

# Operating performance at the cost of primary care quality?

A study of the impact of ownership in Swedish primary care

**Abstract:** This thesis investigates Swedish primary care by analysing if the ownership structures of the market participants affect primary care quality and operating performance. Four different types of ownership are identified - public, private equity, franchise and other private – and these are used to analyse whether primary care quality in Swedish health centres differ based on ownership. We use panel data from a patient survey covering the majority of Swedish health centres during 2009, 2010 and 2011. Furthermore, the operating performance analysis uses financial metrics to compare primary care companies owned by private equity firms with primary care companies owned by comparable private firms. We find that private ownership and franchising ownership are superior in delivering high primary care quality while private equity owned health centres provide an equal level of primary care quality as public health centres. We also find that private equity companies are superior to comparable private companies in operating performance.

**Keywords:** *health care, primary care, health care quality, primary care quality, privatization, private equity, franchising, operating performance.*

Alexander Bergendorf<sup>•</sup> and Philippe Gremillet<sup>◇</sup>

Tutor: Clas Bergström

<sup>•</sup>21359@student.hhs.se <sup>◇</sup>40156@student.hhs.se

**Acknowledgements:** We would like to thank our tutor Clas Bergström for valuable input during the process of writing this thesis.

# Table of contents

1.	<b>Introduction</b>	1
2.	<b>Institutional setting</b>	3
2.1	The Swedish health care system	3
2.2	Primary care	4
2.3	Four different types of ownership	5
2.3.1	Public ownership	5
2.3.2	Private ownership	5
2.4	Public criticism towards private ownership	7
2.5	Research questions	7
3.	<b>Previous literature</b>	8
3.1	Privatization	8
3.1.1	Theory	8
3.1.2	Empirical findings	9
3.2	Private equity	9
3.2.1	Theory	9
3.2.2	Empirical findings	11
3.3	Franchising	11
3.3.1	Theory	11
3.3.2	Empirical findings	12
4.	<b>Data and methodology</b>	13
4.1	Primary care quality	13
4.1.1	T-tests	15
4.1.2	Regressions	15
4.2	Operating performance	17
4.2.1	LBO performance	18
4.2.2	Current operating performance	20
4.3	Interview	20
5.	<b>Results and analysis</b>	21
5.1	Primary care quality	21
5.1.1	Private ownership outperform public ownership	21
5.1.2	Praktikertjänst is superior to the other ownership groups	22
5.1.3	Equal level of quality in publicly owned and PE-owned health centres	24
5.1.4	Results are robust to external factors	25
5.2	LBO's and operating performance	26
5.2.1	Private equity ownership improves operating performance	26

5.2.2 Potential explanations to superior performance post-buyout.....	28
5.3 Is there a trade-off between quality and operating performance? .....	29
6. Conclusion.....	30
7. References .....	31
8. Appendix.....	36

## Table of tables

<b>Table 1</b> – market data by ownership type in Swedish primary care .....	5
<b>Table 2</b> – sample of mean scores from NP by quality indicator and health centre.....	14
<b>Table 3</b> – distribution of health centres in NP by ownership group and year.....	15
<b>Table 4</b> – descriptive statistics on the four ownership groups with weighted averages of control variables .....	17
<b>Table 5</b> – timeline of sample buyouts with pre- and post-buyout periods .....	19
<b>Table 6</b> – descriptive statistics on the companies in the current operating performance .....	20
<b>Table 7</b> – average mean scores for the eight primary care quality indicators by ownership.....	21
<b>Table 8</b> – two-sample t-tests with equal variances, differences in means between public and private ownership, 2009-2011.....	22
<b>Table 9</b> – overall impression – two-sample t-test with equal variance, difference in means, 2009-2011 ....	22
<b>Table 10</b> – regression results from NP data with the ownership types as independent variable and Overall impression as dependent variable .....	24
<b>Table 11</b> – LBO analysis of mean net operating performance by buyout company compared to peer group .....	26
<b>Table 12</b> – LBO analysis of mean net operating performance of buyout companies compared to peer group .....	27
<b>Table 13</b> – current operating performance for PE companies in relation to peer group.....	28
<b>Table A1a</b> – descriptive statistics for primary care quality scores by ownership group 2009.....	36
<b>Table A1b</b> – descriptive statistics for primary care quality scores by ownership group 2010 .....	37
<b>Table A1c</b> – descriptive statistics for primary care quality scores by ownership group 2011.....	38
<b>Table A2</b> – two-sample t-tests with equal variances, difference in means by ownership groups 2009-2011 .....	39
<b>Table A3a</b> – regression results from NP data with public ownership as independent variable and primary care quality indicators as dependent variables .....	41
<b>Table A3b</b> – regression results from NP data with PE ownership as dummy variable and primary care quality indicators as dependent variables.....	42
<b>Table A3c</b> – regression results from NP data with Praktikertjänst ownership as dummy variable and primary care quality indicators as dependent variables .....	43
<b>Table A3d</b> – regression results from NP data with other private ownership as dummy variable and primary care quality indicators as dependent variables .....	44
<b>Table A4a</b> – company list – LBO analysis .....	45
<b>Table A4b</b> – company list – current operating analysis .....	45
<b>Table A5a</b> – LBO-analysis with operating performance of PE buyouts compared to peer group .....	46
<b>Table A5b</b> – LBO-analysis with net operating performance including total average mean and median of PE buyouts compared to peer group .....	47

# 1. Introduction

In the fall of 2011, the question of ownership in Swedish health care became one of the most frequently discussed topics in the Swedish public debate. *Private equity* companies with ownership stakes in health care companies (hereafter referred to as *PE companies*) were accused of offering low levels of health care quality in order to increase their profit margins (Association of Private Care Providers, 2012). *Carema Care*, providing elderly care in nursing homes, was heavily criticized following media disclosures on their treatment practices. The case of Carema Care started a vast examination of the health care sector cited by the media and led to intense discussions on the suitability of private ownership in Swedish health care.<sup>1</sup>

Historically, ownership in the health care sector has been public and closely connected to the Swedish public welfare system. Rising health care costs with respect to GDP has however put pressure on politicians to find alternative solutions and during the end of the 20<sup>th</sup> century, reforms were put in place that made it easier for private actors to enter the market. Since then, the private market for Swedish health care has grown fast.

The health care system in Sweden can be divided into health care (including primary care and secondary care) and social care (including elderly care, child care and disabled care). Primary care has grown to become a major part of the Swedish health care system and we therefore acknowledge the need to investigate the question of ownership in this sector. Primary care is very different from elderly care, and primary care companies are different from the criticized case of Carema Care. One could argue that elderly care is more sensitive to ownership as it is much easier for a primary care patient to change health centre than for an elderly to change nursing home. Nevertheless, the criticism towards PE ownership in elderly care seem to have caused a spill-over effect that has resulted in a public questioning towards private ownership in the health care sector in general.

Unfortunately, the debate has to a large extent been based on ideology and opinion instead of facts and figures. In order to investigate the role of private ownership in the primary care sector, research is needed to stimulate improved discussions. Some research has been done in the topic of ownership in the Swedish primary care sector, but none has tried to explore the different kinds of private ownership models that exist. This thesis seeks to contribute to this area by analysing

---

<sup>1</sup> For simplicity, the term “ownership” is used although private companies not always own the health care units they operate. Sometimes, they only have contractual agreements to operate them on behalf of the county councils in Sweden as a part of privatization programs.

primary care quality and operating performance of Swedish publicly and privately owned health centres and companies based on four different types of ownership structures. Besides public ownership, three private ownership types are identified. One of these ownership types consists of the largest private actor in the Swedish primary care market, *Praktikertjänst AB* (hereafter referred to as *Praktikertjänst*), a sort of franchise company that differs in ownership structure from other entrepreneurship owned primary care companies. Following the media discussions on PE companies, we also identify *PE* as one type of ownership. The last ownership type consists of all the remaining private companies which we will refer to as *Other privately owned* companies.

The methodology we use searching for a superior ownership type in primary care is two-folded. The first part relates to the level of primary care quality provided by the different ownership groups. We analyse this by looking into patients' evaluations of Swedish health centres. This part of the methodology supplies information to if some ownership types are better than others in providing high levels of primary care quality. The second part of our analysis relates to the operating performance of private primary care companies. As much of the focus in the public debate has been on PE companies, we investigate whether these are able to improve the operating performance of the primary care companies they acquire compared to private peer companies.

This study is unique in the sense that there to our knowledge are no studies that investigate different types of private ownership in Swedish primary care. We find that there are in fact significant differences in primary care quality and operating performance depending on ownership, and that there might be a potential trade-off between quality and operating performance.

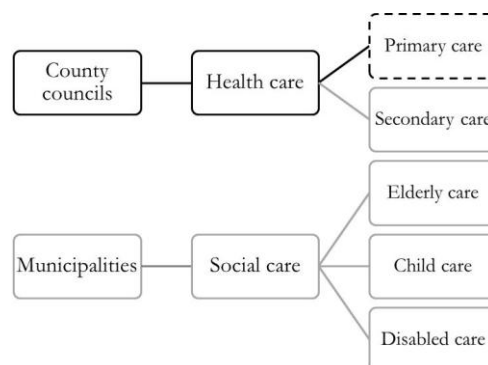
## 2. Institutional setting

The Swedish health care system is complex, and the occasional implementation of new reforms and laws keeps changing the environment. In order to make the distinction to what is included in primary care, this section contains a review of the institutional setting, with a particular focus on primary care. A description of the historical development of the health care industry is followed by an insight into today's primary care market. Further, we also present descriptions of the four major ownership types we have identified to be operating in the market.

### 2.1 The Swedish health care system

Historically, the Swedish health care system has been recognized internationally as well-functioning, providing the Swedish citizens with a high level of health care quality while not being economically unsound (SALAR, 2005). Private spending in Swedish health care has always been and still is negligible, perhaps being the biggest difference between Sweden and many other industrialized countries where optional private health care insurances are much more common. Originally a very centralized mechanism, the Swedish health care system has gradually moved towards a high level of decentralization. The financing has been shifted from the state to the county councils and regions<sup>2,3</sup> and municipalities<sup>4</sup> who today are responsible for over 70 percent of the funding. The county councils have the main responsibility of providing health care services leaving the municipalities in the main charge of the social care for elderly, children and disabled (SALAR, 2012c). Figure 1 displays an overview of how the Swedish health care system is organized.

**Figure 1:** an illustration of the organisation of Swedish health care.



<sup>2</sup> Hereafter, we will use the term “county councils” instead of “county councils and regions” as the vast majority of the county councils and regions in Sweden are defined as county councils and not regions.

<sup>3</sup> In Sweden referred to as *landsting*.

<sup>4</sup> In Sweden referred to as *kommun*.

## 2.2 Primary care

Primary care has during recent years grown to become a major part of the health care system, being a more cost-efficient tool compared to hospitals (Anell, 2011). This is based on the notion that not all patients need or should be allocated to hospitals, and the primary care has been used to offload resources from hospitals by offering citizens general counselling and treatment acting as the first medical instance citizens visit when their disease or injury is not acute. The primary care is often operated in *health centres* located all over Sweden.<sup>5</sup> A health centre is in turn operated by a *caregiver*, defined as a “...government authority, county council or municipality as well as other legal entity or sole proprietor responsible for health care operations...” who can operate either one or several health centres.<sup>6</sup>

Historically, the operational responsibility of the Swedish primary care has been placed in the hands of public authorities. Demographic trends over the last 20 years such as aging populations leading to a rising demand for health care services, has however forced governments to rethink their strategies for managing health care costs. This had led to outsourcing and privatization programs with the goal of reaching more efficient organisations (SALAR, 2005; Larsson et al., 2010). One important change for the evolvement of private actors in the primary care industry took place in January 1994. A new law was enforced that enabled doctors and physiotherapists to freely establish operations with the right to charge patients according to nationally agreed fees (Anell, 2011). The law also obligated the county councils to offer private health centres the same conditions as health centres operated publicly. Although the law was reversed one year later by the new government elected in 1994, some county councils decided to continue to use the principles of the abolished law. Since then, an increasing amount of private options have emerged either through procurement processes initiated by the Swedish county councils and municipalities or through buyouts and start-ups (Anell, 2011; Larsson et al., 2010; Swedish Competition Authority, 2011).

Another important change to the overall structure of the primary care in Sweden was the introduction of citizens' free choice of primary care unit enforced nationally in 2010 (Rehnberg et al., 2010; Swedish Competition Authority, 2012).<sup>7</sup> The purpose with the reform was to enable citizens to freely choose which health centre they wished to be listed at, as opposed to automatically being placed in health centres based on geographic location as had been the case

---

<sup>5</sup> In Swedish referred to as *vårdcentral*.

<sup>6</sup> In Swedish referred to as *vårdgivare*.

<sup>7</sup> In Sweden referred to as *Vårdvalet*.

before the reform. The reform has led to an incentive for health centres to attract more patients, since health centres earn tax money partially based on the number of people listed. Early evidence concludes that this has led to a competitive environment for health centres and that entry barriers have been lowered for private companies (Swedish Competition Authority, 2012). Since the launch of the reform, the number of health centres had by late 2011 increased by 19 percent, from 1023 to 1213, with a total of 247 different caregivers (Swedish Competition Authority, 2012). The increase had to a large extent originated from private actors establishing themselves (SALAR, 2009).

## 2.3 Four different types of ownership

We have identified four major ownership types or caregivers present in Swedish primary care. These are Public, PE, Praktikertjänst and Other private. Below follows brief descriptions of ownership characteristics also summarized in Table 1.

**Table 1** – market data by ownership type in Swedish primary care.

	Health centres	Caregivers	Health centre/caregiver*	Listed patients*
Public	728	22	33.1	8,800
All private	485	225	2.2	5,500
Private equity	N/A	N/A	N/A	N/A
<i>Carema</i>	33	1	33	10,300
<i>Capio</i>	30	1	30	9,100
<i>Aleris</i>	19**	N/A	N/A	N/A
Praktikertjänst	80	1	80	7,800
Other private	N/A	N/A	N/A	N/A
<b>Total</b>	<b>1,213</b>	<b>247</b>	<b>4.91</b>	<b>N/A</b>

Source: Swedish Competition Authority (2012)

\*Displays average numbers.

