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MANAGEMENT CONTROL

MUNICIPAL DECISION SUPPORT

About Swedish municipalities implementing the simultaneous offer of full-time employment and the introduction of an internal personnel pool

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Abstract

The starting point for this thesis has been the great process of change that Swedish municipalities now are facing due to the political directive of offering full-time employment to all part-time employees. The aim of the research is to create a decision support model for Swedish municipalities, which simultaneously introduce the offer of full-time employment and an internal personnel pool. The factors that may influence the personnel's choice of employment level and the quality of the outcome, thus the financial result, are we also aiming at explaining. The empirical observations were found through secondary data as well as observations from the municipality of Göteborgs Stad. The empirical observations from Göteborgs Stad enabled a creation of a simulation model with different shares of increase in employment level. The way that the simulation model is created enable an individualized usage for the municipalities since their own statistical data will be included and they will see the differences in financial outcome that increases of employment level would have on their organization. The empirical observation was analyzed with a theoretical framework regarding a quantitative and qualitative decision support models in mind. The result indicates that the present understaffing will have great impact on the functionality of the personnel pool. The research also points at the importance of an understanding of the internal organization and the influencing factors to be able to make a well thought-out decision before implementing such an extensive change as the Swedish municipalities now are facing.

Key concepts: Decision support, management control, personnel pool, political directive.

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1. Introduction

In the following section a historical background to the problem will be presented which follows by a deeper problem discussion. The research question for this thesis and the overall aim will then be presented. The limitations and relevance of the thesis will follow as well as some important key concepts.

1.1 Problem background

When the Swedish women entered the labor market 60 years ago, it mainly occurred in the public sector in nursing and geriatric care. Women still had the role of a housewife while their husbands worked. This led to the use of part-time work arrangements since they were seen as a practical solution for everyone concerned (SOU 1999:27). For a long time, part-time employments were the only way for women to enter the labor market. In Sweden, this was the case until the 1970's and during these years part-time work arrangements expanded widely, not only for the female workforce but for everybody (Ibid.). This first period of the female workforce still has consequences in today's labor market.

Part-time employment keeps rising in usage in Sweden (Håkansson & Isidorsson, 2009). The reason is mostly because organizations today want to be more flexible because of greater competition (Mulinari, 2004) and technological innovations (SOU 1999:27). The global financial crisis in 2008 may also be one of the reasons for today's need for flexibility, since organizations are then able to adapt the labor force to current needs (Statistiska Centralbyrån, SCB, 2013). Organizations need to focus more on the customer's demand and assure that it get its product, or service, right on time (Mulinari, 2004; SOU 1999:27). This in turn will affect the employees (Håkansson, 2006) and their working hours (Mulinari, 2004). In the service sector this may, for instance, result in a departure from the traditional 8-hour shift, to a schedule that varies over a period of time (SOU 1999:27). For Swedish organizations, several parts of the national law have facilitated this flexibility (Håkansson & Isidorsson, 2009).

The use of flexible staffing arrangements may also be seen as a trend and does not seem to be affected exclusively by market environment structures (SOU 1999:27). During the first years of the 21st century the world, including Sweden, experienced a period of both prosperity and recession, yet the share of flexible staffing arrangement continued to increase (Håkansson & Isidorsson, 2009). Globalization and increased competition cannot therefore be the only reasons for the increased use of part-time employment, since these factors can hardly influence industries that only have domestic markets (Mulinari, 2004). To what extent globalization affect the public sector and put pressure on it to rationalize is therefore abstruse (Furåker, 2009).

As mentioned, Sweden has experienced an increase in flexible staffing arrangements and the temporary contracts are the ones used the most (SOU 1999:27). In 2011, 31 % of all Swedish women and 10.2 % of all men had part-time employment, and in the younger ages, 16-24 years, the part-time employments is even more widespread (SCB, 2013). A great share of the part-time workers in the municipality sector express a desire to increase their employment level. When this desire is not satisfied, the employee is regarded as underemployed (see table 1). During the last ten years, the public sector has been aware of the growing problems with part-time and underemployment. Several projects have been implemented which have all had a common purpose to find solutions to these problems and renew the public labor market in the municipalities (Ede, 2003; 2005).

Table 1. Underemployment in the municipality sector, year 2011
Persons 20-64 years.

	Women	Men	Total
Total number underemployed	48,700	9,800	58,500
Share of workforce in sector	7.9 %	5.5%	

Source: Arbetskraftsundersökningar 2012 (AKU), SCB.
See Appendix 1 for calculations.

1.2 Problem discussion

With the underemployment in mind, at their 2001 party conference the then reigning party Socialdemokraterna made a statement that full-time employment is a common right and part-time employment is an opportunity (Socialdemokraterna, 2001). This is to a great extent a statement of equality of opportunities. Since 2001, this question has been discussed back and forth, both in the then reigning party as well as in the government of today. The fact that the average age of the Swedish population keeps rising and the public sector in the future will need more personnel to take care of the elderly, the opportunity for full-time employment is also an aim for the municipality to become more attractive as an employer (Ede, 2005). Another predicted benefit with this aim is that only educated and competent personnel will be used, and thus the quality of the services will rise, since this is not assured when using on-call workers (Sveriges Television, SVT, 2013). This current political directive does not include any action plan or guidance for how the municipalities should implement the offer of full-time employment, which means that the mode of procedure is optional for each municipality.

Reformations in the Swedish healthcare sector are not a new phenomenon. In the 1990's it underwent an extensive reform. The main issue for this reform was that Sweden was shown, in comparison with other countries, to be the country that used most of their financial resources per capita on health care. The reform meant several adjustments, which were often inspired by the industry sector's way of organizing. Among the adjustments financial efficiency was one important factor (Bergström et al., 2007), which often meant budget cuts. During the reform in the 1990's, and previous ones, the initiatives of internal personnel pools have been implemented and tried out, all with varied outcomes. An internal personnel pool allows employees, in different ways, to work as substitutes for each other when needed. This could also mean that they work at different places of work than the ordinary one (Bergström et al., 2007). There have been several problems with personnel pool initiatives. For example, during the 1970's, the overall demand could not be satisfied at the required speed and when implemented in 1997 the personnel pool was not used to its full potential which lead to increased costs (Ibid.).

When a budget is cut, as it was in the reform in 1990's, a decrease in the workforce follows and often also an employment freeze. This decrease leads to a minimal level of basic staffing, which in turn results in different problems within the organization. In times of workload peaks or unplanned absence, organizations with a minimal level of basic staffing either has to let their personnel work overtime, which may be very expensive (Bergström et al., 2007) or use on-call workers (Håkansson & Isidorsson, 2009). This is the case even today. A low share of standard work arrangements makes organizations vulnerable to sudden changes (Bergström et al., 2007), which is a main problem for many municipalities in Sweden today. When part-time employees are, through the political directive, now able to choose their own level of employment the expectation is that there will be an increase in ditto. Hence the basic staffing will rise, which makes organizations less vulnerable.

Municipalities have to ensure that the increased levels of employments, i.e. increased amount of available working hours from the basic staff, are used to their full potential and not just result in higher salary payments. It is therefore common to apply new ways of dealing with scheduling. This basically means finding new ways to match available hours with the hours needed, i.e. the staffing requirement. An internal personnel pool is one common mode of procedure to ensure this match. The outcome of solutions like personnel pools to a great extent dependent on that a majority of the employees actually increase their level of employment since a personnel pool is formed by redundant hours, i.e. the available hours have to exceed the staffing requirement. The fundamental idea of several municipalities today is that the majority of all part-time employees will increase their employment level to full-time and the municipalities therefore express a fear that the overstaffing will exceed the demand from the personnel pool, and by that only result in increased costs (Håkan Svensson, Göteborgs Stad). However, previous

projects and research show that many employees will either stay with their part-time employment or increase the level of employment only a few percent. Some employees will even decrease their employment from full-time to part-time when able to (Ede, 2005). Therefore, the outcome of this solution with a personnel pool is not clear. The offer of an optional level of employment will affect the supply of personnel, hence the ability to use a personnel pool, and depending on what choice the employees make, different financial outcomes will therefore occur.

There are several factors that may have an influence on peoples approach, and thus choice, to the opportunity of full-time employment. A flexible staffing arrangement, which deviate from a standard full-time employment, allows the employees to control their own schedule and thereby facilitate the combination of work life and private life (Hyman & Summer, 2004). The feeling of control leads to satisfaction (Kelliher & Anderson, 2010) and thereby reduced stress levels and reduced health problems (Butler et al., 2009). However, it is important to know that Isaksson and Belaagh (2005) stress that it is mostly the employees who themselves have chosen a flexible staffing arrangement that are satisfied with it. With that in mind, we could guess that even though employees were dissatisfied with their part-time arrangement before, when they are able to choose their own desired level of employment by themself, part-time could be an employment form many would prefer and choose to stay with. In the case of the public geriatric care specifically, a high level of stress and the heavy workload may be reasons for the high share of flexible staffing arrangements in this sector (Gustafsson & Szebehely, 2005; Eriksson, Starrin & Janson, 2003; Sundgren Ginups, et al., 2004).

On the other hand, there are some factors indicating that a high share of employees will take the opportunity to increase their employment rate. First of all, part-time employees have restrained development opportunities (Isaksson & Belaagh, 2005) and experience a weaker attachment to the organization (Håkansson & Isidorsson, 2009). It also lowers the employees' chance to control their economy (Mulinari, 2004) and therefore results in a lower salary (SOU 1998:6). In the Swedish system of social insurance, this form of employment also results in a decrease of sickness benefits, superannuation benefits and parental allowance (SOU 1998:6). It also lowers the employees' chance to accomplish their work and plan their spare time (Mulinari, 2004), and leads to inflexibility when the employees are unable to influence their own working hours (Ibid.).

It is the politicians outside the daily operations who direct the framework for the Swedish public sector. The decision makers could thereby be unfamiliar with the different circumstances under which the municipalities are managed. This may result in that the directives involve a great share of risk. In the case of the political directive discussed in this thesis, the aim on a national level is to offer all part-time workers in the public sector full-time employment, which is an aim of equal opportunities. This means that the directive was not based on economical calculations. Futhermore, all municipalities are free to accomplish this and implement the change in whatever manner they find appropriate. At the same time they are under great time pressure. One of the project managers in Göteborgs stad expressed this as a very problematic circumstance and after being in contact with the project team in Göteborgs Stad, we saw a great need for municipalities to have access to decision support when starting this process of change. In decision support theory a quantitative approach has long been the standard mode of procedure and regarded as more valuable (Bohanec et al., 2000), but a qualitative approach is up and coming. These approaches have several differences but do not have to be antitheses (Eklund, 2012), although a conflict regarding which one to use is typically present. The required restructuring to accomplish the political aim is far-reaching and has been developed into a wider transition than expected. It does not only include the original offer of full time employment; it also raises questions about scheduling, working hours, compensations, assignments, educational level etc. A problem with projects in a changing environment like the public geriatric care is that the daily work is going on in the same time as the project and the conditions are therefore in continuous change (Patel & Davidsson, 2003), for example budget changes, new laws, conflicts with the labor union etc. This makes both the realization and the evaluation difficult to accomplish (Ibid.).

The Swedish municipalities are all similar in the way they operate, how they are controlled, the financing model used and the distribution of personnel. The many similarities among the 290 municipalities would make a standardization of the process possible. However, since there is a lack of guidance from a national level, the time to realize the directive may be extended and different early stage blunders may be repeated since the collaboration across municipally borders are limited. While some municipalities have already worked with the new political direction for several years, others will soon follow. Since an initiative like this is far more complex than the politicians probably understood in the first place it is valuable to learn from previous experiences. A model of guidance would thereby be practicle for future change processes to facilitate for municipalities that have not yet implemented the transformation into an increased level of full-time employment.

Thus, a process of change of these proportions is a great commitment from a municipality, yet national comprehensive decision support on how this aim should be accomplished does not exist. How the transition into increased levels of full-time employments will be solved within the 290 municipalities, without exceeding the budget, is in other words optional for each municipality. This puts considerable demand on the different project teams and the pressure to accomplish the aim as quickly as possible may further affect the preparatory work. The lack of guidance involves risks when municipalities implement a change without knowledge of what the consequences might be. A lack of guidance may also lead to a fear of unwanted outcomes, which are not even likely to occur. The insecurity of the unknown may also result in a lack of motivation and anxiety for the processes of change. Without a nationally comprehensive decision support model the municipalities may have a hard time to implementing the change and will not be able to take advantages from each other's experiences. Thus, the result may deviate from what they expected and were aiming for in the first place.

1.3 Research question

We will work with the following research question:

What factors influence the financial outcome of a simultaneous offer of full-time employment and the introduction of an internal personnel pool in Swedish municipalities?

1.4 Aim of the research

The aim of this thesis is to create a decision support model for municipalities, which covers both quantitative and qualitative factors, and thus financial as well as non-financial aspects. The ambition is also to critically discuss the use of quantitative and qualitative factors in decision support models and what the benefits and disadvantages with each usage may be.

It is intended that the developed model will work both as assistance and guidance when implementing the political aim of offering full-time employment to all part-time employees and the initiative of an internal personnel pool.

1.4.1 Limitations

The decision support model will work as a guidance and assistance during the implementation process, but will not give an optimal solution for the municipalities. The factors used in our model, whether the factors are qualitative or quantitative in its nature, will not be developed into quantifications. This means that the simplification that a quantification may lead to will not be covered in our model. Moreover, we will not investigate the outcomes regarding the perceived quality of the users, stress levels of the personnel and changing working environment etc.

