">http://www.naviair.dk/--nuac.294.aspx</a></td>
<td>05-09-2014</td>
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<td>DK14_w9</td>
<td>Copenhagen Airport</td>
<td>From Public to Private Ownership</td>
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<td><a href="https://www.cph.dk/en/about-cph/investor/Share-information/From-Public-to-Private/">https://www.cph.dk/en/about-cph/investor/Share-information/From-Public-to-Private/</a></td>
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<td>Macquarie European Infrastructure Fund III (MEIF3)</td>
<td>01-01-2014</td>
<td><a href="http://www.macquarie.co.uk/mgl/uk/meif/meif-3">http://www.macquarie.co.uk/mgl/uk/meif/meif-3</a></td>
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<td>Teachers’ Pension Plan</td>
<td>Infrastructure Portfolio</td>
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<td><a href="https://beta.avinor.no/en/corporate/about-us/the-avinor-group/#!5220">https://beta.avinor.no/en/corporate/about-us/the-avinor-group/#!5220</a></td>
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<td>GD99_a1</td>
<td>Pricewaterhouse Coppers</td>
<td>Airports as Engines of Economic Development: Great Airports are Critical for a Region</td>
<td>01-07-1999</td>
<td><a href="http://www.strategy-business.com/article/19372qko=43f2b">http://www.strategy-business.com/article/19372qko=43f2b</a></td>
<td>18-07-2014</td>
<td>English</td>
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<td>GD07_r1</td>
<td>IATA</td>
<td>The Effect of Charges and Taxes on the Wider Economy</td>
<td>01-02-2007</td>
<td>Unpublished data: Access provided by Assistant Manager for operations at IATA, Juliana Nakano via email correspondence. Data can be provided upon request.</td>
<td>01-08-2014</td>
<td>English</td>
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<td>GD11_a1</td>
<td>The Economist</td>
<td>Revisiting the Hoover Dam</td>
<td>22-10-2011</td>
<td><a href="http://www.economist.com/node/21533393">http://www.economist.com/node/21533393</a></td>
<td>01-08-2014</td>
<td>English</td>
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<td>GD12_v3</td>
<td>BBC series</td>
<td>Documentary: Master's of Money - Karl Marx (45 minutes)</td>
<td>01-01-2012</td>
<td><a href="http://www.dft.dk/tv/se/pengenes-herrer/pengenes-herrer-3-58/00-07">http://www.dft.dk/tv/se/pengenes-herrer/pengenes-herrer-3-58/00-07</a></td>
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<td>Business Insider</td>
<td>Pilots Continued Flying Over Ukrainian War Zone Because It Was The Fastest And Cheapest Route</td>
<td>18-07-2014</td>
<td><a href="http://www.businessinsider.com/why-malaysia-airlines-was-flying-over-a-war-zone-2014-7">http://www.businessinsider.com/why-malaysia-airlines-was-flying-over-a-war-zone-2014-7</a></td>
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<td>GD14_a5</td>
<td>CNN</td>
<td>5 ways Facebook changed us, for better and worse</td>
<td>31-01-2014</td>
<td><a href="http://edition.cnn.com/2014/01/31/tech/social-media/facebook-changes/">http://edition.cnn.com/2014/01/31/tech/social-media/facebook-changes/</a></td>
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<td>GD14_p1</td>
<td>International Air Transport Association</td>
<td>Presentation: Airport privatization by Brian Pearce, Chief Economist</td>
<td>01-01-2014</td>
<td>Unpublished data: Access provided by Assistant Manager for operations at IATA, Juliana Nakano via email correspondence. Data can be provided upon request.</td>
<td>01-08-2014</td>
<td>English</td>
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<td>GD14_r1</td>
<td>Air Transport Action Group</td>
<td>Aviation Benefits Beyond Borders: Powering global economic growth, employment, trade links, tourism and support for sustainable development through air transport</td>
<td>01-04-2014</td>
<td><a href="http://aviationbenefits.org/media/26786/ATAG_AviationBenefits2014_FULL_LowRes.pdf">http://aviationbenefits.org/media/26786/ATAG_AviationBenefits2014_FULL_LowRes.pdf</a></td>
<td>28-09-2014</td>
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<td>GD14_w1</td>
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<td>Marc Rysman, Professor of Economics</td>
<td>01-01-2014</td>
<td><a href="http://sites.bu.edu/mrysman/">http://sites.bu.edu/mrysman/</a></td>
<td>10-08-2014</td>
<td>English</td>
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<td>GD14_w3</td>
<td>Harvard Business School</td>
<td>Andrei Hagiu - Associate Professor of Business Administration</td>
<td>01-01-2014</td>
<td><a href="http://www.hbs.edu/faculty/Pages/profile.aspx?facId=337239">http://www.hbs.edu/faculty/Pages/profile.aspx?facId=337239</a></td>
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### Appendix D: Danish State Ownership