\*\*Source: Aleris.se (2012-05-12)

### 2.3.1 Public ownership

The public actors involved in the Swedish primary care consist of the county councils in Sweden. They total to 22 different caregivers and operates about 60 percent of all Swedish health centres (Swedish Competition Authority, 2012). A characteristic of public caregivers is that each caregiver is responsible for a higher number of health centres than the private caregivers. Public health centres are also significantly larger in terms of listed patients.

### 2.3.2 Private ownership

The private primary care sector has experienced rapid growth during recent years and consisted in late 2011 of 225 caregivers (Swedish Competition Authority, 2012). Ignoring the share of PE companies, private primary care companies are generally small in terms of size. As an example, all



caregivers that operate four or less health centres are private, and 192 out of the 225 private caregivers only operate one single health centre. Private health centres also have a lower number of listed patients per health centre than public.

### ***2.3.2.1 Private equity ownership***

The PE companies operating in the Swedish primary care sector are typically large companies, each operating a large number of health centres. Studying the group of caregivers in 2011 that operate 10 health centres or more, these were in total 24, and three out of these were PE owned companies. These were *Aleris Holding* (hereafter referred to as *Aleris*), *Capio AB* (hereafter referred to as *Capio*) and *Carema Sjukvård AB* (hereafter referred to as *Carema*). In 2011, Carema and Capio operated 33 and 30 health centres, respectively, with an average of about 10,300 and 9,100 listed patients per health centre.<sup>8</sup> In May 2012, Aleris operated 19 health centres (Aleris, 2012).

### ***2.3.2.2 Praktikertjänst***

The largest private primary care company in Sweden is Praktikertjänst, operating a total of 80 health centres with an average of about 7,800 listed patients (Swedish Competition Authority, 2012).<sup>9</sup> These health centres are operated by entrepreneurs acting as if they owned the units themselves in what can be compared to franchise agreements (Praktikertjänst, 2012). The entrepreneurs are also shareholders in Praktikertjänst with voting rights on the company's annual general meeting. The entrepreneurs are responsible for the financial performance, the staff and for business development while the role of Praktikertjänst is mainly supportive focused on helping the entrepreneurs with administration and financing. According to Praktikertjänst, this enables doctors in their health centres to focus on what is important – the patients. Praktikertjänst maintains a yearly quality monitoring of the health centres. In addition to starting up health centres in conjunction with entrepreneurs, Praktikertjänst also buys health centres from entrepreneurs who already have established practices but wishes to join forces with Praktikertjänst. The entrepreneurs receives an agreed salary from Praktikertjänst and pays a variable fee each year, averaging between three and six percent of the revenue. Profits can be paid out as salary or be reinvested in the business (DN, 2009).

---

<sup>8</sup> The average figures of 10,300 and 9,100 listed patients should be seen as rough guidelines as they are calculated using total number of health centres in October 2011 and total number of listed patients in May 2011.

<sup>9</sup> The average figure of 7,800 listed patients should be seen as a rough guideline as it is calculated using total number of health centres in October 2011 and total number of listed patients in May 2011.

## **2.4 Public criticism towards private ownership**

The development towards more private companies participating in the Swedish health care and primary care system has caused a high level of public doubt and questioning. The criticism reached its peak during the fall of 2011, following a number of reports concerning unacceptable treatment practices in nursing homes operated by PE owned Carema Care (Association of Private Care Providers, 2012). The case of Carema Care got a large amount of negative media coverage resulting in public anger that specifically targeted PE companies and their involvement in the Swedish welfare system. Critics argued that PE companies systematically sacrificed health care quality for financial performance by cutting their costs in order to maximize profits. This triggered questions concerning private ownership in the Swedish health care market in general and stated PE ownership as an example of when private ownership in health care can go wrong (SVD, 2011).

## **2.5 Research questions**

Although the public debate about profits and quality in Swedish health care has to a large extent been focused on PE companies, the core of the discussion has its origin in issues concerning privatization in general. We have identified four different ownership groups in Swedish primary care and will investigate if ownership has any effect on primary care quality and operating performance. We aim to answer the following research questions:

- Does ownership in the Swedish primary care sector has an effect on primary care quality?
- Does ownership in the Swedish primary care sector has an effect on operating performance?

### **3. Previous literature**

This section gives a review of the previous literature on topics regarding private ownership and health care. It is organized into three different parts based on different ownership types. The first part consists of theory that concern privatization. The second part concerns PE ownership and how PE companies can add value to the businesses they invest in. The third part concerns theory on franchise businesses.

#### **3.1 Privatization**

##### **3.1.1 Theory**

The concept of privatization is concerned with the fundamental role of governments and requires a decision on how much market intervention is necessary for the sake of public interest (Burton, 1987; Megginson and Netter, 2001). Public authorities can either choose to operate certain types of companies and industries themselves or choose to allow private actors to participate. With increases in health care costs outpacing increases in GDP, and aging populations demanding more and more health care services, governments seek solutions to how health care in the future should be provided more efficiently with respect to keeping costs down at sustainable levels (Larsson et al., 2010).

The advantages of privatization are often based on economic theory stating that free competition under state regulation results in efficiency, suggesting that public companies are less efficient than private (Megginson and Netter, 2001). Some of the theoretical differences between private and public companies can be found in the lack of clear goals, incomplete contracting and limited monitoring capabilities in public companies. Efficiency in public organisations can also be affected by the possibility that goals set by one political administration can be changed by the next (Shleifer, 1998; Nellis, 1999; Hansmann and Kraakman, 2000). Furthermore, the lower level of threat of financial distress and “soft” budget constraints provide additional reasons to why private organisations can be more efficient than public (Megginson and Netter, 2001). Lastly, when it comes to private ownership and health care quality, a study by Komashie and Mousavi (2007) suggest that private companies that enhance staff ownership, and therefore encourages a “profession pride”, is an argument for privatisation.

Behind the discussion on the benefits that come from allowing private companies to participate in a specific marketplace lies practical issues and strong assumptions that might not always hold. Markets that are monopolistic in their nature and markets that creates negative externalities

difficult to regulate (such as pollution) represent two reasons to why governments sometimes wish to remain in control. Also, handling the production of public goods so that the supply and quality can be guaranteed could be another reason for governmental ownership. The decision to privatize therefore to a large extent depends on the risk of market failure and the probability that markets cannot function without government intervention (Megginson and Netter, 2001).

### **3.1.2 Empirical findings**

Empirical findings in general suggest that private companies are more efficient and profitable than their public counterparts, and that it can therefore be less expensive for public authorities to pay private actors to operate their businesses (Boardman and Vining, 1989; Boycko et al., 1993; D'Souza et al., 2001).

When it comes to health care, however, empirical evidence show mixed results trying to compare public and private options. This is partly due to the complex nature of health care as a service and because different characteristics of health care providers aggravate comparisons (Kreicbergs and Fölster, 2011). Several studies have investigated hospitals and found private options to be more profitable and efficient (Becker and Sloan, 1985; Renn et al., 1985; Vélez-González et al., 2011). Vélez-González et al. (2011) argues that this is because private hospitals have an economic incentive to increase health care quality, as quality is often correlated with financial performance, that public hospitals do not. A study on the Australian health care sector found private health care to be more efficient than public in large hospitals, but less efficient in small hospitals (Productivity Commission, 2009). Hollingsworth and Peacock (2008) furthermore present studies pointing in both directions suggesting that public options can be better than private in some circumstances.

## **3.2 Private equity**

As stated earlier, the discussion on private ownership in Swedish health care began with a questioning of PE ownership in the industry. Since we have included PE ownership as one of our four ownership models, we provide a review of previous literature on PE in general, and also specifically for the health care sector.

### **3.2.1 Theory**

The *leveraged buyout* (hereafter referred to as *LBO*) emerged during the 1980s as a way to finance company acquisitions. The method comprises using a relatively small portion of equity and large portion of debt (Kaplan and Strömberg, 2009). The firms using this type of financing call

themselves PE firms. The equity capital is raised through a PE fund where investors provide capital for investments and fees. Most PE funds have a limited contractual lifetime and successful investment exits are therefore a vital part of the PE companies' business model (Kaplan and Strömberg, 2009). The average holding period of a buyout firm varies depending on industries and the size of the firm. During the early 90s, holding periods were often less than five years but this figure has increased over the years and holding periods ranging between four and seven years are perhaps more plausible to assume today. When PE companies started to emerge worldwide in the 80s, Jensen (1989) stated that publicly listed ownership had played out its role. He saw numerous advantages with this new type of ownership, including combined concentrated ownership stakes in portfolio companies, incentives for the PE professionals and efficient methods to run organisations with minimal overhead costs. According to Jensen (1989), PE would eventually become the dominant corporate organisational form.

There exist different understandings to what PE firms do to improve firm operations and increase the economic value of their investments. Some critics claim that PE firms only take advantage of tax benefits and superior information, and therefore transfer resources between stakeholders without creating economic value. Proponents argue the opposite by emphasizing how PE firms improve operations by implementing specific actions in order to increase the level of efficiency. Previous literature suggests that the value-adding actions can be divided into three categories – *financial engineering*, *corporate governance* and *operational engineering* (Kaplan and Strömberg, 2009). *Financial engineering* refers to practices involving putting pressure on managers by using leverage. Taking on a higher level of debt and increasing leverage can force managers to avoid ineffective projects because of the increased payment obligations that arise. In addition, leverage increase possible tax deductions by creating tax shields. However, one drawback of leveraging up is the inflexibility that follows and can increase the risk of financial distress (Kaplan and Strömberg, 2009). When it comes to *corporate governance*, PE firms take on active ownership roles and implement methods to incentivize and monitor management. The theory states that management has information on how to improve firm performance but no incentives to implement them, and that PE firms know how to take advantage of this (Acharya and Kehoe, 2008). *Operational engineering* refers to the industry and operating expertise that PE firms implement to add value to their investment. A trend over the years has been that PE firms tend to focus on certain industries and hire professionals with operating backgrounds from the industries they invest in. Value is then created by focusing this experience and knowledge into implementing value creating plans. These plans could consist of cost-cutting opportunities, productivity improvements, strategic changes, repositioning, acquisition opportunities and

management changes and upgrades (Gadiesh and MacArthur, 2008; Acharya and Kehoe, 2009). Critics to PE ownership however claim that this leads to employee and wage cuts in order to generate high levels of return on their investments (FSA, 2008).

### **3.2.2. Empirical findings**

Empirical evidence on operating performance after LBO's is mainly positive (Kaplan and Strömberg, 2009). In Sweden, Grubb and Jonsson (2007) found that buyouts have a significant positive impact on operating performance. Lundsten and Löfqvist (2011) found that Swedish buyout companies in the Swedish independent school sector found improved operating performances post-buyout.

Empirical evidence on employment and wages following LBO's in general differ. Some studies support the statement that employment growth is weaker in LBO firms than for comparable firms (Kaplan, 1989b; Lichtenberg and Siegel, 1990; Amess and Wright, 2007). Lundsten and Löfqvist (2011) found weaker growth in wages post-buyout compared to the wage levels in comparable private companies. Other studies have on the other hand, found that buyouts has had positive effects on employment and wages. Boucly et al. (2011) study buyouts in France and found that access to capital after buyouts stimulates increases in employment. Lundsten and Löfqvist (2011) showed that PE owned schools employ a higher number of teachers per student and that these teachers are better qualified. Lastly, Olsson and Tåg (2012) found that that labour income increases following LBO's in Sweden.

Empirical evidence on PE ownership in the health care industry is scarce. Clement and McCue (1996) examined performance changes after two LBO's in the hospital industry. They found that hospitals did not increase revenues, decrease operating expenses or improve profitability post-buyout. They furthermore found no decreases in wages or in the number of employees.

## **3.3 Franchising**

A significant part of health centres in Sweden are owned by Praktikertjänst. These health centres operate in a system similar to franchising. In order to support a discussion on this type of ownership type in primary care, we present literature on the topic.

### **3.3.1 Theory**

Defined as "...a system by which a company (*the franchisor*) grants to others (*the franchisees*) the right and license (*the franchise*) to sell a product or a service within a specified area and to use the

business systems developed by the company...” by The International Franchise Association, the franchise model of business has been named particularly suitable for the health care industry (Prata et al., 2005). Franchises can add value through training, maintaining quality through monitoring and signalling high quality services by using brand names and trademarks (Bishai et al., 2008). The term “service franchising” is used in the literature when describing companies such as Praktikertjänst. The company builds a network of outlets (franchisees) that are locally owned, but act in a coordinated manner with the guidance of a central headquarters (franchisor). The control of quality standards and the promotion of the common brand is done centrally (Ngo et al., 2010).

### **3.3.2 Empirical findings**

Franchising in health care has mainly been researched in developing countries (Bishai et al., 2008). When looking for optimal health care models to implement in countries where the health care system is deemed inadequate, franchising is sometimes considered an alternative (Champion et al., 2009). Several studies suggest that franchising models increase client satisfaction and perceived quality and tends to increase use of the services in question compared to other private companies (Plautz et al., 2003; Stephenson et al., 2004; Agha et al., 2007; Bishai et al., 2008). Regarding the few studies that have incorporated more objective measures of quality than patient perceptions, findings vary. Stephenson et al. (2004) investigated franchise in the reproductive health sector and found increased volume of services but did not find any link between franchise ownership and reproductive health outcome.

## 4. Data and methodology

This study analyses ownership in Swedish primary care investigating its effect on primary care quality and on operating performance. To answer these questions, a two-folded methodology is used. The first is used in order to analyse the question of ownership and primary care quality, and the second to investigate ownership and operating performance. This section explains the methodologies and the data we use and is divided into two parts, *Primary care quality* and *Operating performance*. We also conduct an interview with a PE professional on the topic of health care.