1.5 Relevance

This is the greatest process of change and restructuring ever in Swedish geriatric care and our inquiry is needed since no comprehensive national decision support from the politicians has yet been provided on

how to accomplish this change. A checklist, or guidance, is needed for municipalities that have not made this change yet.

Previous research on this area is ambiguous, since the benefits and disadvantages of part-time work arrangements some time conflict. The fundamental idea is that decreased share of flexible work arrangements contribute to a decreased flexibility and increased costs for the organization. Our study object Göteborg Stad, however, have an hypothesis which states that increased share of full-time workers will not have a negative impact of the costs, by using an internal personnel pool. It is of great relevance to test if their hypothesis actually will work in reality since other municipalities then will be able to learn from it.

1.6 Key definitions

In the following section we first define different work arrangements that are used in the public sector, followed by other work environment terms of use.

Standard work arrangement (Kalleberg, 2000) has been the norm of employment during the past century. The employee is expected to work full-time.

- *Full-time work* is a form of employment where the employee has a monthly salary and permanent employment. In the public geriatric care this includes inconvenient hours (evening and night) and amounts to 37 hours weekly (Ede, 2005). The employment is assumed to be at an indefinite time (Kalleberg, 2000).

Flexible staffing arrangements (Abraham, 1988; Houseman, 1997, 2001) are work arrangements that deviate from Standard work arrangements. These flexible arrangements are composed of different types of work:

- *Part-time work* is an employment with a monthly salary but the shifts are fewer than with a full-time (Kalleberg, 2000). Part-time work is normally divided into *short part-time*, 1-19 hours per week, and *long part-time,* 20-34 hours per week (SCB, 2013). In this thesis we use both types aggregated as part-time. A part-time employment contract may be of either permanent or temporary nature.

- *On-call work* (Houseman, 2001) is employment of a temporary nature and is paid by the hour (Ede, 2005). The workers are called in to work when needed, to fill in for an absent employee or during workload peaks (Houseman, 2001).

- *Employments on a temporary basis* means being employed for a limited predetermined period, normally to fill in for employees during the summer vacation. They get a fixed-term contract and are usually paid on a monthly basis (Ede, 2005).

Basic staffing means the workforce of permanent employees, both full-time and part-time. The larger basic staffing an organization has, the lesser is the need for on-call workers and other flexible staffing arrangements.

Geriatric care is one of the sectors managed by the municipalities, comprised mostly of retirement homes but also home-help services. This sector is divided into public and private. In this thesis we only refer to the public retirement homes when *geriatric care* is used.

Level of employment is expressed in percent. Full-time employment is 100%, i.e. 37 hours per week and 1600 hours per year. Part-time employment is less than 100%.

Staffing requirement is the minimum amount of hours needed from workers to manage the daily work within the organization. It is commomnly used as the foundation for budgetary limits and scheduling.

Overstaffing is the situation that occurs when the staffing requirements are exceeded, i.e. there are more personnel in the daily work than needed. In this thesis it is commonly expressed as hours available exceeding hours needed.

Redundant hours is the available hours that occur from overstaffing, this hours are to be used in the personnel pool.

Resource shifts is the result of redundant hours that exceed the need for staff.

Overtime compensation concerns all hours that exceeds the contracted hours, irrespective of whether they relate to full-time or part-time employment.

Underemployment is an involuntary part-time employment (AKU), where the employee works less than 35 hours per week, and has a desire and ability to work full-time. They are then considered part-time unemployed.

Understaffing is the situation that occurs when the staffing requirements are not fulfilled. There are fewer personnel than needed in the daily work; hence the available hours from the permanently employed personnel are less than the needed hours.

1.7 Disposition

The disposition of this thesis is influenced by the fact that the decision support model contains two parts, a qualitative and a quantitative and since these parts mainly are presented in two different sections of the thesis, the analysis will be carried out in two stages. First of all, chapter two covers the research method, which is followed by a literature review in chapter three regarding decision support model theory and different approaches in this field. Chapter four contains approaches to flexible staffing arrangement from the employer's as well as from the employee's point of view, which will reveal factors influencing the employee's choice of employment level. Chapter four ends with learning outcomes from previous projects in different municipalities in Sweden. In chapter five the factors influencing employment levels and quality are presented, which form the first part of the decision support model. The first stage of the analysis regarding whether to keep factors quantitative or qualitative will follow. Chapter six consists of the empirical observations and is presented as a simulation model. Chapter six also contains the actual outcome, hence the quantitative part of the decision support model. The thesis will end with an analysis of the complete decision support model together with a conclusion.

2. Research method

In this section a description of the research design and approach for this thesis is presented together with information on how the research was conducted and possible limitations with the mode of procedure chosen. The section ends with a discussion of the method's reliability and validity.

2.1 Research design

Since the aim of this research is to create a decision support model for all Swedish municipalities, theory in this field is used as a framework. The decision support model will be discussed and analyzed with this theoretical framwork in mind in section five where the theory enables a categorization of the qualitative and quantitative factors of importance. This categorization may simplify the usage of the decision support

model. These factors will, in various ways, have an influence on how well the decision support corresponds to reality. As the aim of the research also implies that qualitative as well as quantitative factors should be included, we started with mapping factors influencing the preferences of employment level and the quality of the implementation. For the simulation model, whose aim is to explain the possible financial outcome in terms of available hours, Göteborgs Stad is used as a study object. The statistical data from the study object forms the scenarios and is the base for calculations on the quantitative outcome.

To be able to create a simulation model, a thorough investigation of the influencing factors is needed to create an understanding of the basis of calculations. Since a simulation model needs great preparation and investigation of the influencing factors, a systematization of previous experiences had a prominent role in the work with this thesis. Without an investigation of these proportions, the basis of calculations may be misconstrued, which means that the three different levels of increase in employment level would not be reliable. With that in mind, the discussion regarding influencing factors will have a prominent role in this thesis rather than the simulation model. In the method section, however, the two parts will be equally focused since several considerations were made when doing the simulations and these needs to be demonstrated. To combine these to parts, we strive to accomplish a useful analysis of previous studies combined with the simulation model where Göteborgs Stad is used as a test case. The analysis will be two-staged where the first part of the analysis will take place in section five, as described above. The second part with a deeper analysis will be in section seven where the development of the decision support model from section five will be combined with the empirical observations in section six.

Since we strive to find characteristics that will repeatedly arise in all municipalities the research has a positivistic approach. The decision support model is constituted by both a qualitative and a quantitative part, where the secondary data from researchers in this field forms the qualitative part and the simulations based on Göteborgs Stad's numerical data is the quantitative. We have assumed that the qualitative factors found in our secondary data will influence the choice of employment level, hence our development of the simulation model. These factors may also influence the quality of the change process. The concepts of qualitative and quantitative decision support do not constitute a dichotomy, but possible complementarities and by combining them there could presumably be a more comprehensive outcome since the empirical data is broader (Eklund, 2012).

This research is both a descriptive and a causal study since when creating a decision support model finding out "how much" as well as "why" is important (Blumberg et al., 2008). The purpose of a descriptive study is mainly to find connections between different variables and to describe a certain phenomenon associated with the study object, that is "how much" (Ibid.). The main purpose for a causal study, on the other hand, is to find answer to how one variable may affect another, which gives us the "why". Even though a researcher can never be absolutely sure that one factor actually affects another, evidence is sought to increase the belief that this is most likely the case. We strive to find a connection between the factors that influence the choice of increasing or decreasing employment level, and what this results in for a district in terms of available hours, which then is compared with the staffing requirements, to see what the financial outcome may be.

A cross-sectional study was used, where the information was gathered only once, even though the benefit with the opposite, a longitudinal study, is that it is able to trace development over time (Blumberg et al., 2008). The time restraints did not allow repeated data collection and simulations over a longer period of time. Furthermore, when a case study concentrates on finding full knowledge about a few situations, a statistical study tries to find a way to generalize a population's behavior. Hence acheiving breadth is the purpose of a statistical method, not depth (Ibid.). A statistical study is more appropriate for finding answers to questions like "how much?" for example how different employment levels satisfy the staffing requirement. The answer to our "how much?" will be found in our empirical observation from Göteborgs Stad. A case study, on the other hand, is more appropriate on finding answer to "why?", for example why

employees are choosing a specific employment level (Ibid.). The answer to our "why?" will be found in the secondary data.

2.2 Description of samples

2.2.1 Data collection

The data-collection method has been that of monitoring and not of communication, both for the secondary data and the gathering of the empirical data. This means that we have scrutinized the study object without trying to get a reaction from anyone (Blumberg et al., 2008). A communication method would instead mean that the researcher would seek personal responses from the study object (Ibid.). Since the empirical study partly consists of numerical calculations a communication method, which is influenced by personal attitudes, would only make the data hard to obtain and indefinable. Because of this fact we early decided to mainly gather our data from databases instead of through interviews etc. We did, however, do some unstructured interviews.

2.2.2 Textual analysis

To be able to create a decision support model we first wanted to scrutinize which factors may influence people's choice of employment level as well as the quality of the implementation. This should, from our point of view, be the first thing to investigate for a municipality before a process of change is started. Our contribution from the secondary data is a résumé of these factors and they are factors of a qualitative as well as quantitative nature. In section five, these factors will be presented and the theoretical framework will help us to categorize the factors as either quantitative or qualitative. A discussion regarding this categorization is important since findings in this field are contradictory and an analysis regarding which factors to quantify and which to keep qualitative will be further examined in this section.

The secondary data will also contribute with pros and cons with flexible staffing arrangements and trends in the use of personnel pools. Since there have already been some previously implemented projects in different municipalities, we wanted to take advantage of these learning. To use secondary data seemed to be more appropriate in this case since it allows the researchers to learn from previous documents instead of examining personnel's preferences in the study object exclusively. In the case of Göteborgs Stad it would not have been suitable since they are in the middle of their implementation process and the answers would have been influenced by the ongoing process of change and would therefore not have been objective enough. Furthermore, we thought that adding international secondary data would give a deeper and more trustworthy understanding and analysis.

2.2.2.1 Selection

This research relies to the greatest extent possible on peer-reviewed articles that were published in well-respected databases. However, since most of the articles are published on international databases while the political aim is of a national concern, we chose to also use Swedish resources, through books and articles. Previous projects from other municipalities were also of interest for the research; hence reports from these projects were used.

2.2.2.2 Research limitations of the textual analysis

The greatest limitation of this thesis regards the categorization of the influencing factors. Some factors, for example the number of children an employee has, are of a quantitative nature, which we have chosen not to develop further into usable quantification. We have simply presented them as factors of importance and of consideration. This may negatively affect the user-friendliness of the decision support model since the basis of calculations will probably not be as accurate as it could have been. The reason for this mode of procedure is mainly due to time restraints. Furthermore, some qualitative factors are not quantified in our model, for example experienced level of stress. The reasons for this categorization will be further described in section five, as mentioned before.

The empirical data was gathered from previous research. If we had gathered the information regarding these factors ourselves, the outcomes would possibly be slightly different since the information was at first gathered for another purpose, presumably different than ours. Hence, there may be a gap between the conclusions in this thesis, regarding factors that influence people's attitudes towards full time employment and the quality of such an implementation, and the conclusion that the original authors were aiming for. In addition, when relying on previous research, a researcher is unable to take every source of information into account. In other words, some sources of information will still be undiscovered. Whether these sources would have given a greater insight, or even a new point of view, remains unknown. To conclude, further research regarding attitudes to full-time employment may lead to slightly different conclusions when using other sources of information.

The problem investigated during this thesis is to a great extent a national problem. Therefore we used Swedish articles to a great extent. We are aware of the fact that factors from the international literature, which seem important in other countries, may not be as important in Sweden. The international literature was, however, able to give us a broader perspective regarding influencing factors as well as ideas to the decision support model, which why chose to include it. Further research would probably try to either scrutinize the problem within the Swedish borders and only rely on Swedish research or, do it the other way around and, apply it on an international context and examine people's attitudes worldwide.

Regarding the previous projects that have been studied, we want to stress that these evaluations are, to a great extent, based on interviews with employees. To ensure that interviews are objective is difficult, since they are probably influenced by people's feelings and attitudes, especially during an ongoing process of change. Furthermore, the previous projects are not publications like articles; hence, their content may not reach the same quality academic-wise.

2.2.3 Development of the simulation model

For the quantitative part of this thesis numerical data was collected from the study object, Göteborgs Stad, which was used to create scenarios and simulations. The simulations were based on the beliefs and hopes of Göteborgs Stad, namely that increased employment levels would solve the current understaffing, which has been a main problem nationwide for a long time. We have charted employment levels and staffing requirements from a time period before the opportunity of optional employment level was implemented. This was used in our simulations of possible future scenarios. Through the simulations we are able to find connections that are presumed to be true for all Swedish municipalities for a longer period of time, even though the findings are not universal or represent an absolute truth (Blumberg et al., 2008).

Hours are the quantitative term used and calculated with since this is what departmental managers are most familiar with rather than financially expressed measurements. The use of hours, instead of money, facilitates the use of our decision support model. Every hour can be priced, and the price differs due to which type of hour it is. During the night the hours are more expensive than during the day, and overtime compensation makes the hour price rise. Because of this, we thought that it would be easier and user-friendlier if we did not assumed salary levels.

2.2.3.1 Selection

There are six steps in a sampling design (Blumberg et al 2008):
1. What is the relevant population?
2. What are the parameters of interest?
3. What is the sampling frame?
4. What is the type of sample?
5. What size of sample is needed?
6. How much will it cost?