#### Tabel 1.1
Statens aktieposter mv. pr. 31. december 2013

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<th>Selskab</th>
<th>Ressortministerium</th>
<th>Ejerandel</th>
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<td>Miljø¹</td>
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<td>Erhvervs- og Vækst</td>
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Anm.: * Bærnoterede selskaber.
1) Naturstyrelsen.
2) Moderniseringsstyrelsen.
Appendix E: Literature on Multi-Sided Platforms

This list displays literature on multi-sided platforms through 2012. It is available in David S. Evans and Richard Schmalensee’s paper “The Antitrust Analysis of Multi-sided Platform Businesses” revised 30th January 2013.


Athey, Susan, Emilio Calvano and Joshua S. Gans (2012), The Impact of the Internet on Advertising Markets for
Competition and Seller Investment Incentives


Boudreau, Kevin J. (forthcoming), *Let a Thousand


Cao, Wen and Qinyang Sha (2011), Platform Competition at an Online Two-Sided Market – Evidence from eBay, Working Paper (The Chinese University of Hong Kong and Indiana University).


Chakravorti, Sujit (2003), Theory of Credit Card Networks:


Chao, Yong and Timothy Derdenger (forthcoming), Mixed Bundling in Two-Sided Markets in the Presence of Installed Base Effects, Management Science.


Evans, David S. and Richard Schmalensee (2005), The Economics of Interchange Fees and Their Regulation: An Overview, in Federal Reserve Bank of Kansas City, Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities?


Fath, Gabor and Miklos Sarvary (2003), Adoption Dynamics in Buyer-Side Exchanges, Quantitative Marketing and Economics, 1(5), 305-335.


Fiedler, Ingo (2010), Antitrust in Two-Sided Markets: Is Competition Always Desirable? Berkeley Law and


Gil, Ricard and Daniel Riera-Crichton (2012), *Price Discrimination and Competition in Two-Sided Markets:


Jin, Ginger Zhe and Mare Rysman (2012), Platform Pricing at Sports Card Conventions, Working Paper (University of Maryland and Boston University).


Jullien, Bruno (2011), Competition in Multi-Sided Networks:


Lee, Robin S., Home Video Game Platforms, in M. Peitz and


OECD Competition Committee (2009), Two-Sided Markets, DAF/COMP(2009)20, available at


Rysman, Marc and Julian Wright (2012), The Economics of Payment Cards, Working Paper (Boston University and National University of Singapore).


Sidke, J. Gregory and Hal J. Singer (2008), Evaluating Market Power with Two-Sided Demand and Preemptive Offers to Dissipate Monopoly Rent: Lessons for High-Technology Industries from the Antitrust Division’s Approval of the XM-Sirius Satellite Radio Merger, Journal of Competition Law


Wright, Julian (2003b), *Pricing in Debit and Credit Card
Schemes, Economic Letters, 80(3): 305-309.


Xu, Li and Hong-min Chen (2005), *Multihoming and Compatibility in Asymmetric Two-Sided Markets*, Working Paper (Shanghai Jiao tong University).