### 4.1 Primary care quality

Measuring health care quality has long been a problematic issue for researchers and health practitioners. This includes finding a common definition of the concept and developing methods for evaluating, monitoring and improving the quality of a service (Idvall et al., 1997). In recent years, patient evaluations have increasingly been identified as a valid tool (Campbell et al., 2001; Isaac et al., 2010; Häger Glenngård and Anell, 2012). Di Primio (1987) suggests that health care should be seen as a service provided and that when it comes to services, client satisfaction measures are seen as more important measures of performance than they are in product oriented industries. One reason for this is that perceptions are more pronounced when dealing with industries that are intangible in their nature. Isaac et al. (2010) related objective measures of health care quality in 800 hospitals to patients' evaluations on satisfaction and found that these were strongly correlated. Patient evaluations has also been used in empirical investigations of health care quality. Furthermore, Campbell et al. (2001) used a survey-based method to assess patients' evaluations of primary care provision in London. The survey was based on 13 dimensions including access to care, communication, trust, likelihood of recommendation and overall impression. Respondents were also asked for sociodemographic information. The authors found significant differences and concluded that matters such as age, ethnicity and size of the unit visited have explanatory power when assessing the health care quality provided. Kontopantelis et al. (2010) conducted a similar study with a much larger sample of patients having visited general practices in England and found similar evidence. In Sweden, Häger Glenngård and Anell (2012) and Swedish Competition Authority (2011) both used a national survey called *Nationell patientenkät* (hereafter referred to as *NP*) issued by the *Swedish Association of*



*Local Authorities and Regions* (hereafter referred to as *SALAR*) on health centres when studying the Swedish primary care market.<sup>10</sup>

This study aim to investigate differences in primary care quality between Swedish health centres based on ownership. Following the previous literature on health care measures, we use a dataset from NP. NP is performed on an annual basis covering health centres by county councils down to municipality level (SALAR, 2012a). A majority of the counties participated in the surveys during the starting years 2009 and 2010, and in 2011 all counties participated. NP measures Swedish patients' perceptions of Swedish health centres by defining patients' experienced quality in terms of eight different indicators – *Personal treatment*, *Participation*, *Information*, *Availability*, *Trust*, *Perceived utility*, *Recommend* and *Overall impression*. Several questions for each indicator are asked to respondents, with different weights attached to them depending on the importance of that question. The results from the weighted answers in the questions are then summarized, multiplied by 100, and then approximated to the nearest integer. Results can vary between 0-100 where the higher the score, the better. The surveys are distributed to randomly selected patients of Swedish health centres and collected based upon which health centre each respondent has visited. This methodology enables comparison between different health centres. See Table 2 for a sample of the data retrieved as a result of the survey.

**Table 2 – sample of mean scores from NP by quality indicator and health centre.**

	Personal treatment	Participation	Information	Availability	Trust	Perceived utility	Recommend	Overall impression
Märsta Närvård	91	83	80	86	87	84	83	71
Mörby vårdcentral	93	88	82	83	88	87	86	76
Norrvikens vårdcentral	92	78	74	77	87	78	78	70
Nya Västra Skogens Vårdcentral	88	77	80	90	74	69	70	63
Nykvarns Vårdcentral	89	79	79	89	77	83	77	68

248,000 surveys were sent out during 2011 and out of these, approximately 130,000 surveys were filled out resulting in a response rate of 54 percent (SALAR, 2012b). For 2009 and 2010, 165,000 and 160,000 surveys were sent out respectively with response rates of approximately 60 and 58 percent.

In order to compare primary care quality with respect to ownership, the first step of our methodology concerns identifying the ownership structure of each health centre in our dataset. We distinguish between the four previously defined ownership groups. The first group, the public health centres, is provided for by SALAR who distinguishes between whether a health centre is either public or private. This leaves us with deciding which private health centres belong to which of the other three groups: PE-, Praktikertjänst- and Other privately owned health

<sup>10</sup> In Sweden referred to as *Sveriges Kommuner och Landsting*.

centres. These are identified manually by researching financial statements and press release archives of all the private health centres for the three years. Our general decision rule in order to decide the ownership structure of the private health centres is that they have to have been controlled by a PE company or Praktikertjänst for at least six months during the year in question. Furthermore they must own at least 50 percent of the health centre or alternatively operate it on behalf of a county. Otherwise, the health centre is recognized as Other private. Table 3 shows the distribution of health centres for each ownership group by year after our distinction is made.

**Table 3 – distribution of health centres in NP by ownership group and year.**

<b>Ownership type</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Public	619	523	700
Private equity	47	50	92
Praktikertjänst	31	45	77
Other private	117	176	283
<b>Total</b>	<b>814</b>	<b>794</b>	<b>1,152</b>

#### 4.1.1 T-tests

In the first part of the primary care quality analysis, we analyse differences in mean scores of the eight indicators between ownership groups. First we test whether mean scores differ between the group consisting of all public health centres and the group consisting of all private health centres (including PE and Praktikertjänst). This is done in order to analyse if the quality in private health centres in general differ from the quality in public health centres. We then divide the group of private health centres into the three previously defined groups. The t-tests enable us to analyse whether the patients' experience of primary care quality differ based on the type of private ownership of the health centre in question.

#### 4.1.2 Regressions

There exists a risk that the t-tests are misleading as they fail to account for other characteristics than ownership. Previous literature suggests that size and socioeconomic conditions can explain some of the variation in the quality indicator scores from NP. Häger Glenngård and Anell (2012) used different variables including size of the health centres, socioeconomic characteristics of the local population and type of ownership (private or public) to predict quality scores of a subsample of the NP data. The authors presented four main results. First, quality indicators were lower in large cities and in locations with tough socioeconomic conditions. Second, private health centres overall received higher scores in the absence of controls (however, this was not the case when controlling for socioeconomic conditions and overall need for health care). Thirdly, the

size of the health centres was negatively correlated with perceived quality (in terms of number of listed patients). Lastly, the share of doctor visits (as opposed to nurse visits) was positively correlated with perceived quality. Socioeconomic conditions were used as proxies by including the *Care Need Index* (hereafter referred to as *CNI*). CNI is an index covering and weighting seven different socioeconomic variables according to their relative importance.<sup>11</sup>

In order to control for potential misleading results in the t-test, we perform OLS regressions including control variables for socioeconomic factors and year-fixed effects. We use the eight indicators of primary care quality as dependent variables and use dummy variables for the ownership groups as independent variables. When then add control variables to see if these has any effect on ownership group coefficients. The regression we perform use robust standard errors and is specified as follows:

$$y_{i,t} = \alpha_i + D_{i,t} * \theta + \beta_{i,t} * X + T_t * \gamma + \varepsilon_{i,t}$$

$y_{i,t}$  represents the primary care quality indicators and  $D_{i,t}$  represents dummy variables relating to ownership.  $\beta_{i,t}$  represents all variables that control for socioeconomic factors and  $T_t$  represent time dummies for 2010 and 2011. One regression is performed for each of the eight quality indicators, and each indicator is tested against each of the four ownership groups. This results in 32 regressions. We then add all controls to each regression and therefore perform 64 regressions in total.

The data for the controls are taken from *Statistiska Centralbyrån* (hereafter referred to as *SCB*) and are collected on a municipality level. The data is for the corresponding year of the observation, where available, and for 2010 otherwise. One control used is the average income level of the municipality that the health centre operates in. Additionally, a variable for population density is added to control for external effects such as longer waiting queues which could have a negative effect on the perceived primary care quality. Following the results by Häger Glenngård and Anell (2012), we add controls that relate to their socioeconomic proxy CNI. As we do not have access to their index, we instead use un-weighted variables corresponding to the variables that are weighted in the CNI. The controls that we use are not exactly the same as the variables used in

---

<sup>11</sup> Socioeconomic variables include proportion of the population over 65 years old living alone, proportion of the population foreign-born from Southern and Eastern Europe, proportion of the population in unemployment between 16 and 64 years of age, proportion of the population that are single parents with children 17 years or younger, proportion of population not academically educated between 25 and 64 years of age, people that recently have moved to the area over one years old and proportion of population under the age of five.

the CNI but should still capture some of the variation.<sup>12</sup> We are not able to use a size variable such as the number of listed patients per health centre as we do not have access to this type of data. As a proxy for the overall need for health care, we use a measure of ill health from SCB. This measure represents the average number of paid compensation days from the *Swedish Social Insurance Agency*<sup>13</sup> per person during a year. We furthermore control for year-fixed effects. Because much of the debate about privatization and PE in health care reached its peak during late 2011, it may be the case that indicator scores from this year are negatively biased as a result of the negative publicity. Table 4 presents an overview of the controls we use in our regression specifications including weighted averages for the ownership groups calculated using values for the municipalities they are present in.

**Table 4 – descriptive statistics on the four ownership groups with weighted averages of control variables.**

Control	Public	Private equity	Praktikertjänst	Other private
Income level (SEK)	222,776	233,604	235,835	230,080
Population density*	265.35	650.47	422.06	506.34
Recently moved in	5.08%	5.72%	5.27%	5.42%
Not academically educated	64.61%	58.70%	62.30%	62.53%
Single parents	0.10%	0.06%	0.06%	0.08%
Population working	29.56%	30.20%	28.54%	29.06%
Population <5 years	5.61%	5.97%	5.92%	5.77%
Population >65 years	19.93%	18.31%	18.90%	19.24%
Foreign born	12.58%	15.44%	14.53%	14.22%
Ill health**	35.53	31.92	33.24	34.19

\*Population per square kilometre

\*\*The measure for ill health represents the average number of paid compensation days from the Swedish Social Insurance Agency (Försäkringskassan) per person during a year.

## 4.2 Operating performance

The second part of our methodology is created in order to analyse if ownership affect the operating performance of caregivers in Swedish primary care. Due to differences in financial reporting procedures, public caregivers and Praktikertjänst cannot be included. Praktikertjänst reports financial results for the whole organisation, without specifications on specific franchisees. Furthermore, comparable financial reporting is not available from the public caregivers, the county councils. This part of our methodology is therefore limited to examining the operating performance of PE companies in relation to the group of other private companies.

<sup>12</sup> Controls include the proportion of the population that recently have moved to the area over one years old, the proportion of the population not academically educated between 25 and 64 years of age, the proportion of the population that are single parents with children between 0-17 years living home, the proportion of the population working, the proportion of population under the age of five, the proportion of population over 65 and the proportion of the population foreign born.

<sup>13</sup> In Sweden referred to as *Försäkringskassan*.

#### 4.2.1 LBO performance

The first part of the methodology consist of measuring operating performance of PE performed LBO's in the primary care sector. To our knowledge, there exist no studies that examine the operating performance of buyouts of primary care companies, and what methodology to use is therefore not straight-forward. Further, since leveraged buyouts in the primary care sector is a fairly young phenomenon, we are also limited by a fairly small sample of buyouts, and almost none of these have been exited. Of the methods we have seen in previous literature, we regard the method found in the study by Lundsten and Löfqvist (2011) on the Swedish independent school sector to be the best fit to our research question and is consequently the main source for our methodology section. Lundsten and Löfqvist (2011) provides a methodology for measuring the performance of very recent buyouts while other studies tend to measure performance over longer time periods and often from buyout to exit. As we do not have these types of long time periods to evaluate LBO's with, this suits our cause.

In order to identify buyouts in the Swedish primary care sector, we use the Capital IQ database. Two screening criteria are used for the output – the industry classification “Hospitals and health centres” and “Geographic location” (Sweden). In addition to this, MergerMarket is used to further reveal potential buyouts. In order to make sure that we do not leave out any buyouts on Swedish firms that are relevant to our sample, we also use the database Affärsdata filtering on SNI-code 86211.<sup>14</sup> SNI-codes are specific numerical combinations used in Sweden to classify industries and companies (SCB, 2012). This way, we get a list of all companies in Sweden acting within this sector. After having performed this filtering, we use press releases and financial reports in order to find out if the companies have experienced a buyout.

When we have our sample of buyouts, we then look at each individual buyout in order to determine if the buyout company's operations involve primary care. We also investigate the firms' current and historical ownership. Furthermore, we control that financial statements for all firms in our sample are available for at least one year pre- and post-buyout in order for us to compare the performance before and after the buyout in accordance with the methodology of Lundsten and Löfqvist (2011). This filtering leave us with a sample group of eight PE buyouts. The sample is fairly small compared to most other PE performance studies. Nevertheless, our sample contains twice the amount of buyouts compared to the study by Lundsten and Löfqvist (2011).

---

<sup>14</sup> SNI-code 86211 refers to primary care units with doctors.

We furthermore create a peer group of comparable private companies not owned by PE investors. We use Capital IQ, filtering on companies involved in primary care located in Sweden. Our filtering reveals a sample of 34 companies (see Table A4a in the Appendix for a list of the buyout companies and peer companies). As a number of companies in our groups have changed fiscal years during the periods we analyse, we address this issue by adjusting the financial statements to allow for comparison between the groups.<sup>15</sup>

In order to benchmark operating performance, we use the financial metrics *EBIT-margin*, *profit margin*, *revenue/employee*, *net working capital/revenue*, *personnel costs/employee*, *personnel costs/revenue*, *revenue growth* and *ROIC* derived from Lundsten and Löfqvist (2011).<sup>16,17</sup> We calculate the two-year averages of the operating metrics pre- and post-buyout for the sample of buyout-companies in order to measure increases in operating performance.<sup>18</sup> If the buyout has occurred during the first six months of a specific year, that year is included in the post-buyout data and vice versa. Further, in order to see if there are differences between the buyout-companies and companies owned by other private investors, we also do the same for the peer group. Table 5 illustrates our sample of buyouts and their respective pre- and post-buyout periods.

**Table 5 – timeline of sample buyouts with pre- and post-buyout periods.**

Company	2004	2005	2006	2007	2008	2009	2010
C&N Medtjänst	-	-	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout
Carema Primärvård	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout	-	-	-
Hermelinen Hälsovård AB*	-	-	-	-	-	Pre-buyout	Post-buyout
Husläkarna i Kungälv	-	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout	-
Hälsobackens läkargrupp	-	-	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout
Medicin direkt i Östersund AB	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout	-	-
Medicinskt centrum i Norrköping	-	-	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout
Ortopediska huset	-	Pre-buyout	Pre-buyout	Post-buyout	Post-buyout	-	-

\*Since the buyout of Hermelinen Hälsovård AB occurred in May 2010, we only use one year pre- and one year post-buyout in all measures.

In order to get the excess operating performance from PE ownership, we take the calculated increase in average operating performance in our buyout sample and subtract by the average increase in operating performance from the peer group. The calculation is illustrated with the following formula:

$$(PE_{POST\ LBO} - PE_{PRE\ LBO}) - (Private_{POST\ LBO} - Private_{PRE\ LBO})$$

<sup>15</sup> For example, if the company changes fiscal year and first reports Jan-Apr in order to change reporting period to Apr-Mar instead of Jan-Dec, we divide the Apr-Mar annual report by 12 and multiply by eight, adding this to the Jan-Apr results.