The population is all municipalities in Sweden, which answer question one. The population is large and quite homogeneous and sampling is even more appropriate in those situations than if a population is small or has characteristics that differ a lot.

There are several answers to the second question, including the staffing requirement, the employment level, share of full-time workers, share of part-time workers, the need of subsidiaries and the share of on-call workers who fill the need of subsidiaries.

The sampling frame will be the information about the personnel that has been gathered from the database Time Care, since this represent an accurate list of the population members (Blumberg et al., 2008). This information was gathered from Time Care, rather than interviewing personnel, to answer how employment levels will affect the outcomes in terms of available hours compared to the required staffing level. By doing this, risk of personal apprehension from interviewes was reduced.

The advantages of sampling are many. Among others it involves greater correctness and easier data-collection (Blumberg et al., 2008), which are both advantages that we thought were important in our thesis. To be able to generalize numerical data the researcher has to use a random sampling method, which in this case would have been to randomly sample retirement homes in all Swedish municipalities, i.e. the whole population. We, however, have chosen our sample subjectively, which means that it is a non-probability sample. This increases the share of precision in the investigation (Blumberg et al., 2008) and answers the fourth question above. Even though a probability sample reduces sampling biases, a non-probability sampling method was used, since we were not seeking to point at accurate, detailed effects of this change, but rather to create an understanding of the cause-and-effect relationship that municipalities now have in front of them (Blumberg et al., 2008). Even if we were not be able to, or aimed to, generalize for the population, the fact that all Swedish municipalities are to a great extent similar in structural terms such as management, financial prerequisites, amount of personnel and persons receiving care, the choice of samples will still be trustworthy. The sampling was to a great extent chosen because of the progress of interest in 2013 in these districts. By choosing two leading districts we were also able to point at some trends and actual outcomes by examining the time period after the implementation was done. Nevertheless, the sampling method was also to some extent decided by the time frame.

To answer question number five, two out of ten districts in Göteborgs Stad were chosen and within these districts all 16 retirement homes were examined. We want to point of the fact that a district within Göteborg Stad is the size of an average Swedish municipality, in terms of numbers of retirement homes. Even though generalization is not possible in this case due to the sampling method used, to foresee the progress of other municipalities by using our model would still be possible since these large districts were used. The fact that the municipalities of Sweden are very alike in terms of management, prerequisites and requirements means that the investigation of only two districts will still be useful. Furthermore, we considered the fact that we would be able to study the 2013 progress of the leading districts in the Göteborgs Stad interesting and valuable. Hence, these two districts were chosen instead of random sampling.

Finally, the cost issue was not relevant in our case since we had free and unlimited access to our primary data resource, the database Time Care. We also had a working space at the municipality's office and unlimited contact with our external contact person, the project manager Håkan Svensson, at Göteborgs Stad.

2.2.3.2 Calculations

The data from the past was used to do the simulations, while the progress of today was only observed, not included in the simulation model and hence not manipulated. This was done to indicate the differences between possible and actual outcome as well as showing the development.

The aim of this thesis is to guide municipalities that have not yet started an implementation process and which therefore, naturally, will work with numerical data that has not yet been influenced by the opportunity. Therefore, the calculations were made on data gathered from the nearest past possible, i.e. data as close as possible to today from the time before the opportunity of full-time employment was given. This was important since the simulations would otherwise have been misconstrued.

We started to build the foundation for the simulations by collecting data regarding the staffing requirements. We had access to the scheduling program that our study object uses and from this program we could gather the information. The staffing requirement was not accumulated for the whole district. Since we would have had to access each ward's own schedule to get access to the information, which would have been very time consuming. However, according to our external specialist contact at Göteborgs Stad, the staffing requirement at a retirement home is at the same level throughout the year. We crosschecked this statement by doing a spot test of different scheduling periods and find out that this was the case. Because of that, we only had to gather information from one scheduling period, which is eight weeks per ward, and add it up to represent a whole year. This mode of procedure may, however, be a bit simplistic and involve unreliability.

When calculating the amount of hours that the permanently employed full-time and part-time personnel generate on a yearly basis, some presumptions were made. An estimation of a stereotyped part-time employment was made, since all part-time employees do notwork under the same level of employment. We calculated the mean employment level of the part-time workers by summing up all levels and then dividing by the total amount of part-time employments. The result, i.e. the mean, was then rounded up. With these calculations we reached a mean part-time employment level of 75%. These calculations were derived from observing one ward on each retirement home in the two districts.

2.2.3.3 Research limitations of the simulation model

Since the aim of this thesis is to create a decision support model we strive to make our results generally applicable for all Swedish municipalities. One part of the decision support model consists of a simulation model, which is based on numerical data gathered from only one of the Swedish municipalities, Göteborgs Stad. Even if the municipalities to a great extent are similar there are some differences as well. For example, the size of the municipalities will not be identical in terms of area, amount of persons receiving care and number of retirement home. Municipalities may also differ regarding political reign, options of private care, budgetary limits and historical aspects. These differences do not, however, have to result in inability to use our decision support model. Moreover, the decision on a municipal level of how to deal with the political aim of full time employment may differ, since there are other ways than using an internal personnel pool.

Furthermore, our research question is to find factors that may influence the financial outcome of such an implementation. Our time frame prevented us from finding an answer that was expressed in terms of money; instead our quantitative findings will be expressed in terms of hours. This includes that we have not calculated the difference in costs between using permanently employed staff or on-call workers. Instead, our expectation is that every municipality will calculate the financial outcome themselves after using our simulation model.

We did not do a random sampling, or a sampling from the whole population, which would have resulted in greater security statistical-wise. Instead we chose our own samples. The fact that these two samples may not represent the whole population involves imperfections. However, the two samples chosen enabled us to point to some trends and actual outcomes.

The size of required on-call workforce is ambiguous since the data in this thesis only show how large the share is that has been ordered from the staffing division. Our external contact revealed that some managers

call a small share of their on-call workforce by themselves, resulting in that this statistical data may be slightly incorrect. How great this share is for other municipalities is, of course, unknown to us.

2.2.4 Interviews

When gathering information through interviews without knowing the requisite questions in advance, an unstandardized interview is appropriate (Berg, 2009). This type of interview enables gradual consideration and developing of questions and follow-ups and the interview is formed more similar to a conversation (Ibid.). We found this form appropriate in the meeting with one of the previous heads of unit since we did not know in advance what knowledge she had about the area we were interested in. This fact fits well with the outcome from our interview. We had one unstandardized interview. Furthermore, we had a continuous dialogue with the project manager at the municipality's head office, which gave us further information for the project, as well as education in the database that the municipality uses.

2.2.5 Databases

When collecting the statistical data for our simulation model, we used the municipality's internal scheduling program Time Care. Time Care does not only contain schedules, but also reports different statistics from the organization. We had full access to the program and started the work with one day of training. When collecting this information it is called data mining and the main purpose is to find useful and valid information to chart a pattern. The traditional data-mining process contains five steps: sample, explore, modify, model and assess (Blumberg et al., 2008).

2.2.6 Secondary data

Secondary data is constituted of information and data previously collected from others (Eliasson, 2006). The secondary data is the foundation for our textual analysis. The main advantage with secondary data is the time you are able to save when using it since someone else has already collected the information. This fact, however, is also the greatest disadvantage with secondary data since the one who collected it in the first place probably did not have the same purpose in mind (Blumberg et al., 2008).

The majority of our secondary data comes from Swedish and international literature and covers benefits and disadvantages with flexible staffing arrangements and internal personnel pool. This was used to summarize factors that may have an influence on employees' choice of employment level, the quality of the implementation, the consequences for the employers and potential ways to use the initiative of an internal personnel pool. We also acquainted ourselves with the content of previous research and case studies done by other municipalities, which have recently undergone similar changes. This information was used to summarize factors that municipalities ought to think about before and during the implementation process. It was also a part of the summary of factors influencing the choice of employment level and quality of such an implementation process.

Furthermore, we have used statistical information from i.e. *Statistiska Centralbyrån (SCB),* e.g. their labor force investigations and *Statens offentliga utredningar (SOU).*

2.3 Reliability and validity

Reliability signifies ability to, with similar conditions, repeat the study and achieve the same result (Eliasson, 2006). One of the keywords of reliability is "consistency", i.e. the research should give consistent results and therefore be free from instability and random errors (Blumberg et al., 2008). The fact that we have used several different sources of information regarding the influencing factors, such as previous projects in different municipalities as well as national and international researchers' findings, means that the reliability is increased. To further ensure and increase the reliability in this study, we worked with different methods, e.g. to crosscheck the collected data that decrease the possibility of typing them wrong and to calculate the variables in different ways. We also tried to improve the reliability by using a simulation method, which meant that some external factors and standardized prerequisites were held constant.

A high degree of reliability forms prerequisites to a high degree of validity. Validity signifies if the study measures the things we want to measure, if the study is valid and trustworthy (Eliasson, 2006) and whether the results are true (Blumberg et al., 2008). There are two different forms of validity according to Blumberg (2008), namely internal and external validity, where the former describes if the result from the observation actually points at causes and the latter means whether the result is able to generalize. External validity focuses on the interaction between the observation handling and other factors, which lead to an outcome, and how great the possibility is to be able to generalize over time with this outcome (Ibid.). Internal validity involves many threats and among them is history, since from the time an observation is taken place many things may happen along the way that in the end may confuse the result. The municipality's internal database and scheduling program Time Care stores historical as well as current information, which means that we, for our simulation model, used the most up-to-date information possible. This further increased the reliability as well as validity of the thesis. Should future researchers repeat this study and use the same sources of information, the results would be the same. The selection phase is another critical aspect of internal validity and in our case, since we do not use a random sampling method, problems regarding validity may arise (Ibid).

To guarantee the quality of our secondary data that forms our textual analysis of this thesis, we have used scientific articles to the greatest extent possible, since they have all been peer-reviewed and published in respected journals. The Swedish public geriatric care differs from other countries' in terms of management, power of labor unions, governmental influence, funding methods etc. Because of this fact we used reports and evaluations documents from Swedish municipalities and universities to a great extent as well when finding theory on similar projects and processes of change in municipalities. For this study field, our expectation is that these are more suitable compared to international scientific articles.

3. Literature review

In this section, uncertainties in decision-making will be discussed, followed by further details of a quantitative, qualitative and hybrid decision support.

Because of today's globalization and rapidly changing environment, an incorrect decision may have catastrophic consequences (Bohanec et al., 2000) and the importance of reliance regarding business analysis has therefore increased (Norberg, 2011). Sometimes, however, the objectives behind a decision are very complex, even conflicting, which makes the decision even more complicated (Bohanec et al., 2000). Moreover, different objectives often mean different interests, alternatives and consequences at the same time, as it is not unusual that there are several decision makers. This is even more common when dealing with policy decisions as in politics (Walker, 2000). Walker and Young (1997) stress that there is always a trade off in strategic policy analysis, in terms of timely progress, relevance and precision.

There are two different kinds of uncertainties according to Walker (2003), namely, epistemic and variability uncertainty. The epistemic uncertainty comes from insufficiencies in decision makers' knowledge. This uncertainty may decrease with increased research and education. Variability uncertainty, on the other hand, refers to the present environmental changes, which are out of a decision maker's control (Ibid.). Whether a decision maker is dealing with an epistemic or a variability uncertainty, insecurity is to some extent always present (ibid.). Walker (2003) stresses that better understanding of uncertainties will lead to better decisions. For example, in projects it would result in more fruitful resource allocation since decisions would be more thought through beforehand (Ibid.).

A common way of dealing with these future uncertainties is to create scenarios which may be seen as descriptions of possible outcomes. When creating scenarios, the starting point is a few key relationships and important factors from which assumptions are made. With several scenarios, decision support may be able to point at a variety of alternative outcomes (Walker, 2003). Even though a correct forecast of the future is not possible, a scenario helps give a suggestion of what the consequences of a decision might be (Walker, 2000). However, some uncertainty, and hence limitations, is present when using scenarios as well. The greatest uncertainty lies in the fact that a statistical probability cannot be made (Walker, 2003) and the fact that only the factors with the greatest effect on the outcome are the ones included in the scenario, which means that some factors are excluded (Walker, 2000).

Nevertheless, despite all uncertainties that encircle decision makers (Bohanec et al., 2000) and the fact that the future will always be unknown (Walker, 2000) decisions have to be taken. Without guidance, decisions will be made on conjectures due to imperfect knowledge (Ibid.). This raises the aim of decision support (Walker, 2003), which helps demonstrate the available data (Walker, 2000), evaluate options and make analyses (Bohanec et al., 2000), is typically focused on how the decision can be made more effectively (Shim et al., 2002) and to facilitate comparison between consequences (Walker, 2000).

3.1 Quantitative decision support

A decision support system (DSS) is usually quantitative, which means that the attributes in these models are continual and often presented as a weighted average (Bohanec et al., 2000). DSSs often deal with large-scale statistical and financial data, where the incorporation into a business system is very common (Power, 2007). A DSS is able to execute complex computations, which can help the decision maker to survey the current situation, and possibly foresee the future (Power, 2007). To make a DSS model-driven means that complex situations are simplified. The purpose of a model in a model-driven DSS is to simplify situations, that are otherwise incomprehensible for the decision maker (Shim et al., 2002; Power, 2007). Different techniques are used in building a model-driven DSS, for example *Decision analysis,* which is a method containing quantified evaluations of different possible actions, often including probabilities and preferences. Another method could be *Simulations,* which can present detailed information about a specific system. The complexity of the model depends on the purpose of the simulation (Power, 2007). Frequently used models are spreadsheets or web-based platforms (Shim et al., 2002; Power, 2007).

When using a quantitative model, to identify all factors that affect the outcome is crucial, or else a misconstrued decision is likely to be taken (Suwinjo et al., 2000). Because of the continuous changing environment, both internally and externally, for organization and decision makers, a quantitative model will not be valid forever. It has to be revised in accordance with environmental changes, and if this is not done at the same pace as the changes occur, the outcome of the model will not be representative (Ibid.).

Some limitations of quantitative methods are present and according to Boutilier (1994), one of the greatest is the fact that it is static in terms of given alternatives. The fact that quantitative methods are almost always incorporated in the business systems means that these methods will not produce any nuanced answers, which may hamper analysis (Ibid.).

3.2 Qualitative decision support

Qualitative decision support models deal with so-called “discrete” factors. Bohanec et al. (2000) describe these as “words rather than numbers”. In healthcare, and several other sectors, soft decision problems are common, which means that they are less structured and less formalized than problems in other sectors. This is because the healthcare sector, to a great extent, deals with people and social structures between decision makers, which complicate the situation further (Walker, 2000). Soft decision problems require a support model with variables more symbolic than the ones used in quantitative models (Bohanec et al., 2000). It could be of great value to adopt a new way of thinking and to change the focus to a more “qualitative, soft-science, participative focus” instead of the “rational, technical, decision maker focus”

(Walker, 2000, p26). It also contains many different factors that will influence the outcome and involve a lot of interactions.

3.3 Hybrid decision support

A combination of both the above mentioned methods, quantitative and qualitative, gives us a hybrid approach, which results in a greater comprehension of consequences and outcomes since the decision maker is able to see the whole picture (Zha et al., 2008). This integrated and hybrid approach would lead to decreased costs and authenticity of decisions. It would also point at development opportunities and increase competitiveness (Ibid.). The latter is crucial in today's changing, global environment (Bohanec et al., 2000).

For a decision maker, it is valuable to combine both economical and environmental data (Walker, 1997) and to pay attention to the human dimension of a problem (Hill et al., 2005). When a decision maker is not an expert, decisions may be of heuristic character, which means that the decision maker is doing a trial and error. This is present in two situations: in less complex situations with minor consequences, e.g. making everyday decisions, or in more complex situations but where the decision maker lacks knowledge (Bisdorff, 1999; 2007). By learning from previous mistakes better decisions may be achieved in the future. These decision situations occur naturally in many organizations and could be scheduling or production control problems (Bisdorff, 1999).

Even when there is a lack of information, the human brain may act rationally. This indicates that the way our minds function should be taken into account in the design of a decision support system (DSS), to be able to create environments that enable correct decisions (Gigerenzer et al., 1999). This means that it is mainly experts in an area that will benefit from the use of complex technological DSS.

To enable the decision maker to make the right decisions, effective support is important (Bisdorff, 1999). A cognitive support method takes its starting point in a behaviouristic approach and means that one is able to gather one's decision history and its consequences (Ibid.). The knowledge from previous decisions and their consequences will hopefully result in "cognitive problem-solving strategies". The method should be applied to multi-criteria decisions and as a first stage of an effective support to man/machine cooperation, i.e. support to enable human behaviors to meet technological DSS. The DSS in this model would not replace the decision maker, but make former decision problems and previous successful strategies visible for the decision maker, and thereby reduce the cognitive biases (Ibid.).

4. Factors of influence

In this section we first examine the phenomenon "the flexible firm". We continue with an examination of why employers and employees would choose flexible work arrangements. An overview of the internal personnel pool will follow and the section will end with an evaluation of previous projects in other Swedish municipalities who have recently implemented the political directive.

4.1 The flexible organization

Since the 1980s the impact of "the flexible firm", a model created by the British pioneer John Atkinson, has increased and has contributed to shape a debate about labor market and employment flexibility. A firm may be flexible in terms of its adaptability to expansion or changes in the market (Håkansson, 2001). The result of such environmental changes depends on the flexibility of the employees. The original idea with flexible staffing arrangements arose from Human Resources Management, HRM (Green, 2004). Not only did these arrangements result in flexibility for the firm, HRM also enabled employees to balance work with their private life, and to reach a more satisfactory work-life. Flexible work arrangements are seen as a family-friendly benefit and are often used by companies (Hyman & Summer, 2004).

There are three different kinds of flexibility strategies: dynamic, numeric and functional flexibility (Håkansson, 2001). These three forms were originally created by Atkinson (1994). Dynamic flexibility strategy means that the organization adapts the shifts to the existing demand. Numeric flexibility refers to the size of the workforce (Håkansson, 2001), the amount of working hours or the scheduling, i.e. when during a day the activities are executed (Furåker, 2009). Today it is common to achieve numeric flexibility by using an on-call workforce (Håkansson, 2001). Functional flexibility, on the other hand, implies that the personnel may execute different tasks depending on existing demands and needs (Ibid.). To be able to execute the different tasks, the personnel must have the right set of qualifications, which means that education is a key factor when using functional flexibility (Furåker, 2009). When a company uses both numerical and functional flexibility two different groups of workforce are used (Håkansson, 2001), namely standard work arrangements (Kalleberg, 2000) and flexible staffing arrangements (Abrahamson, 1988). According to Håkansson (2001), all the strategies have in common that they will result in increased capacity flexibility.

However, the answer to whom flexibility is a benefit is abstruse. Pollert (1988), on the one hand, states that a flexible work arrangement is only an advantage for the employer, while Karlsson (2006), on the other, says that the effect on employees differs. It is often taken for granted that flexibility is good for the employer (Karlsson, 2006) and research on whether the opposite could be true is as yet relatively unexplored (Gallagher, 2004: Karlsson, 2006). Karlsson's (2006) literature overview shows that flexibility may mean different things from the employee's point of view compared with the employer's, and observes that studies on flexibility are almost always done from the perspective of the organization, not the employee. This section will now follow with an overview of reasons for firms and employees to use, or not to use, flexible staffing arrangements.

4.1.1 Reasons for an organization to use flexible staffing arrangements

One of the main advantages with flexible staffing arrangements is the flexibility the organizations may gain, since they are able to align the workforce needed (SCB, 2013) which positively affects growth, profitability and efficiency (Håkansson & Isidorsson, 2009). For a municipality, which is not driven by profitability, this effect may still be present but in terms of budget efficiency. We will therefore refer to budget efficiency when discussing profitability through flexible work arrangments. Flexible staffing arrangements will also result in increased productivity (Belanger, 1999), greater financial performance and quality improvements (Dex, Smith & Winter, 2001) and the ability to attract and retain valued employees (Rothausen, 1994), all mainly due to the flexibility that arise.

In addition to flexibility, another advantage for the employer with flexible work arrangements is the differences regarding notice to quit, since an employer cannot dismiss a full-time employee without legitimate grounds. These grounds may be scarcity of work or personal reasons. This regulation, however, does not cover the on-call workers or the temporary contracts since their employment simply ends when the contract ends (LAS 1982:80). This means that it is easier to dismiss an employee with a temporary contract by just letting the contract expire, than it is to dismiss a full-time employee. By just letting a contract expire companies reduce the risk of getting bad publicity, since it is not seen as discarding personnel (Sundblad & Johannesson, 2011).

A study of the municipality of Linköping shows that a greater share of full-time employees, i.e. reduction of flexible staffing arrangements, will increase the fixed costs in the organization (Ingmarsson et al., 2010). This indicates that the employer would prefer to hold the share of full-time employments low, since this would keep the costs down. There will also be consequences for other sectors in the municipality. When one sector starts to decrease their share of flexible staffing arrangements, i.e. mostly on-call workers, this workforce will have to find employment somewhere else within the municipal borders, which will increase the costs on other sectors in the municipality.

4.1.2 Reasons for an organization not to use flexible staffing arrangements

The disadvantages of flexible staffing arrangements for the employer may be that when the employee does not have a secure employment their motivation decreases, which in turn will have an impact on the outcomes (Burchell cited in Karlsson, 2007). However, this contrasts with the findings of both Hyman and Summer (2004) and Kelliher and Andersson (2010), but since motivation has a great effect on the efficiency and quality (Mulinari, 2004), it seemed important for us to include and highlight both extremes.

Flexible staffing arrangements may also decrease not only the work satisfaction, but also the quality, which in turn will affect the employer and the organization negatively (Mulinari, 2004). Mulinari (2004) also stresses that flexible staffing arrangements restrain the employees in accomplishing their work in the best way possible, which means that organizations have employees with greater capacity and knowledge than they are utilizing. Another downside is that on-call workers may be less loyal to the organization (Isaksson & Bellaagh, 2005), result in additional work (Parker et al., 2002), represent a greater share of workplace related accidents (De Cuyper et al., 2005), conflict with the standard workers (Davis-Blake et al., 2003) and underperform (Isaksson & Belaagh, 2005).

According to classic flexibility models this creates segmentation within the workplace, resulting in an A and a B-team, or a "core" and a "periphery" (Atkinson, 1994; Håkansson, 2001). In the core the employees have a permanent full-time contract and the periphery consists of flexible work arrangements (Pollert, 1988). Functional flexibility is achieved with the core since they are able to multi-skill. The periphery, on the other hand, creates numerical flexibility (Ibid.). The core group of a workforce will enjoy a more safe employment situation while the periphery will experience a more insecure situation where unemployment will be common and training costs etc. are likely to burden the employees themselves (Atkinson, 1994). This theory states that the A-team has the most complex tasks while the B-team executes the less complicated tasks and has far more unsafe working conditions. If an organization has a work group where everyone is divided into special responsibility areas, problems may arise when trying to integrate employees with flexible staffing arrangements into this group. To be able to be a part of this group, the employee has to execute less complex tasks, where they do not need continuity and training, therefore creating an A-team and a B-team (Håkansson, 2001). However, according to Håkansson (2001), if an organization let the standard workers and the employee with flexible staffing arrangements execute the same tasks there will be no segmentation into different teams. Rather, only a single A-team is formed. Yet, this will only work if the employer uses well-educated employees with flexible staffing arrangements and uses them over a longer period of time (Håkansson & Isidorsson, 2009). If the organization simply integrates those with flexible staffing arrangements into a work group without training or a distinction of tasks, there other problems may arise: the tasks of the standard workers have to be adjusted and marginalized as well in line with the ones with flexible staffing arrangements. This problem comes from the fact that employees with flexible staffing arrangements do not have the time to get trained and get continuity; therefore the development opportunities are limited even for the standard workers. Thus, everyone in the work group will ultimately belong to a B-team (Håkansson, 2001).

A case study done on the municipality of Linköping shows that greater basic staffing, i.e a higher rate of standard employees instead of on-call workers, will reduce the workload (Ingmarsson et. al., 2010). Greater basic staffing leads to better structure, more effective manpower and a lower share of health problems. A higher share of basic staffing will also result in higher quality since the same personnel will work on the same place instead of staffing with different on-call workers. Hence a consistency will arise when using fewer on-call workers. Greater basic staffing will also lead to higher satisfaction for both employees and customers, i.e. the users of the service (Ingmarsson et. al., 2010).

4.1.3 Reasons for an employee to use flexible staffing arrangements

One of the greatest advantages with a flexible staffing arrangement is that it allows the employee to control their own schedule and facilitate the combination of work life and private life. This leads to greater job

satisfaction (Hyman & Summer, 2004) and reduces stress and health problems (Butler et al., 2009). When people have the ability to control competing life demands, possible conflicts in these areas are diminished (Rozanski & Kubzansky, 2005). Flexible staffing arrangements also lead to greater satisfaction and greater commitment to the employer and the organization (Kelliher & Andersson, 2010). This, however, stands in contrast with the findings of Isaksson & Bellaagh (2005), who stress that flexible work arrangements make the employees less loyal. The reason for feeling more satisfied with the job is mainly the feeling of control (Kelliher & Andersson, 2010). Findings by Isaksson and Belaagh (2005) show that it is mainly the employees who themselves have chosen a flexible staffing arrangement that are satisfied with their situation. Many of their interviewees were young adults who stated that they were just satisfied with their flexible staffing arrangement because they knew it was only for a short period of time (Ibid.).

Gash (2008) made a study of whether the part-time work is a constraint or something preferred from employees in the three countries, the United Kingdom, France and Denmark. It takes its starting point from some pivotal variables such as childcare provision, working hour culture and quality of part-time work. Supportive policies in a nation, e.g. childcare, decrease the probability that part-time work is involuntary and increase the opportunity of choice (Ibid.). If the employee is single with children or if the partner work inconvenient hours, the employee often express an inability to work inconvenient hours, since the childcare is structured for day-shift workers. The preference of working part-time can also come from a desire to spend more time with the children during their first years (Bekkengen, 2002). Of the three countries in Gash's study, the part-time worker in the UK has the lowest educational level, there is a low availability of affordable childcare, part-time wages are low and working hours are longer (Gash, 2008). In both Denmark and France the childcare is well developed and affordable, and children have little effect on women's transition into full time employment. In the UK young children have the biggest impact on this transition, since it seems impossible to combine young children with full-time work (Ibid.). This would indicate that the problems with the opening hours of the Swedish childcare (Ede, 2005), also managed by the municipality, would have a negative effect on the transition into full-time work. To solve the family situation, it is easier to work part-time, even if full-time is preferred.