<sup>16</sup> EBIT-margin=(EBIT)/(Total revenue), Profit margin=(Net income)/(Total revenue), Net working capital/Revenue=(Current assets-Current liabilities)/(Total revenue), Revenue growth=(Total revenue<sub>t+1</sub> - Total revenue<sub>t</sub>)/Total revenue, ROIC=[EBIT\*(1-tax rate)]/(Total fixed assets+Goodwill+Current assets-Current liabilities).

<sup>17</sup> The Swedish company tax rate (26.3 percent) is used when calculating ROIC.

<sup>18</sup> Averages are always calculated arithmetically, and in the case of recent buyouts, only one year pre- and one year post-buyout is used where necessary.

### 4.2.2 Current operating performance

One shortcoming of the LBO performance methodology is the small number of buyouts in the Swedish primary care sector. The purpose of this second part of the methodology, the current operating performance analysis, is therefore to add depth to the results from the first part. We create two new samples, PE owned primary care firms and other private primary care firms, to compare operating performance metrics from the latest available financial reports, 2010. The sample is retrieved in the same fashion as in the LBO analysis by using the SNI-code filtering on Affärsdata. The process leaves us with a final sample of 10 PE owned primary care companies and 51 other private primary care companies (see Table 6 for descriptive sample statistics and Table A4b in the Appendix for a list of all the companies in each sample). We then use the financial metrics explained above except for revenue growth to see if there are differences in operating performance based on the two ownership groups in 2010. We calculate averages and subtract the PE group's averages with the averages for the group with other private companies.

**Table 6** – descriptive statistics on the companies in the current operating performance.

	Private equity companies (10)		Peer companies (51)	
	Mean	Median	Mean	Median
Number of employees	42	37	32	20
Revenue (MSEK)	48,916	41,253	38,145	23,356
Personnel costs (MSEK)	25,956	18,334	20,428	12,776
EBIT	798	545	1,855	1,655

### 4.3 Interview

We also conduct an interview with a representative from a pan-European PE company who wishes to remain anonymous. Our initial intention was to conduct several interviews but the overall direction of the thesis changed and so did our thought with the interview section. The company that the interviewee is representing has a history of investments made in the Scandinavian health care industry and the interviewee should therefore be able to provide us with valuable thoughts and insights that we can use for our analysis.

## 5. Results and analysis

This section presents the empirical results from the two parts of the methodology used in the study. Key results are presented in tables located in the text of this section and additional results are located in the Appendix. The section also provide an analysis of our results.

### 5.1 Primary care quality

Table 7 displays the primary care quality data from NP in terms of mean scores as well as minimum and maximum values for each indicator, sorted by ownership group and year. Mean indicator results are highest for Praktikertjänst, followed by the group Other private. Tables A1a-A1c in the Appendix provides additional information including number of observations and standard deviations.

**Table 7 – average mean scores for the eight primary care quality indicators by ownership.**

	Measure	Personal treatment	Participation	Information	Availability	Trust	Perceived utility	Recommend	Overall impression	
2009	Public	Mean	88,43	76,34	76,39	79,81	82,98	81,67	81,09	69,20
		Min	68,00	53,00	51,00	51,00	57,00	61,00	50,00	47,00
		Max	99,00	98,00	94,00	99,00	100,00	98,00	98,00	89,00
	Private equity	Mean	87,57	76,17	75,40	77,87	81,94	81,17	81,66	69,30
		Min	75,00	59,00	56,00	48,00	66,00	65,00	59,00	53,00
		Max	96,00	89,00	89,00	99,00	96,00	92,00	95,00	81,00
	Praktikertjänst	Mean	93,29	84,19	83,81	85,71	90,84	88,32	90,97	78,45
		Min	81,00	69,00	66,00	63,00	75,00	73,00	72,00	63,00
		Max	99,00	94,00	92,00	99,00	98,00	95,00	98,00	89,00
	Other private	Mean	91,84	82,62	82,41	84,97	88,28	86,67	87,69	76,06
		Min	72,00	61,00	64,00	55,00	62,00	66,00	50,00	53,00
		Max	99,00	95,00	94,00	100,00	100,00	99,00	100,00	92,00
2010	Public	Mean	88,94	76,90	76,95	80,53	83,32	82,07	81,15	69,52
		Min	63,00	54,00	51,00	51,00	47,00	61,00	43,00	44,00
		Max	98,00	90,00	94,00	100,00	96,00	95,00	98,00	85,00
	Private equity	Mean	88,72	77,82	77,38	80,24	83,08	82,32	83,04	70,88
		Min	74,00	63,00	65,00	58,00	69,00	70,00	59,00	58,00
		Max	98,00	91,00	93,00	95,00	98,00	95,00	96,00	91,00
	Praktikertjänst	Mean	92,78	83,76	82,24	85,64	89,64	87,42	90,71	78,00
		Min	81,00	71,00	72,00	60,00	76,00	78,00	75,00	68,00
		Max	99,00	92,00	91,00	98,00	96,00	96,00	99,00	90,00
	Other private	Mean	90,89	81,28	80,91	86,79	86,47	85,73	87,31	75,14
		Min	65,00	56,00	55,00	48,00	50,00	65,00	56,00	49,00
		Max	98,00	95,00	92,00	100,00	96,00	96,00	98,00	89,00
2011	Public	Mean	88,81	76,60	76,42	79,16	83,19	81,24	80,42	69,25
		Min	72,00	52,00	55,00	39,00	58,00	58,00	47,00	49,00
		Max	99,00	96,00	94,00	100,00	99,00	97,00	99,00	92,00
	Private equity	Mean	87,86	76,43	75,35	76,00	82,58	79,96	79,24	68,54
		Min	74,00	62,00	61,00	40,00	66,00	68,00	53,00	52,00
		Max	99,00	92,00	90,00	96,00	98,00	92,00	95,00	87,00
	Praktikertjänst	Mean	92,79	83,18	81,70	84,14	88,94	86,30	89,57	76,73
		Min	82,00	71,00	68,00	58,00	74,00	72,00	66,00	62,00
		Max	98,00	94,00	95,00	100,00	98,00	95,00	98,00	92,00
	Other private	Mean	90,95	80,69	80,12	84,08	86,42	84,45	85,94	74,53
		Min	75,00	57,00	59,00	47,00	60,00	67,00	58,00	55,00
		Max	99,00	95,00	94,00	100,00	98,00	95,00	99,00	93,00

#### 5.1.1 Private ownership outperform public ownership

Our first question refers to if the group of private (including PE and Praktikertjänst) and public ownership differ in primary care. Table 8 shows the results from the t-tests on difference in mean scores between these two groups. As can be seen in the table, results tell us that there are



significant differences between the primary care quality indicators based on public or private ownership, in line with previous research. Private companies outperform the publicly owned health centres on all the quality indicators with all differences statistically significant on a one percent level. One plausible explanation for this can be found in the study by Vélez-González et al. (2011). The authors argue and show that higher health care quality tend to lead to better financial results. Applying this to primary care, private health centres have an economic incentive to increase quality while public health centres do not and this can help explain the observed differences.

**Table 8**– two-sample t-tests with equal variances, differences in means between public and private ownership, 2009-2011.

	Observations	Difference in mean	Standard error	[95% Confidence interval]		t
Personal treatment	2759	<b>-2.05</b>	0.19	-2.43	-1.67	-10.56
Participation	2758	<b>-4.11</b>	0.27	-4.64	-3.58	-15.18
Information	2758	<b>-3.49</b>	0.25	-3.99	-2.99	-13.76
Availability	2727	<b>-3.72</b>	0.37	-4.43	3.00	-10.14
Trust	2757	<b>-3.23</b>	0.27	-3.76	-2.70	-11.91
Perceived utility	2759	<b>-3.05</b>	0.24	-3.52	-2.58	-12.81
Recommend	2759	<b>-5.23</b>	0.35	-5.92	-4.54	-14.90
Overall impression	2759	<b>-4.95</b>	0.28	-5.49	-4.41	-17.89

### 5.1.2 Praktikertjänst is superior to the other ownership groups

To further analyse these differences, we divide the group of privately owned companies into the three pre-defined groups; PE, Praktikertjänst and Other private ownership. The primary care quality indicator Overall impression is used as a representative indicator and displayed in the text (Table 9), while results for the other indicators are located in Appendix (Table A2). For the remaining part of the analysis of primary care quality, we choose to present and comment on the Overall impression indicator, while only commenting on other indicators if they significantly part from each other in their results. In the tables, t-tests are performed by testing differences in means between the ownership groups in each row against the ownership groups in each column.

**Table 9** – overall impression – two-sample t-test with equal variance, difference in means, 2009-2011.

	Public	Private equity	Praktikertjänst	Other private
Public	X	-0.041	-8.143***	-5.717***
	X	(0.495)	(0.531)	(0.319)
Private equity	0.041	X	-8.102***	-5.675***
	(0.495)	X	(0.726)	(0.633)
Praktikertjänst	8.143***	8.102***	X	2.427***
	(0.531)	(0.726)	X	(0.643)
Other private	5.717***	5.675***	-2.427***	X
	(0.319)	(0.633)	(0.643)	X

We now see that within private ownership groups, the group Other private outperforms PE ownership. Also, results indicate that health centres owned by Praktikertjänst outperform all three other organisational forms for nearly all indicators on a one percent significance level (the exception is Availability comparing with Other private companies, see Appendix Table A2). Our t-tests therefore show that the higher level of primary care quality provided by private companies is largely being driven by Praktikertjänst and other private companies as opposed to PE owned health centres. This result is surprising as previous literature does not suggest that PE owned health centres should be inferior in terms of quality compared to alternative private options (including Praktikertjänst). Concerning Praktikertjänst, results are in line with empirical evidence on franchising stating that franchising models increase client satisfaction and perceived quality. A further potential explanation to the result of Praktikertjänst and other private can be found in the study by Komashie and Mousavi (2007). They argue that in order to increase health care quality, the enhancement of staff ownership and a move back towards pride in the health care profession is needed. We assume, by looking at the average number of employees and average revenues from the sample in the current operating performance in Table 6, as well as looking at the number of listed patients in Table 1, that the health centres of Praktikertjänst and the Other private companies consist of a large segment of reasonably small health centres. This would in theory increase the chance of the patient coming in contact with a doctor who might also have an ownership stake in the health centre, and therefore has greater incentives to make the patient satisfied. With this reasoning, it is hard to imagine the same tendency among larger public and PE owned health centres.

In order to make sure that our results are not affected by externalities such as demographic factors and time dependency, we perform OLS-regressions with ownership dummy variables as independent variables and quality indicators as dependent variables. We also include the control variables defined in the methodology section. Table 10 in this section of the text provides the results from regressions performed with the indicator Overall impression as dependent variable. For results from the regressions with the other indicators, see Appendix and Tables A3a-A3d. Regressions are performed both with and without control variables to allow for comparison.

**Table 10** – regression results from NP data with the ownership types as independent variable and Overall impression as dependent variable.

	Public		Private equity		Praktikertjänst		Other private	
<b>Coefficient</b>	-4.952***	-5.041***	-1.722***	-1.817***	6.879***	6.701***	5.142***	5.110***
Standard error	(0.29)	(0.30)	(0.56)	(0.56)	(0.47)	(0.46)	(0.35)	(0.35)
<i>Controlled for</i>								
<b>Income level</b>	-	-0.006	-	0.007	-	-0.001	-	0.003
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001***
<b>Recently moved in</b>	-	24.449*	-	41.448***	-	44.349***	-	24.487
<b>Not academically educated</b>	-	-11.134***	-	-9.058***	-	-10.035***	-	-10.321***
<b>Single parents</b>	-	-498.005***	-	-770.664***	-	-719.361***	-	-557.291***
<b>Population working</b>	-	-19.082***	-	-22.844***	-	-22.367***	-	-17.278***
<b>Population &lt;5 years</b>	-	-63.333*	-	-96.776**	-	-98.983**	-	-60.985
<b>Population &gt;65 years</b>	-	37.496***	-	37.850***	-	34.394***	-	39.552***
<b>Foreign born</b>	-	1.048	-	7.340	-	4.200	-	3.145
<b>Ill health</b>	-	-0.108***	-	-0.118***	-	-0.110***	-	-0.124***
<b>Year fixed-effects 2010</b>	-	-0.114	-	0.291	-	0.226	-	-0.041
<b>Year fixed-effects 2011</b>	-	-0.588	-	-0.141	-	-0.220	-	-0.480
<b>Intercept</b>	74.260***	88.225***	71.072***	82.001***	70.572***	84.402***	69.882***	80.445***
Standard error	(0.25)	(5.38)	(0.14)	(5.59)	(0.14)	(5.55)	(0.14)	(5.30)
<b>R-squared</b>	0.104	0.156	0.004	0.059	0.047	0.099	0.083	0.135
<b>No. of observations</b>	2759	2746	2759	2746	2759	2746	2759	2746
* Significant on the 0.10 level								
** Significant on the 0.05 level								
*** Significant on the 0.01 level								

By analysing Table 10, results from the t-tests are confirmed. All ownership dummies are significant. While public ownership and PE negatively explains the variation in the indicator Overall impression, Praktikertjänst and Other private ownership does the opposite.

### 5.1.3 Equal level of quality in publicly owned and PE-owned health centres

As briefly mentioned above, the higher mean scores for all private companies are driven by Praktikertjänst and the other private health centres as opposed to the PE owned health centres. Furthermore, by looking at Table 9, we cannot conclude that there are major significant differences between public and PE owned health centres. What can be noted however is that public health centres perform better on Availability, significant on a one percent level (see Table A2 in the Appendix). The difference in mean scores for the indicators Personal treatment and Perceived utility are also in the public health centres' favour but the differences are only significant on a ten percent level, providing a relatively low level of reliability. For all other variables, including Participation, Information, Trust, Recommend and Overall impression, there are no significant differences. Our results therefore suggest that publicly owned and PE owned health centres provides a similar level of primary care quality to their listed patients.

The regression results in Table 10 confirm this reasoning. PE ownership has a negative significant effect (on at least a five percent level) on Overall impression. A negative coefficient also appears when we run regressions using public ownership as dummy variable (for results on all indicators, see Table A3a and Table A3b in the Appendix).