Today's changing working environment leads to greater pressure and demands from the employer, which in turn results in the fact that full-time employment is no longer as satisfactory as it used to be (Isaksson & Belaagh, 2005). Isaksson and Belaagh (2005) also stress that because of the increased pressure on full-time workers, they experience more stress and have a higher rate of health problems. Hence, part-time employment is more desirable. In the municipal geriatric care, there is a low share of full-time employment, which can be explained by the high level of stress in the work (Gustafsson & Szebehely, 2005). Many employees blame the arduous work as the reason why they stay in the unwanted part-time work (Eriksson, Starrin & Janson, 2003; Sundgren Ginups, et al., 2004). Mulinari (2004) stresses that unwanted part-time employment forces the employees to be flexible since they need their hours economically. With that in mind, Mulinari (2004) questions if this unwanted part-time employment works as an unforeseen, yet effective, flexibility for the employer. The unwanted flexible staffing arrangements show that the flexibility that the employer experiences may be inflexible for the employee, creating an unsatisfying situation (Mulinaris, 2004). Further, solidarity among employees rises when organizations use flexible staffing arrangements, and a sense of duty towards the organization is created (Mulinari, 2004). All the respondents in her study said that they know that the pressure is high at the place of work and they do not want their colleagues to get in trouble. Mulinari (2004) asks if organizations might exploit this sense of duty and solidarity. Maybe the organizations think that they do not need to employ full-time workers, even though a standard work arrangement is the only thing the employees' desire. Maybe they know the organization will survive even with a shortage of staff because the personnel will be loyal to each other and to the employer. This solidarity creates unforeseen flexibility, which results in a paradox for the employees since they are unable to get out of the unwanted work arrangement because of the economic factor and solidarity, yet this is exactly what the employer is exploiting (Mulinari, 2004). This, in turn, may result in a situation where organizations use flexible staffing arrangements even though a period of prosperity is over.

4.1.4 Reasons for an employee not to use flexible staffing arrangements

A part-time employee, however, has restrained development opportunities (Isaksson & Belaagh, 2005) and experiences a weaker attachment to the organization (Håkansson & Isidorsson, 2009). Flexibility from the employer's point of view may actually be inflexibility for the employee when the working hours are hard for the employee to influence (Mulinari, 2004). At which point flexibility becomes inflexibility is decided by the employee's ability to control their economy, accomplish their work and plan their spare time (Mulinari, 2004). Even though full-time employees have a greater workload than employees with flexible staffing arrangements, a standard work arrangement results in a higher degree of control and development opportunities (Isaksson & Belaagh, 2005). For the employee, flexible staffing arrangements may also result in disadvantages in the form of a preservation of the old hierarchical control modes within the firm (Pollert, 1988) and decreased power and influence of labor movements (Fantasia et al., 1988). Furthermore, flexible staffing arrangements involve a lower salary (SOU 1998:6) and in the Swedish public sector the employees with this arrangement often experience difficulties supporting themselves with the given salary (Berg, 2000). In the Swedish system of social insurance, this form of employment also results in a decrease in sickness benefits, superannuation benefits and parental allowance (SOU 1998:6).

The flexible employment may not be very flexible for the employee in terms of searching for a job with full-time employment (Sundblad & Johannesson, 2011). This situation is called a lock-in effect; employee do not seek a new job with better security if they believe that they may get full-time employment on the part-time job they already have (Sundblad & Johannesson, 2001).

The risk of segmentation of workforce is higher when using flexible staffing arrangements (Håkansson, 2001). Håkansson (2001) also stresses that the differences between women's and men's ability to get a standard work arrangement after having a part-time contract. Women are about half as likely to find permanent full-time employment during a two-year period after having a flexible staffing arrangement (Ibid.). The possibility to get a standard work arrangement after a flexible staffing arrangement is to a great extent influenced by which form of flexible staffing arrangement is used. The on-call contracts are the ones increasing in usage the most and are the most insecure ones for the employee. Employees with an on-call contract are also the ones who have the hardest exiting a flexible staffing arrangement (Håkansson & Isidorsson, 2009).

When family-friendly benefits, like flexible staffing arrangements, first were introduced they were not meant to result in increased work intensification (Keiller & Anderson, 2010). This intensification was an unforeseen consequence of the flexible working practice (Ibid.), where a decreasing union power and increased used of temporary agency workers helped gave rise to this (Green, 2004). The findings of Kelliher and Anderson's (2010) study show widespread evidence that flexible staffing arrangements lead to both extensive and intensive efforts, where extensive effort refers to time spent at work and intensive effort means mental and physical investment (Green, 2001). More than half of those interviewed in Keillher and Andersson's study (2010) indicated that they felt intensification at work. Many said that even though the hours had been decreased, the workload had not, which lead to a feeling that "you had to be at the workplace more", since business does not stop just because flexible staffing arrangement are used. At the place of work, those with flexible staffing arrangements are stressed and worried about not being able to manage to accomplish the tasks (Thomasson, 1998). Many of the employees with flexible staffing arrangements make a greater effort at work because they feel grateful to their employer for agreeing to reduced work hours (Keillher & Anderson, 2010). Employees are also ready to make a greater effort to gain greater control over their balance between private life and working life, and therefore, give more than they get. This fact, in combination with the fact that organizational commitment rises when working part-time (Green, 2004), will result in greater effort at work, both intensively and extensively (Keillher & Andersson, 2010).

Furthermore, employees with flexible staffing arrangements are assumed to take a greater responsibility even in their family life, which means that even though the shifts at work are decreased, the total workload

in life is not (Thomasson, 1998). This is of great importance in the Swedish public sector since women are overrepresented, are often part-time employed, and therefore, take greater responsibility at home as well (Ibid.). This would possibly lead to a distorted career development between men and women and make the political aim of full-time employment a topic of gender.

The key issue regarding the political aim is to increase the possibility for full-time employment without increasing the work environment strain, since this could increase the absence due to illness (Gustafsson & Szebehely, 2005). If full-time work were required to earn one's living and comprise the basis of the future superannuation, this would be the standard in geriatric care, with a possibility to decrease time if desired (Ede, 2005). The public aim is that everyone should have the opportunity to work full-time, but the environment and work conditions need to be adjusted to facilitate a lifelong full-time work (Sundgren Ginups et al., 2004).

4.2 Internal personnel pools

As mentioned in the background section, Swedish health care has implemented, and withdrawn, the initiative of personnel pools before. The learning outcomes from these initiatives have been varied. According to Bergström et al.'s (2007) study there are several things that may go wrong. In the 1990s the demand could not be satisfied fast enough, which resulted in a use of flexible staffing arrangements instead, which in turn resulted in increased costs. Meanwhile, the employees with flexible staffing arrangements had an unhealthy working environment since the amount of shifts was very insecure and this lead to criticism. In 1997 the initiative was tried again, with standard full-time employees, but this time the pool was not used to the extent needed, i.e. to its full potential, which resulted in that personnel got paid for full-time employment but worked less, therefore increasing the costs again. Bergström et al. (2007) interviewed a departmental manager for their book *Den nya arbetsmarknaden* and he gave his thoughts on why the personnel pool did not work back in 1997: this form of personnel pool did not work since the health care sector is a round the clock business and their needs are varied during the day. It is not possible to staff all highs and lows during a day without ever being too many or too few since no employee would ever agree to such a schedule. Bergström et al. (2007) argue that to be able to succeed with a personnel pool, one must have the ability to predict short-term demand variations, which means an optimized staffing. In 2001 the personnel pool was once again implemented, this time inspired by the rising phenomenon of staffing companies. The pool was seen as an external division of the organization and the employees had flexible shifts as well as flexible working conditions and a higher salary than their colleagues outside the pool. This created dissatisfaction because it was perceived unfair and it was withdrawn a year later (Bergström et al., 2007).

There are other sectors and companies who have tried internal personnel pools; among them is H&M (Jacobson & Sintorn, 2011). H&M went from a system where every store called their own on-call workers when needed, to using Fastpool a web-based service which helps organizations plan the scheduling after their needs. When using Fastpool every store shares the same personnel (Jacobsen & Sintorn, 2001), just as the municipality of Gothenburg wishes to do. According to Jacobsen and Sintorn (2001), for H&M this meant that they could decrease their ordinary workforce and rely more on the personnel pool when needed. This, however, stands in contrast with what Göteborgs Stad wants to achieve since their personnel pool will be manned with standard full-time workers to increase the basic manning, not the other way around, as with H&M. With Fastpool, H&M experiences that there are always employees ready to work, which has resulted in increased functional flexibility. Jacobsen and Sintorn (2011) stress the disadvantages with Fastpool – the motivated, devoted and initiative personnel have decreased since the entry of Fastpool. They believe that the reason for this decline is a feeling of diminished solidarity at the workplace, which is a result from reduced continuity. The personnel from the pool often gets easier, less complicated tasks which leads to lower status and less stimulated work. This corresponds with the findings of Håkansson (2001) and Atkinson (1994) regarding segmentation into an A- team and B-team. Since these employees will need more leadership the organization may become more hierarchical.

4.3 Previous projects

In the following section we are aiming at describing four earlier staffing projects in the municipalities of Hammarö, Torsby, Årjäng and Nynäshamn. We start with the initiating problem and an explanation of the purpose of the projects. The section continues with the different models of procedure of each project and finishes with learning outcomes.

4.3.1 Purpose of the initiatives

The common purpose of the projects was to solve the underemployment that part-time workers experienced. By offering an increased level of employment; the ones who desired would be able to increase it to a full-time employment within the municipality. An important factor was that this offer needed to fit with the existing budget for the geriatric care. A common aim with the projects of implementing an internal personnel pool was also to reduce the stressful work environment and the overtime compensation, especially for the departamental managers.

4.3.3 Realization

Even though the four municipalities experienced the same problem, they are managed by different local politicians and their economical prerequisites differ. Therefore the ideas of how to solve the situation are of various kinds, even if they to a wide extent are being similar to each other.

4.3.3.1 Årjäng

In the year of 2000 the municipally of Årjäng started up a new working model with an internal staffing-team (Ede & Karlsson, 2003). This internal staffing-team may be seen as an internal personnel pool when using our definition used in the problem discussion. In the staffing-team the employees had part of their working hours as flexible. The flexible hours were non-scheduled working hours where the employee should be available as substitute when needed, both in the own place of work and in three additional units within the municipally. The flexible hours represented a maximum of 25 % of the total working hours.

In the start-up phase, 96 out of the 201 part-time workers (47,8%) considered themselves as underemployed. When the new model was fully implemented, 68 out of the 96 people increased their employment of which only 8 were choosing full-time. The rest chose different employment levels between 75-90 %. 28 people wanted to increase their employment, but abstained because of personal reasons, health-related reasons or because of the way the new working model was structured (Ibid.).

4.3.3.2 Torsby

The project was a trial project that lasted from October 2003 until May 2005, when the evaluation was made (Ede, 2005a). Torsby had different prerequisites than in the case of Årjäng. There were two vacant employments on a level of 75 % each, ie. 240 hours per month. These hours were supposed to be divided among the present employees so that they could increase their employments to desired level. The project group refused the working model used in Årjäng, with flexible hours, since experiences demonstrated a stressful work. In Torsby they wanted to schedule all working hours, including the substitute-time. Torsby developed a model which combined both day- and night shift. The schedules in the model were built on the personnel's desire as well as the budgetary limits.

A pre-questionnaire in the start-up phase demonstrated that 42 percent of the part-time employees wanted to increase their employment into full-time; in other words they considered themselves as underemployed. Most of the employees abstained and the main reasons were the desire to spend more time with family and that the work itself was too arduous to work full-time (Ede, 2005a).

4.3.3.3 Hammarö

In 2001 the project started in the geriatric care. There was a broader purpose of this project than the previous municipalities described. Except the overall purpose to offer all part-time employees the desired level of employment, Hammarö also wanted to reduce the need of on-call workers and direct-hire temporaries, get healthier personnel and thus reduce notification of illness, increase the level of

competence among the employees and a higher quality of the gived care (Ede, 2005b). Different working models were tested, to find the best solution for the organization. Of the 213 employees included in the project during the start-up phase, 17 % (35 people) worked full-time, and the rest 83 % were part-time workers (Ibid.). The fundamental idea to achieve the purpose was that the ordinary workforce would substitute for each other during the short-time absence (less than 14 days). The reduced cost of temporary workforce was believed to finance the increased level of employments. Hammarö developed three different models to find out what would give the best effect: *Hammarömodellen*, *Fixed schedule with flexible hours* and *Personal schedule with Time care* (Ede, 2005b).

In Hammarömodellen each employee works three days in a row before having three days off. This will be repeated throughout the year except during vacation periods when each employee works four days and have two days off. This way of working will give 21 shifts during a period of 6 weeks. Beside this scheduled hours, a full-time worker have 22 shifts (173,25 hours) per year to use as substitute in absence of a colleague. In total this results in 56 shifts less each year compared to a five-days working week. The part-time employee work as many days as a full-time worker but less hours each shift. This model does not include divided shifts (Ede, 2005b). In the second model a fixed schedule with floating hours were used with a fixed base schedule. In addition to the scheduled time there is also non-scheduled time which is floating, and is to be used as short-time substitute in the same way as in Hammarömodellen. In the third model they used personal schedule with Time care and the staff makes their own schedule during a period of six weeks, which should fit with the staffing requirement. Time care shows, with a graph, both the staffing requirements and the personal schedules which need to be matched. Not all hours are scheduled in TimeCare, which means that some working hours are placed in an hour-bank to be used as flexible hours to substitute in absence of a colleague.

4.3.3.4 Nynäshamn

The project started in 2006 with the belief that more full-time employments would have a positive effect on the quality and continuity in the given care. The starting point for this model was an internal personnel pool that distributed subsidiaries to the whole municipality. The personnel pool has its own employed personnel and as well as access to on-call workers (Nynäshamns kommun, 2010). If a part-time employee wants to work more hours, the personnel pool could offer work within the pool. This offer also reaches out to employees with contracts on a temporary basis, which further increases the security of employment.