#### **5.1.4 Results are robust to external factors**

The reason for including the control variables in the regressions was to make sure our results are not biased by external factors. Clearly, our results show that adding controls do not change the overall impact ownership has on quality. Furthermore, they add explanatory power as displayed by significance levels and R-squared values. By studying Tables A3a-A3d in the Appendix, we see that this result is present in all regressions and for all primary care quality indicators. All ownership type coefficients are significant on a one percent level both with and without the control variables (except in two cases where coefficients are significant on a five percent level). The directions of the signs are the same as for Overall impression.

One should however remember that there are data limitations. The primary care quality data we use in this study has only been measured during three years and does not cover every health centre in Sweden for all three years (although it covers the vast majority). This is a limitation worth mentioning as additional years of data covering all health centres would result in a higher level of reliability in the results.

Furthermore, the data we use on primary care quality is as mentioned above based on patients' own perceptions. Although previous literature suggests patient surveys to be a valid method of measure health care quality, more objective measures such as outcome from treatment, increased life quality or increased lifetime of patients would provide additional insight into determining primary care quality.

In light of the on-going debate about the suitability of private companies (especially PE-companies) investing in Swedish health care, it is difficult to neglect the potential bias that may exist as a result of the general negative attitude towards them. This might create a problem for the reliability of the results derived from the primary care quality data as it reflects peoples' subjective perceptions. It may be the case that PE owned health centres are evaluated more critically than other privately owned health centres (including Praktikertjänst) or that privately owned health centres are evaluated more critically than publicly owned health centres. Although we partially take this into account by controlling for yearly fixed effects, there is a risk that

negative attitudes have been present for more years than we use in our study, providing a potential bias in the data from NP.

## 5.2 LBO's and operating performance

After having showed that private ownership show superior results in terms of primary care quality compared to public ownership, and that health centres owned publicly and by PE companies tend to show lower but similar quality results, we focus on the financial part of the study. Literature has suggested that PE companies improve the operating performance of the businesses they operate in relation to other companies. The purpose of this part is to analyse if ownership has an effect on operating performance, and if PE methods for increasing efficiency are applicable on primary care companies.

### 5.2.1 Private equity ownership improves operating performance

Table 11 shows the mean net operating performance for each buyout company in our sample in relation to the peer group. Table 12 shows the mean and median of the net operating performance of all buyout companies in relation to the peer group. For more results on individual companies in the buyout sample, see Table A5a and A5b in the Appendix.

**Table 11 – LBO analysis of mean net operating performance by buyout company compared to peer group.**

	Revenue growth*	EBIT-margin	Profit-margin	ROIC
C&N Medtjänst	60%	14%	14%	-91%
Carema Primärvård	48%	-7%	-6%	-46%
Hermelinen Hälsovård AB**	174%	-16%	-17%	273%
Husläkarna i Kungsbacka	-43%	7%	8%	433%
Hälsobäckens läkargrupp	193%	-2%	-3%	45%
Mediän direkt i Östersund AB	-8%	8%	8%	31%
Mediänskt centrum i Norrköping	137%	0%	-1%	154%
Ortopediska huset	-63%	2%	3%	222%

	Net working capital /Revenue	Revenue per employee (SEKk)	Personnel cost per employee	Personnel costs/ Revenue
C&N Medtjänst	17%	1876	-9	-4%
Carema Primärvård	-1%	39	-98	-9%
Hermelinen Hälsovård AB**	-5%	-21	100	-63%
Husläkarna i Kungsbacka	7%	-241	-98	0%
Hälsobäckens läkargrupp	-3%	846	30	-36%
Mediän direkt i Östersund AB	-8%	147	90	3%
Mediänskt centrum i Norrköping	-11%	-238	490	35%
Ortopediska huset	-30%	218	24	-2%

\* Pre- and post-buyout growth is measured as one year before and one year after buyout.

**Table 12 – LBO analysis of mean net operating performance of buyout companies compared to peer group.**

	Revenue growth*	EBIT-margin	Profit-margin	ROIC
<b>Mean</b>	62%	1%	1%	128%
<b>Median</b>	54%	1%	1%	100%
	Net working capital /Revenue	Revenue per employee (SEKk)	Personnel cost per employee	Personnel costs/ Revenue
<b>Mean</b>	-9%	328	66	-10%
<b>Median</b>	-7%	93	27	-3%

\* Pre- and post-buyout growth is measured as one year before and one year after buyout.

Notable is that revenue growth change after buyout for the companies in our buyout sample is considerably high in comparison to the peer group, with buyout firms increasing revenue with on average 62 percent more than industry peers. EBIT- and profit-margins differences are small, both averaging one percentage point in net means. ROIC, which in addition to profitability also reflect capital allocation efficiency, is on average 128 percent higher post buyout. This indicates that capital allocation has improved substantially while this has not led to negative margins. A further confirmation of the post buyout improvement of capital efficiency is that the NWC/Revenue-ratio is 9 percent lower than the average of the peer group. The fact that Revenue per employee is on average SEK 328,000 higher post-buyout relative to industry peers is a large difference considering the fact that that total Revenue per employee in the sample buyout firms vary between SEK 955,000 and SEK 4,486,000 (see Appendix and Table A5b). Another interesting result is that Personnel costs per employee is on average SEK 66,000 higher post buyout relative to industry peers. This result is in contrast to previous research on PE in the Swedish school sector, but is in line with previous research performed on general (no industry-specific) buyouts in Sweden. The fact that Personnel costs/Revenue has still decreased with on average 10 percent post-buyout relative industry peers suggests however that PE owned companies are better able to increase revenue and offset the increased personnel costs per employee, a clear indication of improved operating performance post-buyout.

The results from the current operating performance study are shown in Table 13. The EBIT- and profit-margins are lower for PE owned companies relative the peer group and the ROIC is lower, which is in sharp contrast to the results in our buyout operating performance study. On the other hand, the rest of the results are in favour of PE owned companies with lower NWC/Revenue-ratio, higher Revenue per employee, higher Personnel cost per employee and lower Personnel costs/Revenue-ratio. To summarize, results are not exactly similar to the results from the LBO analysis above, but it is important to bear in mind that they are obtained using only one year of data making it more difficult to draw general conclusions.

**Table 13 – current operating performance for PE companies in relation to peer group.**

<b>Group*</b>	EBIT-margin	Profit-margin	ROIC	Net working capital/Revenue
<b>PE</b>	0.56%	0.60%	-0.11%	-20.61%
<b>Peer</b>	8.13%	8.24%	0.44%	6.26%
<b>Difference</b>	-7.58%	-7.65%	-0.55%	-26.87%

<b>Group*</b>	Revenue per employee (SEKk)	Personnel cost per employee (SEKk)	Personnel costs/Revenue
<b>PE</b>	1438	658	53.06%
<b>Peer</b>	1280	644	53.55%
<b>Difference</b>	158	14	-0.49%

\*Annual reports with different fiscal year than the calendar year have been adjusted.

The improved operating performance post-buyout in our sample indicates that PE methods are applicable on companies operating in the primary care sector and is in line with previous research on LBO's in general. It is however in contrast to the hospital study performed by Clement and McCue (1996). The results furthermore verifies PE companies overall credibility as fitting operators in the primary care sector, as our primary care quality analysis showed that they can keep a similar level of primary care quality as in public primary care. PE companies can in other words contribute to more financially viable systems for taxpayers which is an important finding keeping in mind that finding sustainable solutions for financing health care will be an important issue for governments in the future.

### 5.2.2 Potential explanations to superior performance post-buyout

There are probably many different explanations to why PE companies on average are more efficient than their private peers in the primary care sector. The interview we conducted provided several hints and perhaps the most plausible explanation refers to decreasing administrative work for the staff and letting them focus on the patients. PE companies have long experience when it comes to improving administrations in portfolio companies. Implementing IT-systems were mentioned as one way of improving procedures on for example financial reporting, internal follow-ups and internal service quality measures. This could improve operating performance as financial goals and objectives can be more easily monitored. Leadership is another key point for PE companies according to the PE professional we interviewed. Involving people with management skills is vital to success and it is not always the case that health centres are managed

by people that are suitable to lead. For instance, health centre doctors are not necessarily the best leaders, and by letting them focus on patients instead of management can improve operations.

### **5.3 Is there a trade-off between quality and operating performance?**

What is interesting to note from the discussion above is that the PE focus on decreasing the administrative work for the staff, thereby enabling them to focus on patients, is similar to the methodology applied by Praktikertjänst. Our results indicate however that there are significant differences between the primary care quality provided by the two ownership types. Previous literature provides no evidence to support these differences and we can therefore only speculate on potential reasons. One potential reason could be that PE companies in general are much more focused on the operating performance than private peer companies. Besides the differences between Praktikertjänst's health centres and the PE owned health centres, the latter were also inferior compared to other private health centres (excluding Praktikertjänst) in terms of primary care quality. It could be the case that PE companies recognise a trade-off between quality and operating performance and therefore decide upon an appropriate level of quality that is to be provided. This argument can be supported by the quality data from NP as it does not show any major differences between health centres that are publicly and PE owned. Mean scores from NP can be seen as generally high for all ownership types and the Swedish health care system is internationally admired, suggesting that quality already is on a high level. It could therefore be in the interest of PE companies to keep the quality at levels equal to public health centres, and instead focus on increasing operating efficiency.



## 6. Conclusion

We have investigated the role of ownership in Swedish primary care and found several interesting results. We have used data on primary care quality from Swedish health centres and found that health centres owned by franchises as displayed by Praktikertjänst and other types of private companies are superior to publicly and PE owned health centres in terms of quality. These results confirm that ownership in the Swedish primary care sector has an effect on primary care quality. The implications of these results is that there should be no reason to believe that private companies in primary care, and specifically PE companies, are inferior to public alternatives in terms of providing a high level of primary care quality.

We have furthermore analysed operating performance data on private companies in primary care and found that PE ownership is superior to other private companies when it comes to operating performance. Also these results confirm that ownership in the Swedish primary care sector has an effect on operating performance. The results imply that the methods of PE companies are suitable for the primary care sector and that PE companies can contribute to economically viable solutions to how primary care can be provided for the taxpayers in Sweden.

We see three main areas for future research. Firstly, it would be interesting to perform this study again in a couple of years' time. One reason is that this would open up for other methods of analysing operating performance, since there would be more buyouts to use as data, and it would be possible to use methods that investigate performance until exits. The other reason would be that more years with complete surveys on all health centres would be available from NP, thereby strengthening the results on primary care quality. The second area we see for future research is to use the same methodology used in this study on other areas of health care. Health care is a broad concept and primary care only represents one aspect. Thirdly, further researching the franchise ownership structure in primary care as an alternative structure to public ownership could be fruitful for the discussion on the existence of private ownership in primary care. One idea for further research on this topic is to develop a method for analysing the operating performance of health centres operated in this way.

## 7. References

- Acharya, V. and C. Kehoe (2009), Corporate governance and value creation evidence from private equity, CEPR Discussion Papers 7242, C.E.P.R. Discussion Papers.
- Agha S., Karim A.M., Balal A. and S. Sosler (2007), The impact of a reproductive health franchise on client satisfaction in rural Nepal, *Health Policy Plan* 22, 320-328.
- Aleris (2012), Aleris vårdenheter. Available (online) – <http://www.aleris.se/Sjukvard/Aleris-vardenheter/> [2012-04-15]
- Amess, K. and M. Wright (2007), The wage and employment effects of leveraged buyouts in the UK, *International Journal of the Economics of Business* 14(2), 179-195.
- Anell, A. (2011), Hälso- och sjukvårdstjänster i privat regi, i Laura Hartman, red.: *Konkurrensens konsekvenser. Vad händer med svensk välfärd?* (SNS Förlag).
- Association of Private Care Providers (2012), *Etikrådets granskning av Carema Care*.
- Becker, E.R. and F.A. Sloan (1985), Hospital ownership and performance, *Economic Inquiry* 23(1), 21-36.
- Bishai, D.M., Nirali, M.S., Walker, D.G., Brierger R.W. and D.H. Peters (2008), Social franchising to improve quality and access in private healthcare in developing countries, *Harvard Health Policy Review* (9)1, 184-197.
- Boardman, A.E. and A.R. Vining (1989), Ownership and performance in competitive environments: a comparison of the performance of private, mixed, and state-owned enterprises, *Journal of Law and Economics* 32(1), 1-33.
- Boucly, Q., Sraer, D. and D. Thesmar (2011), Growth LBO's, *Journal of Financial Economics* 102 (2011), 432-453.
- Boycko, M., Shleifer, A., Vishny R.W., S. Fischer and J.D. Sachs (1993), *Privatizing Russia*, *Brookings Papers on Economic Activity* 1993(3), 139-192.
- Burton, J. (1987), Privatization: the Thatcher case, *Managerial and Decision Economics* 8(1), 21-29.
- Campbell, J.L., Ramsay, J. and J. Green (2001), Age, gender, socioeconomic, and ethnic differences in patients' assessments of primary health care, *Quality in Healthcare* 10(2001), 90-95.

- Champion, C., Dry, S. and G. Bloom (2009), Innovations to improve provider performance, Future Health Systems working paper No. 8.
- Clement, J.P. and M.J. McCue (1996), The performance of hospital corporation of America and healthtrust hospitals after leveraged buyouts, *Medical Care* 34(7), 672-685.
- D'Souza, J., Robert C. N. and W.L. Megginson (2001), Determinants of performance improvements in privatized firms: the role of restructuring and corporate governance, working paper, University of Oklahoma.
- Di Primio, A. (1987), *Quality Assurance in Service Organisations*, Radnor, PA: Chilton Book & Co.
- DN (2009), Överskott kan tas ut som inkomst eller investeras i verksamheten. Available (online) – <http://www.dn.se/sthlm/overskott-kan-tas-ut-som-inkomst-eller-investeras-i-verksamheten> [2012-05-04]
- FSA (2008), Private equity: a discussion of risk and regulatory engagement, Financial Services Authority Discussion Paper DP06/6.
- Gadiesh, O. and H. MacArthur (2008). *Lessons from private equity any company can use*, Boston, MA: Harvard Business School Press.
- Galal, A., Jones, L., Tandon, P. and I. Vogelsang (1994), *Welfare Consequences of Selling Public Enterprises*, Oxford: Oxford University Press.
- Grubb, M. and S. Jonsson (2007), The operating impact of buyouts in Sweden, Master thesis, Stockholm School of Economics, Stockholm, Sweden.
- Hansmann, H. and R. Kraakman (2000), The End of History for Corporate Law, working paper, NYU, New York and Harvard Law School, Cambridge, MA.
- Hollingsworth, B. och S.J. Peacock (2008). *Efficiency measurement in health and health care*, Routledge.
- Häger Glenngård, A. and A. Anell (2012), Vad påverkar patientupplevd kvalitet i primärvården?, Myndigheten för vårdanalys, rapport 2012:1.
- Idvall, E., Rooke, L. and E. Hamrin (1997), Quality indicators in clinical nursing: a review of the literature, *Journal of Advanced Nursing* 25(1), 6-17.

- Isaac, T., Zaslavsky, A.M., Cleary, P.D. and B.E Landon (2010), The relationship between patients' perception of care and measures of hospital quality and safety, *Health Services Research* 45(4), 1024-1040.
- Jensen, M.C., Eclipse of the public corporation, *Harvard Business Review* (Sept-Oct. 1989).
- Kaplan, S.N. (1989a), Management buyouts: evidence on taxes as a source of value, *Journal of Finance*, 44(3), 611–632.
- Kaplan, S.N. (1989b), The effects of management buyouts on operating performance and value, *Journal of Financial Economics*, 24(2), 217–254.
- Kaplan, S.N. and P. Strömberg (2009), Leveraged buyouts and private equity, *Journal of Economic Perspectives* 23(1), 121-146.
- Komashie, A., Mousavi, A. and Gore, J. 2007, Quality management in healthcare and industry: a comparative review and emerging themes, *Journal of Management History* (13)4, 359-370.
- Kontopantelis E., Roland, M. and D. Reeves (2010), Patient experience of access to primary care: identification of predictors in a national patient survey. *BMC Family Practice* 11(61), 1–15.
- Kreicbergs, J. and S. Fölster (2011) – Bättre vård med fler vårdföretagare – slutsatser för Sverige från en länderjämförande studie, *Confederation of Swedish Enterprise*, March 2011.
- Larsson, S., Lawyer, P. and M.B. Silverstein (2010), From Concept to Reality – putting value-based health care into practice in Sweden, *Boston Consulting Group publications*.
- Lichtenberg, F.R., and D. Siegel (1990), The effects of leveraged buyouts on productivity and related aspects of firm behavior, *Journal of Financial Economics*, 27(1), 165–194.
- Lundsten, L. and M. Löfqvist (2011), The impact of private equity in the Swedish independent school sector, Master thesis, *Stockholm School of Economics*, Stockholm, Sweden.
- Meggison W.L. and J. Netter (2001), From state to market: a survey of empirical studies on privatization, *Journal of Economic Literature* 39(2), 321-389.
- Nellis, J. (1999), Time to rethink privatization in transition economies?, IFC Discussion paper No. 38, Washington, DC: World Bank Group.

Ngo, A., Phan, H., Pham, V., Trinh, T. and K. Truong (2009), Impacts of a government social franchise model on perceptions of service quality and client satisfaction at commune health stations in Vietnam, *Journal of Development Effectiveness* 1(4), 413-429.

Olsson, M. and J. Tåg (2012), Private equity and employees, IFN Working Paper No. 906, Research Institute of Industrial Economics, Stockholm, Sweden.

Plautz A., Meekers D. and J. Neukom(2003) The impact of the Madagascar TOP Réseau social marketing program on sexual behavior and the use of reproductive health services, Washington, DC: Population Services International.

Praktikertjänst (2012), Så fungerar det. Available (online) – <http://www.praktikertjanst.se/templates/Page.aspx?id=38656> [2012-03-15]

Prata N., Montagu D. and E. Jefferys (2005), Private sector, human resources and health franchising in Africa. *Bull World Health Organ* 83(4), 274-279.

Productivity Commission (2009), Public and Private Hospitals, Research Report, Canberra.

Rehnberg C., Janlöv, N., Kahn, J. and J. Lundgren, (2010), Uppföljning av husläkarsystemet inom vårdval Stockholm – redovisning av de två första årens erfarenheter, Karolinska Institutets Folkhälsoakademi, rapport nr 2010:12.

Renn, S.C., Schramm, C.J., Watt, J.M. and R.A. Derzon (1985), The effects of ownership and system affiliation on the economic performance of hospitals, *Inquiry* 22, 219–236.

SALAR (2005), Svensk sjukvård i internationell belysning – en jämförelse av vårdbehov, kostnader och resultat.

SALAR (2009), Slutrapport – patientdialogen i praktiken (version 1.0).

SALAR (2011), Quality and efficiency in Swedish health care – regional comparisons 2010.

SALAR (2012a), Om Nationell patientenkät. Available (online) – <http://npe.skl.se/Default.aspx> [2012-02-02]

SALAR (2012b), Översikt Nationell patientenkät. Available (online) – <http://npe.skl.se/Oversikt.aspx?ActiveView=0> [2012-02-02]

SALAR (2012c), Om landsting och regioner. Available (online) – [http://www.skl.se/kommuner\\_och\\_landsting/om\\_landsting\\_och\\_regioner](http://www.skl.se/kommuner_och_landsting/om_landsting_och_regioner)

SCB (2012), Om SNI 2007. Available (online) – [http://www.scb.se/Pages/List\\_257220.aspx](http://www.scb.se/Pages/List_257220.aspx)  
[2012-02-02]

Shleifer, A. (1998), State versus private ownership, *The Journal of Economic Perspectives* 12(4), 133-150.

Stephenson R., Tsui A.O., Sulzbach S., Bardsley P., Bekele G. and T. Giday (2004), Franchising reproductive health services, *Health Services Research* 39(6), 2053-2080.

SVD (2011), Juholt till angrepp mot offentlig utförsäljning. Available (online) – [http://www.svd.se/naringsliv/juholt-till-angrepp-mot-offentlig-utforsaljning\\_6042003.svd](http://www.svd.se/naringsliv/juholt-till-angrepp-mot-offentlig-utforsaljning_6042003.svd)  
[2012-02-02]

Swedish Competition Authority (2011), Inträdeshinder för privata vårdcentraler – erfarenheter från valfrihetsreformen inom primärvård, *Konkurrensverkets rapportserie* 2011:4

Swedish Competition Authority (2012), Val av vårdcentral – förutsättningar för kvalitetskonkurrens i vårdvalssystemen, *Konkurrensverkets rapportserie* 2012:2.

Vélez-González, H., Pradhan, R. and R. Weech-Maldonado (2011), The role of non-financial performance measures in predicting hospital financial performance: the case of for-profit system hospitals, *Journal of Healthcare Finance* 38(2), 12-23.

## 8. Appendix

**Table A1a** – descriptive statistics for primary care quality scores by ownership group 2009.

Public health centres 2009						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	619	89	88.43	4.79	68	99
Participation	619	77	76.34	6.66	53	98
Information	619	77	76.39	6.39	51	94
Availability	619	80	79.81	8.41	51	99
Trust	619	84	82.98	6.79	57	100
Perceived utility	619	82	81.67	5.86	61	98
Recommend	619	83	81.09	8.78	50	98
Overall impression	619	70	69.20	6.62	47	89
PE health centres 2009						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	47	88	87,57	5,06	75	96
Participation	47	77	76,17	7,25	59	89
Information	47	77	75,40	7,24	56	89
Availability	47	80	77,87	10,61	48	99
Trust	47	83	81,94	6,89	66	96
Perceived utility	47	83	81,17	6,24	65	92
Recommend	47	83	81,66	9,26	59	95
Overall impression	47	71	69,30	7,38	53	81
Praktikertjänst health centres 2009						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	31	94	93,29	3,73	81	99
Participation	31	85	84,19	5,50	69	94
Information	31	85	83,81	5,75	66	92
Availability	31	88	85,71	9,78	63	99
Trust	31	92	90,84	5,11	75	98
Perceived utility	31	89	88,32	4,92	73	95
Recommend	31	92	90,97	5,64	72	98
Overall impression	31	80	78,45	5,81	63	89
Other private health centres 2009						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	116	93	91,84	5,11	72	99
Participation	116	84	82,62	6,94	61	95
Information	116	85	82,41	6,80	64	94
Availability	114	86	84,97	8,92	55	100
Trust	116	90	88,28	6,79	62	100
Perceived utility	116	88	86,67	6,30	66	99
Recommend	116	90	87,69	8,55	50	100
Overall impression	116	77	76,06	7,92	53	92

**Table A1b – descriptive statistics for primary care quality scores by ownership group 2010.**

Public health centres 2010						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	523	90	88.94	4.55	63	98
Participation	522	78	76.90	6.30	54	90
Information	522	77	76.95	5.82	51	94
Availability	518	81	80.53	8.33	51	100
Trust	521	84	83.32	6.27	47	96
Perceived utility	523	83	82.07	5.46	61	95
Recommend	523	82	81.15	8.20	43	98
Overall impression	523	70	69.52	6.03	44	85
PE health centres 2010						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	50	90	88.72	4.67	74	98
Participation	50	79	77.82	6.19	63	91
Information	50	77	77.38	6.06	65	93
Availability	50	82	80.24	8.73	58	95
Trust	50	84	83.08	6.37	69	98
Perceived utility	50	82	82.32	6.03	70	95
Recommend	50	85	83.04	8.02	59	96
Overall impression	50	71	70.88	6.84	58	91
Praktikertjänst health centres 2010						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	45	93	92.78	3.83	81	99
Participation	45	85	83.76	4.86	71	92
Information	45	84	82.24	4.83	72	91
Availability	44	87	85.64	7.73	60	98
Trust	45	91	89.64	5.01	76	96
Perceived utility	45	89	87.42	4.57	78	96
Recommend	45	92	90.71	5.19	75	99
Overall impression	45	78	78.00	5.22	68	90
Other private health centres 2010						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	176	92	90.89	5.41	65	98
Participation	176	82	81.28	7.25	56	95
Information	176	82	80.91	6.56	55	92
Availability	170	88	86.79	9.35	48	100
Trust	176	88	86.47	7.43	50	96
Perceived utility	176	87	85.73	6.08	65	96
Recommend	176	89	87.31	8.19	56	98
Overall impression	176	76	75.14	7.75	49	89



**Table A1c – descriptive statistics for primary care quality scores by ownership group 2011.**

Public health centres 2011						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	700	90	88.81	4.65	72	99
Participation	700	77	76.60	6.59	52	96
Information	700	77	76.42	6.00	55	94
Availability	696	80	79.16	8.78	39	100
Trust	700	84	83.19	6.54	58	99
Perceived utility	700	82	81.24	5.75	58	97
Recommend	700	82	80.42	8.75	47	99
Overall impression	700	70	69.25	6.41	49	92
PE health centres 2011						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	92	88	87.86	5.38	74	99
Participation	92	77	76.43	7.17	62	92
Information	92	75	75.35	6.78	61	90
Availability	91	77	76.00	10.14	40	96
Trust	92	83	82.58	7.08	66	98
Perceived utility	92	81	79.96	6.30	68	92
Recommend	92	80	79.24	10.70	53	95
Overall impression	92	69	68.54	7.82	52	87
Praktikertjänst health centres 2011						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	77	93	92.79	3.53	82	98
Participation	77	83	83.18	4.90	71	94
Information	77	82	81.70	4.96	68	95
Availability	77	85	84.14	8.42	58	100
Trust	77	90	88.94	4.87	74	98
Perceived utility	77	87	86.30	4.55	72	95
Recommend	77	91	89.57	6.19	66	98
Overall impression	77	77	76.73	5.54	62	92
Other private health centres 2011						
	Observations	Median	Mean	Std. Dev.	Min	Max
Personal treatment	283	91	90.95	4.61	75	99
Participation	283	82	80.69	6.75	57	95
Information	283	81	80.12	6.01	59	94
Availability	270	86	84.08	9.38	47	100
Trust	283	88	86.42	6.73	60	98
Perceived utility	283	85	84.45	5.90	67	95
Recommend	283	88	85.94	8.33	58	99
Overall impression	283	75	74.53	7.27	55	93

**Table A2 – two-sample t-tests with equal variances, difference in means by ownership groups 2009-2011.**

Personal treatment - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	0.704*	-4.169***	-2.390***
	X	(0.360)	(0.387)	(0.227)
Private equity	-0.704*	X	-4.873***	-3.093***
	(0.360)	X	(0.491)	(0.420)
Praktikertjänst	4.169***	4.873***	X	1.779***
	(0.387)	(0.491)	X	(0.430)
Other private	2.390***	3.093***	-1.779***	X
	(0.227)	(0.420)	(0.430)	X
Participation - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	-0.136	-6.956***	-4.662***
	X	(0.502)	(0.541)	(0.317)
Private equity	0.136	X	-6.820***	-4.525***
	(0.502)	X	(0.669)	(0.584)
Praktikertjänst	6.956***	6.820***	X	2.295***
	(0.541)	(0.669)	X	(0.601)
Other private	4.662***	4.525***	-2.295***	X
	(0.317)	(0.584)	(0.601)	X
Information - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	0.664	-5.724***	-4.261***
	X	(0.470)	(0.506)	(0.294)
Private equity	-0.664	X	-6.388***	-4.925***
	(0.470)	X	(0.660)	(0.543)
Praktikertjänst	5.724***	6.388***	X	1.463***
	(0.506)	(0.660)	X	(0.559)
Other private	4.261***	4.925***	-1.463***	X
	(0.294)	(0.543)	(0.559)	X
Availability - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	2.173***	-5.126***	-5.327***
	X	(0.666)	(0.721)	(0.423)
Private equity	-2.173***	X	-7.299***	-7.500***
	(0.666)	X	(1.022)	(0.803)
Praktikertjänst	5.126***	7.299***	X	-0.201
	(0.721)	(1.022)	X	(0.839)
Other private	5.327***	7.500***	0.201	X
	(0.423)	(0.803)	(0.839)	X

Trust - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	0.606	-6.373***	-3.650***
	X	(0.502)	(0.542)	(0.318)
Private equity	-0.606	X	-6.979***	-4.257***
	(0.502)	X	(0.660)	(0.583)
Praktikertjänst	6.373***	6.979***	X	2.722***
	(0.542)	(0.660)	X	(0.603)
Other private	3.650***	4.257***	-2.722***	X
	(0.318)	(0.583)	(0.603)	X
Perceived utility - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	0.737*	-5.419***	-3.668***
	X	(0.440)	(0.475)	(0.277)
Private equity	-0.737*	X	-6.156***	-4.405***
	(0.440)	X	(0.610)	(0.515)
Praktikertjänst	5.419***	6.156***	X	1.750***
	(0.475)	(0.610)	X	(0.530)
Other private	3.668***	4.405***	-1.750***	X
	(0.277)	(0.515)	(0.530)	X
Recommend - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	0.007	-9.336***	-5.856***
	X	(0.667)	(0.709)	(0.408)
Private equity	-0.007	X	-9.343***	-5.863***
	(0.667)	X	(0.897)	(0.732)
Praktikertjänst	9.336***	9.343***	X	3.480***
	(0.709)	(0.897)	X	(0.718)
Other private	5.856***	5.863***	-3.480***	X
	(0.408)	(0.732)	(0.718)	X
Overall impression - two-sample t-test with equal variances, difference in means, 2009-2011				
	Public	Private equity	Praktikertjänst	Other private
Public	X	-0.041	-8.143***	-5.717***
	X	(0.495)	(0.531)	(0.319)
Private equity	0.041	X	-8.102***	-5.675***
	(0.495)	X	(0.726)	(0.633)
Praktikertjänst	8.143***	8.102***	X	2.427***
	(0.531)	(0.726)	X	(0.643)
Other private	5.717***	5.675***	-2.427***	X
	(0.319)	(0.633)	(0.643)	X

**Table A3a** – regression results from NP data with public ownership as independent variable and primary care quality indicators as dependent variables.