The risk of offering all employees the desired employment level in the own place of work is that during periods of low workload, there is a redundancy of hours and an increased cost of wages. Through the personnel pool a major part of the vacant hours within the municipality are staffed with permanently employed workforce. They can schedule themselves when they are able to work, either in their own place of work, or in another. It is common to schedule oneself within the same house but in another ward (Nynäshamns kommun, 2010). By using this way of scheduling there is a balance between flexibility for the organization and for the employees.

4.3.4 Results and learning outcomes

The evaluations of the projects differed in extent, and the result does therefore not provide optimal data for comparison, since not the same things have been measured or observed. In the following section we summarize the learning outcomes from the projects.

Several positive outcomes have been observed, yet one overall risk has been expressed. This risk concerns that the personnel pool, which will be staffed with ordinary workers, will decrease the opportunities for the existing on-call workers to receive hours since the ordinary workers will substitute for each other. This loss of young on-call workers are thought to be a problem in the future, since the age structure in the organization is mainly >45 years old.

	Årjäng	Torsby	Hammarö	Nynäshamn
Full-time work	Increased share	Increased share	Increased from 35 to 120 persons (17-56%)	Increased, 80 new full-time positions.
Underemployment	Reduced, from 45-50 to 5-10 people.	Reduced since part-time workers now work more hours.	n/a	Reduced, with entry of optional level of employment.
On-call workers	Decreased share since regular workers replace each other.	Decreased share	Decreased share	Decreased share
Cost	n/a	n/a	Within existing budget. Cost of overtime compensation and on-call workers decreased.	Cost of overtime compensation and on-call workers decreased.
Substitutes	Acquiring facilitated and increased experience.	n/a	Acquiring facilitated	Increased competence
Knowledge	Learned new ways of working on other places.	n/a	n/a	Spreading of ideas and knowledge
Quality	Broader ones mind to work in new places.	n/a	Increased continuity of personnel	Increased competence and continuity
Harmony	Night staff worked both day- and evening shift.	Increased since both day- and night-shifts were made.	n/a	All employees are included in the
Other places of work	Weak continuity since substituting most of the time in the own place of work.	Increased collaboration	n/a	Some personnel work in other places of work.
Staffing pool	Stressful, no scheduling, inconvenient working hours, large share of short hour shifts.	All hours scheduled	Increased level of employment, but the same amount of people.	Increase the job security, and offer work in other places of work.
Absence due to illness	Constant	Constant	First downward trend and then constant at the original amount, 30 d/y.	Decreased, not secure if only due to the project.

5. The decision support model

In this section a general overview of our decision support model are first presented, which follows by the considerations that were taken during development of the model. Moreover, a discussion of the factors that influence the choice of employment level are presented together with factors influencing the level of success of the project of implementing an internal personnel pool.

5.1 Overview

Our decision support model is constituted by four different sections of information. Box number one and two will include the factors of influence where the first box is constituted by important factors influencing an employee's choice of employment level. These factors we have classified as: work environment, family, sacrifices, economy and personal reasons. The second box includes factors that will have an influence on the quality of the change, and thus the financial outcome, but these factors are not directly connected to the choice of employment level. These factors are, among others, attitudes, structure of the personnel pool,

education level and managers capacity. Box number three will be constituted by our empirical observations and will represent possible future scenarios through a simulation model. These simulations are based on quantitative information, where our case study of Göteborgs Stad will contribute with current and historical statistic data of for example staffing requirements, underemployment and the amount of full-time employees. Box number three will be further presented in chapter six. The box number four will represent a conclusion of the model and the results of the project of implementing an internal personnel pool as a solution for the political directive of offering full-time employment to all part-time employees. The results will be influenced by the first, second and third boxes and will be more thoroughly discussed in chapter seven.

Model 1. The decision support model

Figure compiled by the authors.

5.2 Factors for consideration

When a municipality is in need of our decision support model, they are facing the great process of change of offering full-time employment to all part-time employees. Before using our model we suggest that the municipality should think through some fundamental factors. These factors are aggregated experiences from the previous projects.

First of all, one of the most important factors to keep in mind is the importance of equality; the whole workforce needs to be included and equally affected by the change. The fundamental idea of this offer is that to get the opportunity to increase the employment level, the part-time employees need to accept a more flexible way of working. Former full-time employees should not, however, get advantages out of this because the risk of creating an A- and B team is then impending and resistance to change may arise. It is important that the departmental managers are aware of the connection between insecurity, fear and resistance. This factor was one of the most highlighted when examining previous projects and interviewing a project manager in Göteborgs Stad. Another highlighted factor from several projects was that personnel value to know when to work more than where to work. This means that they seem willing to be more flexible if they feel secure of when they are about to work their resource hours. This means that if a departmental manager let the personnel chose more alternatives of places to work the resources hours, greater flexibility may be reached and meantime presumably also the desire to let the personnel get more secured schedules.

Furthermore, a municipality will have to accept that an implementation of a changing process will require a considerable amount of time. Therefore, the preparations have to be carefully structured and thought through. The time a municipality lays on preparations before implementing the change will presumably pay out well in the end, since the trial and error way of dealing with the problem will be reduced. Moreover, an implementation is a complex process, which may require a project manager that works full

time. To combine the daily work with responsibility for the project may be very burdensome and since processes of change often meets resistance from the personnel, it could be of great value to hire an external project manager. Since the labour union in Sweden is strong and influential, especially in the municipality sector, a good relationship with this part will facilitate the implementation and process of change.

By using our decision support model, municipalities will automatically start from the very beginning of the process. The risk of missing out on important factors that could have a great influence on the outcome is therefore reduced. This will, hopefully, make them shorten the implementation time and reduce the costs.

5.3 The development of the hybrid decision support model

Because of internal and external uncertainties in organizations' environment and the complexity of situations, decision-making may be problematic (Bohanec et al., 2000). Therefore, decision support of various kinds is important for decision makers since it will have an effect on how well the decision correspond to reality. Throughout history, the starting point has been that quantified data, rather than qualitative, is more valuable (Ibid.), has a greater ability to simplify complex situations and results in more secured decision-making (Power, 2007). Thus the standard in decision support has been based on quantitative measurement rather than qualitative (Bohanec et al., 2000). One of the greatest advantages of a quantitative method is the ability to simplify large-scale statistical data and make it comprehensible for the user (Power, 2007). In the case of the municipal geriatric care, the quantitative data is formed by several things: the amount of working hours needed to manage the daily tasks, the amount of working hours accessible, the share of personnel on absence due to illness, monthly salary costs, budgetary limits etc. This type of information is typically of a quantitative nature and the factors are expressed in a way that makes it perfectly suited for quantification, since it is a large amount of data that has to be simplified for the decision maker (Ibid.). This states that a quantitative way of organizing it is preferably, which we bear in mind when creating the simulation model to make it more valuable and usable. These factors of importance are the staffing requirement, ordered vacant hours, total hours available from permanent full-time and part-time personnel and ordered vacant hours staffed by on-call workers. These factors are the bases for the simulations, which will be further examined in section six which represent box 3 in our model.

Quantified data is able to show historical and current situations and by creating simulations, the user may also predict possible future situations and alternative consequences (Power, 2007). Therefore, we based our simulation model on quantified data. We have created these simulatons by collecting information and statistical data from the internal computer system used by Göteborgs Stad, Time Care. In this simulation model, the municipalities are able to get an overall view of the problematic situation and consequences. According to one of the project managers in Göteborgs Stad the greatest task for each manager is to form schedules, i.e. match hours needed with hours available. Therefore, the quantitative data in our simulation model is expressed in hours, not in financial terms. This means that the simulations in our model is very user-friendly and will create a better understanding of the situation for each user. However, despite the simplicity, statistical data is static, which results in losses of nuances in the alternatives and analyses (Boutillier, 1994). This means that the explanations of the numerical data are not shown and the decision maker, therefore, lacks knowledge about the factors that have influenced the data (Ibid.). The purpose of decision support is to simplify the decision-making at the same time as making all needed information accessible and understandable for the decision maker. After we had aquinted ourselves with the theoretical framework in this field, we believe that for a decision-maker to have access to all needed information may be nearly impossible if simplification is to be reached. Therefore these two extremes have to be carefully weighed up and when reaching a balance between these, the decision maker has the greatest ability to make a well-founded decision.

When we first started our research we did not understand and could not grasp how extensive this problem actually is and how many element of an organization that it may have an effect on. With that said, we

came to notice the importance of the new and upcoming research regarding qualitative decision support where human thoughts and feelings are included without being quantified (Walker, 2000; Gigerenzer et al., 1999). Bisdorff (1999; 2007) stresses that qualitative decision support is to prefer when having a complex problem at the same time as significant information and knowledge is lacking. Moreover, when a decision maker lacks knowledge, which is called epistemic uncertainty, a qualitative approach is more fruitful (Walker, 2003). The complexity of the political directive and change process, together with the fact that the municipalities lack knowledge about the extensiveness of this problem, further convinced us of using a hybrid decision support. With that said, we have found a great value in following the approach of Walker (1997) and combine both quantitative and qualitative factors. It will give a wider perspective of the problem and thereby more valuable alternatives to courses of action (Ibid.). Therefore, we saw a great importance in using the traditional quantitative measurement method in combination with a qualitative method and thus made it a hybrid form of decision support model. When combining the two methods, words and numbers will be equally important and form a more complete picture of the situation, which in turn will have a positive effect on the outcome of the decision (Zha et al., 2008). With the benefits of a combination of methods in mind, we have created a decision support model where qualitative factors will influence the quantitative calculations, and thus the financial outcome. Since the financial outcome of the political directive will, to a great extent, be influenced by the commitment and approach from all the people involved, a combination of methods was important and of considerable value for us. For the users of our decision support model, one of the greatest benefits will be that human behaviors are combined with quantitative data (Walker, 1997), which we believe will lead to a reduction of bias between the decision and reality. This is the over-all aim with our decision support model.

The reason why we selected this hybrid method is that we have experienced, through our visits at Göteborgs Stad that the public geriatric care is largely managed by feelings; the customers' feelings are centered and the performed work quality is evaluated by the customers' experiences. Furthermore, the project's managers stress that the personnel's feelings and attitudes directly affect the quality delivered. For the internal personnel pool to be the solution to the predicted increased share of available hours, which happens through an increased share of full-time employments, without exceeding budgets, there is a great need to find an explanation for the financial outcome. This gave rise to the need for a combination of a quantitative and qualitative decision support. While the quantitative part will show the actual situation and e.g. the understaffing in numbers, the qualitative factors are able to describe the people and social structure behind these numbers (Hill et al., 2005). This in turn, we believe, will directly affect the financial results and the quality delivered and is therefore the basis of our model.

In box 1, the factors that influence an employee's choice of employment level are presented. We have chosen to divide these factors into five categories, which are: working environment, family reasons, sacrifices needed, economical factors and individual factors. These factors are of a qualitative as well as quantitative nature. Family reasons, economical factors and individual factors are all quantitative factors, which would make them suited for estimations and valuations of their importance on the choice of employment level (Power, 2007). If we would have estimated the value of these, a higher level of user-friendliness would probably been reached (Ibid.). Nevertheless, we have chosen to keep these quantitative factors fixed; hence, we do not know their influence on the simulations nor on the actual outcome of our case object. One of the greatest reasons for this mode of procedure comes from the fact that a quantitative model will only be efficienct if all influecning factors are taken into account and if these factors are consttatly updated (Suwinjo et al., 2000). Since we first of all do not have all the important factors and second of all, want to make a foundation to a decision support model for municipalities to use, simply presenting the quantitative factors were seen as a more fruitful way to go. By doing this, the municipalities may always use our model and it does not have to constantly be updated in accordance to environmental changes. Another reason for why we have chosen to simply present the quantitative factors without doing a valuation of their importance is due to time restraints. Furthermore, box 1 also contains qualitative factors which we have chosen not to quantify, namely working environment and sacrifices needed. It was the theoretical framework regarding qualitative factors that made us aware of the importance of keeping

these factors qualitative to understand what lies behind the numbers and thereby see nuances of the problem (Walker, 2000; Gigerenzer et al., 1999; Boutiller, 1994). As mentioned earlier, municipalities are to a great extent managed by feelings, which means that to make our decision support model as user-friendly as possible we saw a great importance in focusing on the qualitative data that we have found. This influenced our creation of the model, where we focused on letting the qualitative factors have a conspicuous part, compared to the quantitative factors in box 1 and the simulation model.

Whether, quantitative or qualitative, these factors in box 1 have influenced the personnel's choice of employment level. We have therefore combined them in the same section, i.e. presented them in the same box since they all directly affect the simulations in box 3, which will give a wider perspective of the situation (Walker, 1997). Qualitative factors are also to be found in box 2 and regard factors that influence the quality of the change process, for example attitudes, educational level and manager capacity. These qualitative factors would also be possible to quantify to reach greater simplification but to be able to quantify for example workload, stress and solidarity among the employees, there is a need to calculate the importance of each qualitative factor and its effect on the outcome. The fact that we have chosen not to convert all factors into a usable quantification model means that all factors are presented just as they are. In decision support theory, there is a tradeoff between simplification and the ability to take all important information into account. This simplification should, according to many reserachers, be met through quantification of data (Bohanec et al., 2000). Nevertheless, since this is a great change process for Swedish geriatric care, we stress the importance that all managers within a municipality thoroughly think through the influencing factors by themselves, rather than having an estimated importance of each factor served to them. By having a more participative focus, which a qualitative method enables, a more fruitful implementation process would be presumable since the municipalities to a great extent are dealing with people's attitudes and perceptions, i.e. soft decision problems (Walker, 2000). By not making all estimations for each decision support user, i.e. municipality, they are forced to think through this by themselves.