	Personal treatment		Participation		Information		Availability	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Public ownership</b>	-2.049***	-2.099***	-4.112***	-4.119***	-3.490***	-3.553***	-3.716***	-4.184***
Standard error	(0.20)	(0.20)	(0.28)	(0.28)	(0.26)	(0.27)	(0.38)	(0.39)
<i>Controlled for</i>								
<b>Income level</b>	-	-0.001	-	0.001	-	0.001	-	-0.014
<b>Population density</b>	-	-0.001***	-	-0.001***	-	0.001***	-	-0.001**
<b>Recently moved in</b>	-	12.094	-	41.909***	-	34.416**	-	23.691
<b>Not academically educated</b>	-	-7.482***	-	-10.667***	-	-5.286*	-	4.105
<b>Single parents</b>	-	-220.623*	-	-493.038***	-	-496.513***	-	-243.886
<b>Population working</b>	-	-15.221***	-	-28.256***	-	-20.544***	-	-24.317***
<b>Population &lt;5 years</b>	-	72.018***	-	-74.185**	-	-75.120**	-	-121.360**
<b>Population &gt;65 years</b>	-	17.541**	-	32.816***	-	28.500***	-	23.218*
<b>Foreign born</b>	-	2.493	-	-1.982	-	1.942	-	-6.723
<b>Ill health</b>	-	-0.061**	-	-0.075**	-	-0.094***	-	-0.184***
<b>Year fixed-effects 2010</b>	-	0.097	-	-0.109	-	-0.039	-	0.932**
<b>Year fixed-effects 2011</b>	-	0.021	-	-0.632*	-	-0.714**	-	-0.540
<b>Intercept</b>	90.769***	103.149***	80.711***	95.373***	80.053***	90.578***	83.484***	100.283***
Standard error	(0.17)	(3.71)	(0.23)	(5.19)	(0.22)	(4.96)	(0.33)	(7.47)
<b>R-squared</b>	0.039	0.097	0.077	0.145	0.064	0.115	0.036	0.108
<b>No. of observations</b>	2759	2746	2758	2745	2758	2745	2727	2714

	Trust		Perceived utility		Recommend		Overall impression	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<b>Public ownership</b>	-3.227***	-3.376***	-3.052***	-3.307***	-5.229***	-5.58***	-4.952***	-5.041***
Standard error	(0.28)	(0.28)	(0.25)	(0.25)	(0.35)	(0.35)	(0.29)	(0.30)
<i>Controlled for</i>								
<b>Income level</b>	-	-0.003	-	-0.005	-	-0.009	-	-0.006
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001***
<b>Recently moved in</b>	-	25.230*	-	33.290**	-	-10.612	-	24.449*
<b>Not academically educated</b>	-	-9.753***	-	-4.303*	-	-13.786***	-	-11.134***
<b>Single parents</b>	-	-496.48***	-	-397.876***	-	-900.324***	-	-498.005***
<b>Population working</b>	-	14.014**	-	-19.776***	-	-18.775**	-	-19.082***
<b>Population &lt;5 years</b>	-	-66.914*	-	-59.975*	-	-116.188**	-	-63.333*
<b>Population &gt;65 years</b>	-	30.341***	-	34.460***	-	42.413***	-	37.496***
<b>Foreign born</b>	-	-7.220*	-	-1.609	-	-2.207	-	1.048
<b>Ill health</b>	-	-0.072*	-	-0.108***	-	-0.103**	-	-0.108***
<b>Year fixed-effects 2010</b>	-	-0.183	-	-0.043	-	-0.157	-	-0.114
<b>Year fixed-effects 2011</b>	-	-0.250	-	-0.993***	-	-0.909**	-	-0.588
<b>Intercept</b>	86.384***	98.513***	84.673***	94.622***	86.082***	107.128***	74.260***	88.225***
Standard error	(0.23)	(5.23)	(0.21)	(4.52)	(0.29)	(6.67)	(0.25)	(5.38)
<b>R-squared</b>	0.049	0.101	0.056	0.133	0.075	0.140	0.104	0.156
<b>No. of observations</b>	2757	2744	2759	2746	2759	2746	2759	2746

\* Significant on the 0.10 level  
\*\* Significant on the 0.05 level  
\*\*\* Significant on the 0.01 level

**Table A3b** – regression results from NP data with PE ownership as dummy variable and primary care quality indicators as dependent variables.

	Personal treatment		Participation		Information		Availability	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Private equity ownership</b>	-1.487***	-1.432***	-1.321**	-1.350***	-1.958***	-1.890***	-3.642***	-3.021***
Standard error	(0.38)	(0.38)	(0.52)	(0.52)	(0.51)	(0.50)	(0.75)	(0.76)
<i>Controlled for</i>								
<b>Income level</b>	-	0.005	-	0.011	-	0.010	-	-0.001
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001**
<b>Recently moved in</b>	-	19.619*	-	55.688***	-	46.775***	-	38.204*
<b>Not academically educated</b>	-	-6.600***	-	-8.967***	-	-3.809	-	5.819
<b>Single parents</b>	-	-338.455***	-	-715.255***	-	-692.825***	-	-476.136**
<b>Population working</b>	-	-16.406***	-	-31.370***	-	-22.841***	-	-26.669***
<b>Population &lt;5 years</b>	-	85.906***	-	-101.567***	-	-98.617***	-	-147.840***
<b>Population &gt;65 years</b>	-	17.860***	-	33.066***	-	28.902***	-	24.171*
<b>Foreign born</b>	-	0.088	-	3.150	-	6.331	-	-1.620
<b>Ill health</b>	-	-0.066**	-	-0.082**	-	-0.102***	-	-0.196***
<b>Year fixed-effects 2010</b>	-	0.271	-	0.222	-	0.252	-	1.273***
<b>Year fixed-effects 2011</b>	-	0.217***	-	-0.267	-	-0.389	-	-0.167
<b>Intercept</b>	89.503***	100.390***	78.057***	90.307***	77.858***	86.032***	81.238***	94.750***
Standard error	(0.10)	(3.73)	(0.14)	(5.26)	(0.13)	(4.97)	(0.18)	(7.53)
<b>R-squared</b>	0.006	0.064	0.002	0.075	0.006	0.058	0.010	0.071
<b>No. of observations</b>	2759	2746	2758	2745	2758	2745	2727	2714

	Trust		Perceived utility		Recommend		Overall impression	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<b>Private equity ownership</b>	-1.803***	-1.736***	-1.880***	-1.604***	-1.873**	-1.609***	-1.722***	-1.817***
Standard error	(0.51)	(0.52)	(0.47)	(0.47)	(0.73)	(0.74)	(0.56)	(0.56)
<i>Controlled for</i>								
<b>Income level</b>	-	0.006	-	0.004	-	0.006	-	0.007
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001***
<b>Recently moved in</b>	-	36.916**	-	44.714***	-	7.936	-	41.448***
<b>Not academically educated</b>	-	-8.344***	-	-2.931	-	-11.499***	-	-9.058***
<b>Single parents</b>	-	-682.862***	-	-579.375***	-	-1199.538***	-	-770.664***
<b>Population working</b>	-	-16.200**	-	-22.012***	-	-23.166***	-	-22.844***
<b>Population &lt;5 years</b>	-	-89.283**	-	-81.892**	-	-153.225***	-	-96.776**
<b>Population &gt;65 years</b>	-	30.704***	-	34.797***	-	42.702***	-	37.850***
<b>Foreign born</b>	-	-3.060**	-	2.495	-	4.780	-	7.340
<b>Ill health</b>	-	-0.078**	-	-0.115***	-	-0.111**	-	-0.118***
<b>Year fixed-effects 2010</b>	-	0.095	-	0.226	-	0.288	-	0.291
<b>Year fixed-effects 2011</b>	-	0.058	-	-0.693	-	-0.419	-	-0.141
<b>Intercept</b>	84.354***	94.197***	82.764***	90.437***	82.719***	100.339***	71.072***	82.001***
Standard error	(0.14)	(5.23)	(0.12)	(4.56)	(0.18)	(6.85)	(0.14)	(5.59)
<b>R-squared</b>	0.004	0.055	0.006	0.076	0.003	0.062	0.004	0.059
<b>No. of observations</b>	2757	2744	2759	2746	2759	2746	2759	2746

\* Significant on the 0.10 level  
\*\* Significant on the 0.05 level  
\*\*\* Significant on the 0.01 level

**Table A3c – regression results from NP data with Praktikertjänst ownership as dummy variable and primary care quality indicators as dependent variables.**

	Personal treatment		Participation		Information		Availability	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Praktikertjänst ownership</b>	3.693***	3.606***	5.918***	5.665***	4.832***	4.628***	4.139***	4.212***
Standard error	(0.31)	(0.31)	(0.43)	(0.42)	(0.43)	(0.43)	(0.71)	(0.71)
<i>Controlled for</i>								
<b>Income level</b>	-	0.000	-	0.004	-	0.003	-	-0.008
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001*
<b>Recently moved in</b>	-	20.880**	-	58.270***	-	48.367***	-	38.898**
<b>Not academically educated</b>	-	-7.138***	-	-9.790***	-	-4.500	-	5.145
<b>Single parents</b>	-	-307.952**	-	-673.005***	-	-653.259***	-	-431.819**
<b>Population working</b>	-	-16.406***	-	-30.870***	-	-22.873***	-	-27.482***
<b>Population &lt;5 years</b>	-	-87.118***	-	-103.411***	-	-100.189***	-	149.576***
<b>Population &gt;65 years</b>	-	16.961**	-	31.884***	-	27.737***	-	22.780
<b>Foreign born</b>	-	-1.576	-	-0.489	-	4.202	-	-3.451
<b>Ill health</b>	-	-0.061**	-	-0.767**	-	-0.095***	-	-0.187***
<b>Year fixed-effects 2010</b>	-	0.232	-	0.168	-	0.202	-	1.216***
<b>Year fixed-effects 2011</b>	-	0.168	-	-0.332	-	-0.453	-	-0.250
<b>Intercept</b>	89.196***	101.795***	77.638***	92.294***	77.456***	87.850***	80.756***	96.743***
Standard error	(0.10)	(3.73)	(0.14)	(5.26)	(0.13)	(5.00)	(0.18)	(7.62)
<b>R-squared</b>	0.030	0.089	0.038	0.106	0.029	0.079	0.011	0.075
<b>No. of observations</b>	2759	2746	2758	2745	2758	2745	2727	2714

	Trust		Perceived utility		Recommend		Overall impression	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<b>Praktikertjänst governance</b>	5.611***	5.551***	4.663***	4.628***	8.044***	7.993***	6.879***	6.701***
Standard error	(0.42)	(0.42)	(0.39)	(0.37)	(0.50)	(0.49)	(0.47)	(0.46)
<i>Controlled for</i>								
<b>Income level</b>	-	-0.001	-	-0.002	-	-0.004	-	-0.001
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001***
<b>Recently moved in</b>	-	39.181**	-	46.486***	-	11.767	-	44.349***
<b>Not academically educated</b>	-	-9.161***	-	-3.614	-	-12.649***	-	-10.035***
<b>Single parents</b>	-	-638.723***	-	-541.719	-	-1141.903***	-	-719.361***
<b>Population working</b>	-	-15.948**	-	-21.880	-	-22.283*	-	-22.367***
<b>Population &lt;5 years</b>	-	91.126**	-	-83.435**	-	-155.827***	-	-98.983**
<b>Population &gt;65 years</b>	-	29.442***	-	33.703***	-	41.107***	-	34.394***
<b>Foreign born</b>	-	-5.641	-	0.346	-	1.003	-	4.200
<b>Ill health</b>	-	-0.074*	-	-0.109	-	-0.105**	-	-0.110***
<b>Year fixed-effects 2010</b>	-	0.039	-	0.178	-	0.214	-	0.226
<b>Year fixed-effects 2011</b>	-	-0.011	-	-0.753**	-	-0.506	-	-0.220
<b>Intercept</b>	83.919***	96.249***	82.376***	92.181***	82.145***	103.065***	70.572***	84.402***
Standard error	(0.13)	(5.20)	(0.12)	(4.56)	(0.18)	(6.80)	(0.14)	(5.55)
<b>R-squared</b>	0.035	0.085	0.031	0.101	0.042	0.100	0.047	0.099
<b>No. of observations</b>	2757	2744	2759	2746	2759	2746	2759	2746

\* Significant on the 0.10 level  
\*\* Significant on the 0.05 level  
\*\*\* Significant on the 0.01 level