The fact that we have not done any further estimation of the above-mentioned influencing factors of importance in box 1 and 2 is not only due to the importance of municipalities' participation and awareness, and the fact that qualitative decision support is more suitable when trying to achieve participation (Walker, 2000), but also due to time restraints. To be able to measure the importance of each factor, whether it is of quantitative or qualitataive nature, a thorough investigation of personnel's attitudes etc. would have to be made. Regarding the quantitative factors these would have been easier to collect than the qualitative ones, since when personnel answer question regarding workload and stress, compared to number of children, they have to make estimations by themselves. This fact would have affected the credability of the research and it would have made the model more usable. Nevertheless, we do not know the exact importance of each factor, and without doing our own inquiry; estimations would therefore be needed by us. Furthermore, each manager in each municipality has a greater knowledge of their own personnel structure and the preferences witin the organization than we could have gather information on simply by evaluating our two case studies. This is due to us being outside the organization, while they are inside. Due to this fact, in combination with the importance of municipalities' own participation and the lack of time, we do not think that it would have resulted in a greater aggregated value and a more user-friendly decision support model if we had made these estimations.

Our decision support model's aim is to be used by all municipalities in Sweden. With a generalized solution the factors would have been placed in order of precedence according to our case object. Even though the similarities among all municipalities are many, the importance and distribution of the factors in each municipality may differ. This means that if the decision support model consists of estimations of these factors, the managers are served with a generalized solution, which is not adjusted to their unique situation. This could lead to management according to the given order of precendence from our case object, which may not be the accurate order for other municipalities' in their unique organization. Estimations like this mean that they do not have to think through their own personnel structure and

prerequisites. If a manager is well aware of the influencing factors, he or she will have a greater ability to predict the outcome of the implementation. This would presumably lead to a smoother implementation process as well as greater continuous work afterwards. Since it is the manager that will work with this continuous work, the fact that the manager is present and deeply involved at the starting point is to be preferred. Moreover, the employees' personal preferences are largely depend on circumstances far more complex than a generalization may indicate. If we had made this generalization, i.e. a quantification of the influencing factors, for all 290 municipalities it would have involved a risk of incorrect decisions. This in turn would mean that we did not reach our aim of this thesis. Nevertheless, our model may be seen as a foundation for a thorough quantitative decision support model where the municipalities make these final quantifications of the influencing factors by themselves after knowing and understanding which factors are most important in their own specific situation.

5.4 The influencing factors in the model

In chapter 4, where research regarding influencing factors on employment level and experiences from previous projects were evaluated, we found some factors of great interest, which will be presented in the following section. We are, as mentioned above, convinced that these factors will be more useful in their original form, and thus estimated in their importance by the users later on.

5.4.1 Box 1, factors influencing the choice of employment level

Some factors influence the outcome by having an impact on employees' choice of employment level. When the employees are offered to choose their own level of employment, the municipalities' expectations are that he or she will accept the offer and increase the employment level into full-time. In the same time, there has been a fear within the municipalities that this total increase in employment levels will make the organization over employed, and thus increasing costs will occur. A great share of the employees throughout all Swedish municipalities have expressed a willingness to work more hours (SCB, 2013), but in the same time, previous projects have shown that in the end it is just a smaller share that actually increase to a full-time employment. We have found some especially important factors that will have an influence on how much the employee chose to work. We have divided these factors into five equally important sections. As mentioned in section 5.2, work environment reasons and sacrifieces needed are qualitative factors in its nature while family reasons, economical factors and individual factors are to be seen as quantitative. We have chosen to simply present the influencing factors as they are, whether they are quantitative or qualitative, and without evaluating their individual importance since we did not have all factors affecting the outcome (Suwinjo et al., 2000). This mode of procedure was chosen to make our decision support model more usable with regards to the change process the municipalites are now are facing and make it last longer since it will not need to be updated every time environmental changes occur (Suwinjo et al., 2000).

Family reasons

- *Children* – Personnel with younger children tend to desire to work fewer hours, since they want to spend more time with their children.
- *Childcare* – The opening hours of the childcare within the municipality have a major impact on if the employee is able to work the inconvenient hours needed during full-time employment.
- *Single with children* – The ability to work fulltime with inconvenient hours decrease if the employee is single with young children. On the other hand, the costs of living, which may be a greater problem in a single household, could be a conflicting factor influencing the choice.

- *Partner's working hours* – if one partner work inconvenient hours and there is children in the family, the one working in a municipality tend to work part-time to be able to take care of the children.

Economical factors

- *Salary* – The increased salary are often mentioned as a reason for willingness to increase the level of employment. If the employee is in a single household, this factor may be stronger.
- *Retirement* – In Sweden, both the occupational pension and the national supplementary pension will increase with higher level of employment. This will affect the employees' choice of employment level since it will not only affect salary today, but also the income after retirement. This factor tends to be stronger for the older employees who are closer to retirement, since it then is more apparent.

Individual factors

- *Age* – The composition of the workload is very important. Older employees, especially over 60 years, tend to find the work arduous and are often expressing a lack of energy as the reason not to work full-time.
- *Health* – If the employee work part-time today due to a health related issues, he or she will probably not increase the employment level when the opportunity is given.

Work environment reasons

- *Workload and stress* – if there is a high level of stress within the organization, the employee seems to avoid to increase the employment level. A high degree of workload and stress may also indicate that the organization is understaffed. This in turn means that the stress level would decrease if the understaffing were solved.
- *Conflicts* – if there are conflicts and grouping among the personnel, the employees are likely not to express a willingness to work more hours, since the employees will find the time spent on the place of work uninspiring and dull.

Sacrifices needed

- *Flexibility* – if the extent of flexibility needed to work full-time, from the employee's point of view, is high it will make the employee avoiding an increase of the level of employment. Two examples of non preferable flexibility is divided shifts when the employee work e.g. four hours in the morning and 4 hours in the evening with a few hours free in the middle of the day, or if the hours in the personnel pool are not scheduled.
- *Solidarity* – if the total workforce is not included in the personnel pool, the part-time employee need to sacrifices more for the full-time employment than the former full-time employees since only the "new" full-time employees will have to be flexible. The part-time employee therefore has a inclination to refuse the offer since he or she will have a fear of being part of a B-team if working in the pool.

If the project manager in each municipality and the departmental managers of each retirement home collaborate when evaluating the importance of the factors above, there could be a well-founded estimation on a aggregated municipal level. The departmental manager has a good knowledge of the structure of his or her personnel while the project manager put all information together to be able to estimate the possible overall outcome.

5.4.2 Box 2, factors influencing the quality of the change process

Some factors are not connected to the choice of employment level, but will in the end have an equally great importance of the success of the change and implementation of the internal personnel pool. These factors are as important as the previously mentioned in box 1, and have to be taken into account when planning the implementation.

- *Attitudes of the change* – since it is the employees and the departmental managers that will be most affected and are the ones that will carry out the actual change, their attitudes are of great importance. If there has been several changes in work environment during a short period of time, it may decrease the spirit and motivation for a changing process. This indicates that the managers will need to spend more energy on motivating the personnel, and it will require a concrete plan of action to make the personnel feel secure. Employees want to feel secure that they will not lose their job and that the process of change and the internal personnel pool actually will improve the daily work and reduce stress. Therefore, the manager has to believe in the new way of working to be able to transfer the spirit and motivation onto the workforce, or else an implementation may be very hard to realize.
- *Structure of the personnel pool* – The arrangement of the personnel pool is of great importance. Previous projects indicate that one factor of major importance is the fact that the personnel value their working hours to be scheduled to be able to plan the personal life. The knowledge of when to work is more important than where to work. This signifies that the flexible hours need to be scheduled and confirmed early, but the place of work may be communicated with short notice. Non-scheduled working hours, i.e. when the full-time employees work as on-call workers, increase the level of stress which in turn affect the satisfaction among employees, the quality delivered and thereby the success of the pool. A high level of stress may also increase the risk of absence due to illness, which further will negatively affect the result of the pool.
- *Educational level* - the educational level of the workforce will affect the delivered quality. This is true especially if the on-call workers are not educated in health. If the on-call workers used before the implementation are inexperienced and deliver care of poor quality, the implementation of the personnel pool will lead to a greater increase in delivered quality, since the personnel pool is constituted of educated, full-time employees. The stress will be reduced since the full-time workers do not need to educate the subsidiaries, which in turn minimize the time consumed. Something that has to be taken into account is that in some cases the on-call workers are not educated but have a long work experience. This, of course, will compensate for the education not be forthcoming, thus the quality will not be affected in the same way.
- *Managers' capacity* – the ambition and willingness of change from the managers are of great importance. It will be needed a huge amount of strength from the managers to meet the common protests from the personnel, and this necessitate courage and a strong leadership.
- *Geographic area* – the size of the municipality, or the district, are of concern especially in sparsely populated areas where the distance between the different retirement homes may be tens of kilometers. This results in time restraints for the personnel since they will have to be flexible when being a part of the personnel pool, and will then have to transport themselves within the area. A car is needed to do this and for the workers who do not have access to a car it will be almost impossible to transport themselves outside the home locality, and thereby impossible to be part of the personnel pool. If they are paid for this transportation time they will presumably be satisfied

but the municipality will pay for hours that are not spent with customers, i.e. they will not deliver quality.

6. Empirical observation

In the following section we will first describe the project in Göteborgs Stad and their way of dealing with the political initiative. All information in the section is drawn from Time Care, the project manager and a former head of unit. An illustration of the starting point of the year of 2011 for two districts in the municipality will follow. The starting point will be expressed in terms of total available hours from full-time as well as part-time employees and the staffing requirements. We will then calculate possible scenarios for these two districts when different shares of employees agree to increase to full-time employment. Last, but not least, we will illustrate actual outcome after the first 15 months of the implementation process which will show the current situation. This illustration is based on the first quarter of 2013 in these districts.

6.1 The project in Göteborgs Stad

The political directive states that full-time employment should be a common right. In practice, this means that everyone gets to choose his or her own employment level. The only restriction lies in that one can never decrease it further than to 50%. Göteborgs Stad is now one of the 290 municipalities in Sweden that are working to find a way to realize the political directive of offering full-time employment to all existing part-time workers. This municipality simultaneously wants to decrease the amount of on-call workers and instead rely on standard work arrangements. This, however, is not part of the national political directive but an aim they have added themselves. Furthermore, the political directive is a way for the municipality to become more attractive as an employer. A project manager in Göteborgs Stad claims that the municipality has been organized for too long to please the older generation of employees. Now, however, the young generation is very important since the older generation soon will retire, which means that the municipality has to meet the wishes and desires of the younger generation to retain its attractiveness as an employer.

The project team in this municipality believes that they have a solution to the economical problem that may arise when implementing the political directive. By adopting an alternative approach to scheduling the reorganization is believed to be managed without increased costs. If part-time employees are increasing their employment levels and, due to that, will work an increased number of hours, redundant time will arise. At least, this is the expectation and starting point of the project team. These redundant hours will be the foundation of an internal personnel pool. The internal personnel pool will therefore only be staffed with permanently employed personnel. In practice, the employees will continue their work as usual and simultaneously be included in the personnel pool. From this pool the redundant permanently-employed personnel will be collected and deployed whenever and wherever needed to another place of work, for example from one retirement home to another. Before the implementation of the personnel pool starts, every employee will choose a number of different places of work where they prefer the resource hours to be executed. However, according to one of the project managers there may be a problem with this ability to choose the desired workplaces. If only places with low illness absence are chosen, no resource hours will be needed there and the personnel pool will therefore not be utilized, even though other retirement homes may be in need of extra personnel but were not chosen.

The personnel pool relies on the fact that redundant hours, and thereby overstaffing, will arise when the offer of full-time employment is made. This means that, for the personnel pool to be successful, the basic staffing has to be larger than the level of staffing requirements, i.e. total available hours from all employees has to exceed the amount of hours needed to fulfill all tasks on each retirement home. Only then will the pool be effective and able to cover for vacant hours that may arise with short notice. By adopting this new way of working, Göteborgs Stad also hopes to solve the problem of understaffing. The staffing requirements are today greater than the actual share of employees; hence the understaffing has to be solved with on-call workers. Not only does the understaffing occur because of short-term absence, the fact is that the schedules do not cover the full staffing requirements when set, which means that the schedules are set with an understaffing and the managers plan to adress this with on-call workers. This phenomenon is called "scheduled understaffing". The understaffing is thereby built-in in the organization. When the employees, hopefully, accept the offering of full-time employment, the available hours will increase and the need for on-call workers will, presumably, decrease. This will hopefully result in that the implementation costs are kept within the budgetary limits. Even if the on-call workers have a slightly lower hourly salary, the increased costs of administration that the use of on-call workers result in will presumably lead to the fact that the hourly costs are in fact higher than when relying largely on ordinary employees.

However, there are more implications to highlight than the amount of hours available in relation to those needed. In a process of change, some resistance from the personnel is common. According to one of the project managers in Göteborgs Stad, many of the employees fear a change in their place of work. Many of the employees have worked nearly all their life at the same ward. The greatest fear is about how to be treated at a new place. To get over this fear before the change of process starts, the project manager suggests that every employee will have to swap one workday with another colleague at a different place of work. By making these swaps mandatory, everyone will know what a resource hour will involve once the personnel pool actually is implemented. She also suggests that all retirement homes within every district's border should have days when they are open to see employees from other retirement homes. By opening up the doors and allowing colleagues to meet each other at their different places of work, the implementation of a personnel pool will, presumably, not be as subversive.