**Table A3d – regression results from NP data with other private ownership as dummy variable and primary care quality indicators as dependent variables.**

	Personal treatment		Participation		Information		Availability	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Other private ownership</b>	2.159***	2.127***	4.162***	4.063***	3.917***	3.866***	5.156***	5.317***
Standard error	(0.23)	(0.23)	(0.32)	(0.32)	(0.30)	(0.30)	(0.44)	(0.44)
<i>Controlled for</i>								
<b>Income level</b>	-	0.003	-	0.008	-	0.006	-	-0.007
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001**
<b>Recently moved in</b>	-	12.111	-	42.281***	-	33.621**	-	20.334
<b>Not academically educated</b>	-	-7.143***	-	-9.974***	-	-4.777*	-	4.534
<b>Single parents</b>	-	-253.333**	-	-546.037***	-	-527.943***	-	-251.019
<b>Population working</b>	-	-14.470***	-	-26.915***	-	-18.928***	-	-21.358**
<b>Population &lt;5 years</b>	-	-71.045***	-	-73.075*	-	71.597**	-	-111.887**
<b>Population &gt;65 years</b>	-	18.397***	-	34.447***	-	30.060***	-	25.261*
<b>Foreign born</b>	-	-1.620	-	-0.180	-	3.194	-	-5.920
<b>Ill health</b>	-	-0.067**	-	-0.088**	-	-0.105	-	-0.199***
<b>Year fixed-effects 2010</b>	-	0.128	-	-0.042	-	-0.004	-	-0.502**
<b>Year fixed-effects 2011</b>	-	0.066	-	-0.536	-	-0.653*	-	-0.502
<b>Intercept</b>	88.951***	99.909***	77.098***	89.055***	76.907***	84.988***	79.939***	93.408***
Standard error	(0.10)	(3.67)	(0.14)	(5.10)	(0.14)	(4.84)	(0.19)	(7.24)
<b>R-squared</b>	0.032	0.089	0.059	0.127	0.060	0.110	0.051	0.117
<b>No. of observations</b>	2759	2746	2758	2745	2758	2745	2727	2714
	Trust		Perceived utility		Recommend		Overall impression	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<b>Other private ownership</b>	3.256***	3.281***	3.352***	3.437***	5.203***	5.317***	5.142***	5.110***
Standard error	(0.32)	(0.32)	(0.28)	(0.28)	(0.40)	(0.39)	(0.35)	(0.35)
<i>Controlled for</i>								
<b>Income level</b>	-	0.003	-	0.001	-	0.001	-	0.003
<b>Population density</b>	-	-0.001***	-	-0.001***	-	-0.001***	-	-0.001***
<b>Recently moved in</b>	-	25.676*	-	33.053**	-	-9.524	-	24.487
<b>Not academically educated</b>	-	-9.174***	-	-3.790	-	-12.805***	-	-10.321***
<b>Single parents</b>	-	-541.911***	-	-433.418***	-	-979.328***	-	-557.291***
<b>Population working</b>	-	-12.974**	-	-18.483***	-	-17.216**	-	-17.278***
<b>Population &lt;5 years</b>	-	-66.330*	-	-57.839*	-	-115.970**	-	-60.985
<b>Population &gt;65 years</b>	-	31.656***	-	35.845***	-	44.544***	-	39.552***
<b>Foreign born</b>	-	-5.706	-	-0.305	-	0.399	-	3.145
<b>Ill health</b>	-	-0.083**	-	-0.118***	-	-0.119**	-	-0.124***
<b>Year fixed-effects 2010</b>	-	-0.124	-	-0.001	-	-0.055	-	-0.041
<b>Year fixed-effects 2011</b>	-	-0.168	-	-0.927***	-	-0.768*	-	-0.480
<b>Intercept</b>	83.551***	93.351***	81.936***	89.484***	81.507***	98.650***	69.882***	80.445***
Standard error	(0.14)	(5.17)	(0.13)	(4.44)	(0.19)	(6.61)	(0.14)	(5.30)
<b>R-squared</b>	0.037	0.088	0.050	0.122	0.055	0.116	0.083	0.135
<b>No. of observations</b>	2757	2744	2759	2746	2759	2746	2759	2746
* Significant on the 0.10 level								
** Significant on the 0.05 level								
*** Significant on the 0.01 level								

**Table A4a – company list – LBO analysis.**

Private equity companies	Peer companies	
C&N Medtjänst	Adima Care AB	Legesvitten AB
Carema Primärvård	Aneby Vård AB	Njurunda Vårdteam
Hermelinen Hälsovård AB	Aleris Hälsocentral Bollnäs AB	Nybro Läkarcentrum AB
Husläkarna i Kungsbacka	Avesina Primärvård AB	Premicare Primärvård AB
Hälsobackens Läkargrupp	Carballos Klinik AB	St Eriks Vårdbolag AB
Medion Direkt i Östersund AB	Curera Sjukvård AB	Storvretens vårdcentral AB
Mediskt Centrum i Norrköping	Din vårdcentral Bagarmossen AB	Säröledens familjeläkare AB
Ortopediska Huset	EF Medical AB	Tveta Hälsocentral AB
	Enköpingshälsan AB	Vallentuna doktorn AB
	Familjeläkarna Mitt AB	Vaxholms vårdcentral AB
	Hansahälsan sjukvård AB	Vibblaby husläkarmottagning AB
	Hantverksdoktorn AB	Vivalla vårdcentral AB
	Huvudsta Vårdcentral AB	Våkro AB
	Hälsan Hus Landvetter AB	Vårdcentralen i Skarpnäck AB
	Hälsoringen Vård AB	Västerledens vårdcentral AB
	Hönö Vårdcentral AB	Åsö Medical AB
	Johannelunds vårdcentral	Vårdcentralen Östertull AB

**Table A4b – company list – current operating analysis.**

Private equity companies	Peer companies	
Brynäs Hälsocentral AB	Adima Care AB	Nötkäman Bergsjön Vårdcentral och BVC AB
Capio Citykliniken i Halland AB	Allemanshälsan Aleroz AB	Nötkäman Friskvåderstorget Vårdcentral och BVC AB
Gävle Vårdcentral AB	Aneby Vård AB	Nötkäman Hovås Askim Familjeläkare och BVC AB
Hermelinen Vårdcentraler AB	Carballos Klinik AB	Nötkäman Kortedala Vårdcentral och BVC AB
Husläkarna i Kungsbacka AB	Curera Sjukvård AB	Nötkäman Källered Familjeläkare och BVC AB
Hälsoringen Vård AB	Din Vårdcentral Bagarmossen AB	Nötkäman Masthugget Familjeläkare och BVC AB
Mediskt Centrum i Norrköping AB	EF Medical AB	Nötkäman Sävelången Familjeläkare och BVC AB
Proxima Primärvård AB	Enköpingshälsan AB	Premicare Primärvård AB
Vårdcentralen Lina Hage AB	Familjeläkarna Mitt AB	St Eriks Vårdbolag AB
Älta Primärvård AB	Hansahälsan Sjukvård AB	Storvretens Vårdcentral AB
	Hantverksdoktorn AB	Sveakliniken i Svedala AB
	Huvudsta Vårdcentral AB	Säröledens Familjeläkare AB
	Hälsans Hus Landvetter AB	Telgeakuten Hälso- och Sjukvård AB
	Hälsocentralen i Hjo AB	Tveta Hälsocentral AB
	Hönö Vårdcentral AB	Vallentuna Doktorn AB
	Johannelunds Vårdcentral AB	Vaxholms Vårdcentral AB
	Kallhalls Nya Vårdcentral AB	Vibblaby Husläkarmottagning AB
	Kneippengruppen AB	Västra Eketorps Läkarmottagning AB
	Kungsholmsdoktorn AB	Vivalla Vårdbolag AB
	Legevisitten AB	Våkro AB
	Läkarhuset Enköping AB	Vårdcentralen i Skarpnäck AB
	Medpro Clinic Stavre Vårdcentral AB	Vårdcentralen Östertull AB
	Mitt Hjärta Primärvård AB	Västerledens Vårdcentral
	Mitt Hjärta Hälsovalet AB	Åsö Medical AB
	Njurunda Vårdteam AB	Örestadskliniken Vårdcentral AB
	Nybro Läkarcentrum AB	



**Table A5a – LBO-analysis with operating performance of PE buyouts compared to peer group.**

Company	Revenue growth*		EBIT-margin		Profit-margin		ROIC		Net working capital / Revenue		Revenue per employee (SEKk)		Personnel cost per employee (SEKk)		Personnel costs/ Revenue	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
<b>C&amp;N Medtjänst</b>	<b>19%</b>	<b>5%</b>	<b>20%</b>	<b>31%</b>	<b>21%</b>	<b>31%</b>	<b>52%</b>	<b>-97%</b>	<b>0%</b>	<b>-25%</b>	<b>2,484</b>	<b>4,486</b>	<b>259</b>	<b>310</b>	<b>11%</b>	<b>7%</b>
Peer group	98%	23%	11%	8%	11%	8%	44%	-15%	16%	7%	1036	1162	591	652	57%	57%
<b>Carema Primärvård</b>	<b>5%</b>	<b>67%</b>	<b>12%</b>	<b>9%</b>	<b>12%</b>	<b>9%</b>	<b>-22%</b>	<b>-19%</b>	<b>-42%</b>	<b>-37%</b>	<b>981</b>	<b>1074</b>	<b>688</b>	<b>609</b>	<b>70%</b>	<b>58%</b>
Peer group	7%	21%	7%	11%	8%	11%	27%	75%	11%	17%	905	960	536	555	60%	57%
<b>Hermelinen Hälsovård AB**</b>	<b>-2%</b>	<b>174%</b>	<b>-4%</b>	<b>-23%</b>	<b>-4%</b>	<b>-23%</b>	<b>-47%</b>	<b>119%</b>	<b>5%</b>	<b>-28%</b>	<b>1962</b>	<b>1951</b>	<b>566</b>	<b>684</b>	<b>29%</b>	<b>35%</b>
Peer group	57%	58%	9%	7%	9%	7%	39%	-68%	5%	10%	1157	1168	643	662	23%	92%
<b>Husläkarna i Kungsbacka</b>	<b>54%</b>	<b>-1%</b>	<b>1%</b>	<b>7%</b>	<b>1%</b>	<b>7%</b>	<b>27%</b>	<b>424%</b>	<b>-3%</b>	<b>-5%</b>	<b>1781</b>	<b>1701</b>	<b>602</b>	<b>588</b>	<b>35%</b>	<b>35%</b>
Peer group	35%	23%	11%	10%	11%	10%	75%	39%	17%	7%	960	1121	555	639	57%	58%
<b>Hälsobackens läkargrupp</b>	<b>14%</b>	<b>132%</b>	<b>5%</b>	<b>0%</b>	<b>6%</b>	<b>0%</b>	<b>16%</b>	<b>2%</b>	<b>18%</b>	<b>6%</b>	<b>825</b>	<b>1798</b>	<b>640</b>	<b>731</b>	<b>78%</b>	<b>42%</b>
Peer group	98%	23%	11%	8%	11%	8%	44%	-15%	16%	7%	1036	1162	591	652	57%	57%
<b>Medicin direkt i Östersund AB</b>	<b>80%</b>	<b>101%</b>	<b>-15%</b>	<b>-5%</b>	<b>-15%</b>	<b>-5%</b>	<b>-41%</b>	<b>-41%</b>	<b>1%</b>	<b>-3%</b>	<b>694</b>	<b>955</b>	<b>349</b>	<b>478</b>	<b>51%</b>	<b>50%</b>
Peer group	6%	35%	9%	11%	9%	11%	74%	44%	12%	16%	921	1036	552	591	60%	57%
<b>Medicinskt centrum i Norrköping</b>	<b>9%</b>	<b>71%</b>	<b>10%</b>	<b>7%</b>	<b>11%</b>	<b>7%</b>	<b>31%</b>	<b>126%</b>	<b>21%</b>	<b>2%</b>	<b>1730</b>	<b>1618</b>	<b>453</b>	<b>1004</b>	<b>26%</b>	<b>62%</b>
Peer group	98%	23%	11%	8%	11%	8%	44%	-15%	16%	7%	1036	1162	591	652	57%	57%
<b>Ortopediska huset</b>	<b>52%</b>	<b>17%</b>	<b>9%</b>	<b>13%</b>	<b>9%</b>	<b>14%</b>	<b>16%</b>	<b>208%</b>	<b>20%</b>	<b>-6%</b>	<b>1309</b>	<b>1642</b>	<b>616</b>	<b>678</b>	<b>47%</b>	<b>41%</b>
Peer group	6%	35%	9%	11%	9%	11%	74%	44%	12%	16%	921	1036	552	591	60%	57%

\* Pre- and post-buyout growth is measured as one year before and one year after buyout.

\*\*Since the buyout of Hermelinen Hälsovård AB occurred in May 2010, we only use one year pre- and one year post-buyout in all measures.

**Table A5b – LBO-analysis with net operating performance including total average mean and median of PE buyouts compared to peer group.**

Company	Revenue growth*	EBIT-margin	Profit-margin	ROIC	Net working capital /Revenue	Revenue per employee (SEKk)	Personnel cost per employee (SEKk)	Personnel costs/ Revenue
C&N Medtjänst	60%	14%	14%	-91%	17%	1876	-9	-4%
Carema Primärvård	48%	-7%	-6%	-46%	-1%	39	-98	-9%
Hermelinen Hälsovård AB**	174%	-16%	-17%	273%	-5%	-21	100	-63%
Husläkarna i Kungsbacka	-43%	7%	8%	433%	7%	-241	-98	0%
Hälsobackens läkargrupp	193%	-2%	-3%	45%	-3%	846	30	-36%
Medicin direkt i Östersund AB	-8%	8%	8%	31%	-8%	147	90	3%
Medicinskt centrum i Norrköping	137%	0%	-1%	154%	-11%	-238	490	35%
Ortopediska huset	-63%	2%	3%	222%	-30%	218	24	-2%
Mean	62%	1%	1%	128%	-9%	328	66	-10%
Median	54%	1%	1%	100%	-7%	93	27	-3%

\* Pre- and post-buyout growth is measured as one year before and one year after buyout.

\*\*Since the buyout of Hermelinen Hälsovård AB occurred in May 2010, we only use one year pre- and one year post-buyout in all measures.