In addition to the possible resistance from employees, the project manager stresses that a resistance from the departmental managers is conceivable as well. According to her, there is a fundamental idea in Göteborgs Stad that employing standard workers is the one thing that costs the most. The municipality has therefore an in-built mindset to keep the share of standard workers as low as possible. This results in a need to staff with on-call workers or for the standard workers to work overtime. Furthermore, some departmental managers do not even make the schedule themselves or make the calls to the on-call workers; hence they are not aware of the amount of on-call workers or the level of understaffing. This means that they are not aware of the consequences of additional costs from on-call workers and overtime compensation. To now get the departmental managers to grasp that an overstaffing is feasible may thus be considerably difficult, according to the project manager. When it is not the departmental managers that schedule, one of the most important tasks of a manager is delegated down to ordinary personnel. Ultimately, according to the project managers, this behavior has resulted in a lack of respect for the departmental managers and now, managers must take back their authority and responsibilities for this political directive to become reality.

6.2 Calculations

The calculations in this section will be presented as a simulation model as well as actual outcome after the first quarter of 2013, in Göteborg Stad. When we started doing our simulations we had a fundamental idea in mind, which was based on Göteborgs Stad's expectations, namely, that an over-staffing would occur when the political directive was implemented. However, our simulations showed us that the understaffing was a larger problem than first acknowledged. This led us to the conclusion that a

simulation model, instead of simply presenting the actual outcome, would be more feasabile for users of our decision model, since the expectations in this case apparently did not correspond to reality. We thought that this problem might be present in other municipalities as well. With that said, our expectation is that it could be very educational for each municipality to use their own numbers in the simulation model. They would thereby be aware of the great differences in outcome that the amount of increases in employment level will lead to. According to us, this awareness may not be met when simply examining the outcome of another municipality. However, we have chosen to present the outcome of the first quarter of 2013 as well since our expectation is that the user will be able to gain knowledge about how the implementation has developed in another municipality, namely Göteborgs Stad. They will thereby be able to estimate their own potential progress when comparing with the results from the simulation model. With the knowledge we gained from Göteborgs Stad regarding expectations that deviate from reality, our expectation is also that to simply be aware of a potential progress is not a foundation enough to make a good decision and therefore the simulation model is presented together with actual outcome in our model.

For employees in the public geriatric care a full-time employment is presumed to include 1600 hours annually. This is the amount of hours we used to estimate the total annual hours. A part-time employment assumes, by our calculations, to be constituted of 75 % of the full-time hours, i.e. 1200 hours annually.

The parameters of interest that are used to evaluate the project and thus the simulations are the following:

- *Staffing requirement* is the most important factor in the geriatric care scheduling. It shows the minimum amount of personnel needed to manage the daily work with maintained delivered quality. The basic staffing should never be less than this amount. We have expressed the staffing requirement as hours per year.
- *Ordered vacant hours* are important when estimating the necessity and dimensions of a internal personnel pool. It shows the amount of hours that has been in need of a subsidiary due to e.g. illness and other short-term absence, scheduled understaffing or temporary increased requirement of personnel. We express the hours summed up on a yearly basis. The hours are ordered in the internal system, but in some cases the supervisor do not order from this system, which mean that the actual amount of vacant hours are exceeding the one we are using. The ordered vacant hours are normally employed by on-call workers, or overtime from the basic staffing. In some cases they are not staffed and the organization is understaffed.
- *Hours available from present full-time employees.* Shows the actual amount of hours that the organization can make use of from full-time employees. Each employee are "worth" 1600 hours per year.
- *Hours available from present part-time employees.* Shows the actual amount of hours that the organization can make use of from part-time employees. . Each employee are "worth" 1200 hours per year. The offer of increased level of employment is addressed to this share of the workforce. The maximum possible outcome is that 100% will accept to work full-time and thus all the part-time employees will increase their hours from 1200 to 1600 per year.
- *Total hours available from permanently employed personnel.* The aim of the project is that these available hours will meet the staffing requirement, and to be able to create an internal personal pool, also exceed it so redundant hours will occur. This will build a stronger basic staffing, and a reduced need of on-call workers.

When the data regarding staffing requirement was gathered and after summing up the total amount of hours from the full time and part time employees in each district, the scenarios started to take form. The purpose was to see how an increase in the employment level for the part time employees would satisfy the staffing requirements; hence the staffing requirement were the constant variable and the employment level were the variables that we monitored. This shows what the consequences, in terms of available hours, will be in the municipality. Three different levels of increased employment level are used. These levels are chosen carefully and based on different sources; the statistic of underemployment rates from SCB, experiences from previous projects in other municipalities and the pilot project executed in one of the

districts in the study object. The rates differed to a great extent from each other, which made the chosen levels 10 %, 25 % and 50 % of increased part-time employments into full-time.

6.3 Scenarios

District 1, 2011

Total hours available from permanently employed personnel: **762 800**
Full-time: **536 000** (335 people)
Part-time: **226 800** (189 people)

Staffing requirements: **903 864** hours a year.

- The permanently employed personnel only cover 84,4% (762800/903864=0,8439) of the manning demand, which results in a 15,6% understaffing.

Ordered vacant hours: **80 914,43**
of which manned with on-call workers: **41 319,58** (51 %)

In the year of 2011, before the offer of optional level of employment was introduced, the understaffing was severe. As the numbers above are showing, the staffing requirements are substantially exceeding the amount of available hours from the permanently employed staff, which mean that even if there is no short-term absence, such as absence due to illness, the organization is understaffed. As shown, the permanently workforce cover 84,4 % of the staffing requirement which is the main problem and which makes the organization and the delivered quality dependent on the need of on-call workers. In the year of 2011, on-call workers staffed 51 % of the ordered vacant hours. The total ordered vacant hours are about 80,000, which are 9 % of the staffing requirements. The purpose of the internal personnel pool is that the redundant hours that form resource shifts will cover for, by far, the main part of these total ordered vacant hours.

Three scenarios

10 % convert their part-time employment into a full-time (based on results from the project in Årjäng, with a modification). Result in a change from 1200h/y to 1600h/y per person.
10% = 18,9 part-time workers (19*400= 7600 → 762 800+ 7600 = 770 400)
Full-time workers: 335+19 = 354 * 1600h/y = 566 400 h/y
Part-time workers: 189-19 = 170 * 1200h/y = 204 000 h/y
Total hours available from permanently employed personnel: 566 400 + 204 000 = **770 400**

Staffing requirements: **903 864** hours a year.

- The permanently employed personnel only cover 85,2 % (770400/903864=0,852) of the manning demand, which results in a 14,8 % understaffing.

25 % convert their part-time employment into a full-time (based on statistical data from SCB)
25 % = 47,25 part-time workers (47*400= 18800 → 762 800 + 18 800 = 781 600)
Full-time workers: 335+47 = 382 * 1600h/y = 611 200 h/y
Part-time workers: 189-47 = 142 * 1200h/y = 170 400 h/y
Total hours available from permanently employed personnel: **781 600**

Staffing requirements: **903 864** hours a year.

- The permanently employed personnel only cover 86,5 % (781600/903864=0,8647) of the manning demand, which results in a 13,5 % understaffing.

50 % convert their part-time employment into a full-time (based on results from the project in Hammarö, with a modification).
50 % = 94,5 part-time workers (95*400=38 000 → 762 800+38 000 = 800 800)
Full-time workers: 335+95 = 430 *1600h/y = 688 000h/y
Part-time workers: 189-95 = 94 *1200h/y = 112 800h/y
Total hours available from permanently employed personnel: **800 800**

Staffing requirements: **903 864** hours a year.

- The permanently employed personnel only cover 88,6 % (800800/903864=0,8859) of the manning demand, which results in a 11,4 % understaffing.

What we see in these possible future scenarios is that the original scheduled understaffing of 15,6 % is too large to be able to be solved with an increased share of full-time employments, at least with the accessible personnel and the present part-time workers. Even if 50 % of the current part-time workers chose to increase their employment to full-time, which would be an unusually great amount, the organization will still experiences an understaffing of 11,4 %. This situation makes the success of the internal personal pool less likely since no redundant hours will exist to manage short-term absence since there is a lack of available hours. The one thing to do in a situation like this is to engage more personnel. If not, the organization will be dependent on on-call workers to manage the daily work and a reduction of this need will be impossible.

District 2, 2011.

Total hours available from permanently employed personnel: **644 000**
Full-time: **377 600** (236 people)
Part-time: **266 400** (222 people)

Staffing requirements: **686 947,23** hours a year.

- The permanently employed personnel only cover 93,8% (644 000/686 947,23=0,9375) of the manning demand, which results in a 6,2% understaffing.

Ordered vacant hours: **31648,65**
of which manned with on-call workers: **22369,35** (70,7 %)

In the year of 2011, the situation was a bit brighter in this district. There is a scheduled understaffing, but not as high as in district 1. The district experience a understaffing of 6,2 % which put greater expectations on the future use of an internal personnel pool. Of the ordered vacant hours, on-call workers performed 70,7 %, and the share of ordered vacant hours represent 5 % of total the staffing requirement. The actual numbers of on-call workers may be higher than expressed since some of he retirement homes call the on-call workers by themselves, which means that they are not registrered in the systems.

Three scenarios

10 % convert their part-time employment into a full-time (based on results from the project in Årjäng, with a modification). result in a change from 1200h/y to 1600h/y per person.
10% = 22,2 part-time workers (22*400= 8 800 → 644 000 + 8 800 = 652 800)
Full-time workers: 236+22 = 258 * 1600h/y = 412 800 h/y
Part-time workers: 222-22 = 200 * 1200h/y = 240 000 h/y
Total hours available from permanently employed personnel: 412 800 + 240 000 = **652 800**

Staffing requirements: **686 974,23** hours a year.

- The permanently employed personnel cover 95 % (652800/686974,23=0,9502) of the manning demand, which results in a 5 % understaffing.

25 % convert their part-time employment into a full-time (based on statistical data from SCB)
25% = 55,5 part-time workers (56*400= 22 400 → 644 000 + 22 400 = 666 400)
Full-time workers: 236+56 = 292 * 1600h/y = 467 200 h/y
Part-time workers: 222-56 = 166 * 1200h/y = 199 200 h/y
Total hours available from permanently employed personnel: 467 200 + 199 200 = **666 400**

Staffing requirements: **686 974,23** hours a year.

- The permanently employed personnel cover 97 % (666400/686974,23=0,970) of the manning demand, which results in a 3 % understaffing.

50 % convert their part-time employment into a full-time (based on results from the project in Hammarö, with a modification).
50% = 111 part-time workers (111*400= 44 400 → 644 000 + 44 400 = 688 400)
Full-time workers: 236+111 = 347 * 1600h/y = 555 200 h/y
Part-time workers: 222-111 = 111 * 1200h/y = 133 200 h/y
Total hours available from permanently employed personnel: 555 200 + 133 200 = **688 400**

Staffing requirements: **686 974,23** hours a year.

- The permanently employed personnel cover 100,02 % (688400/686974,23=1,0021) of the manning demand, which results in a 0,2 % overstaffing.

What we see in these possible future scenarios is that the original scheduled understaffing of 6,2 % may be solved with a 50% increase of employment levels. Only with a 50% increase does the present workforce have the ability to reach the staffing requirement. However, there will still be a need of on-call workers since the permanently employed personnel cover the staffing requirement at exactly 100%, and thus no redundant hours will occur. Moreover, there will always be a need of subsidiaries due to short-term absence. The recommendation in this case may, just as in district 1, be to employ more personnel. The risk of overstaffing is still low and there is still a need of more permanently employed staff to cover for short-term absence and to form the redundant hours. To be able to manage an internal personnel pool, in the desired way, there have to be redundant hours, which is not present in these scenarios.

6.4 Current situation

After the first quarter of 2013, the initial implementation process is 15 months behind. The effects of the offer of full-time employments to all part-time employees are starting to be shown and the outcome and acceptance of optional level of employment is as follow.

District 1, 1st quarter 2013

In district 1, 74 people have increased their employment level to full-time, which is equivalent to 40 % of the former part-time employees. The total amount of hours from the permanently employed staff has slightly decreased as well as the amount of employees. The distribution of full-time and part-time employees has also changed and led to a greater share of full-time employees compared to 2011. It has been a reduction of underemployment, which is due to a decrease of the staffing requirement. The reason for this decrease does not have to do with the implementation of the personnel pool, according to the project manager. The reason has to do with that the organization have adapted to the currect budgetery

limits. Before the change process began the budgeraty limits were overdrawn. With this process of change, the budgetary limits were translated into hours to make it more comprehensible for the departamental managers and with this translation the overdrawn budget was more evident. Furthermore, the ordered vacant hours seem to amount the same rate as in 2011, since it after the first quarter amount 25 % of the total in 2011.

Total hours available from permanently employed personnel: **761 200**
Full-time: **635 200** (397 people)
Part-time: **126 000** (105 people)

Staffing requirements: **873 166** hours a year.

- The permanently employed personnel cover 87,2% (761200/873166=0,8717) of the manning demand, which results in a 12,8 % understaffing.
- A 2,8 % decrease in understaffing from the basis of comparison, 2011.

Ordered vacant hours: 22 881,45
of which manned with on-call workers: 15 593,95(68 %)

District 2, 1st quarter 2013

In district 2, 88 people have increased their level of employment to full-time, which is equivalent to 48 % of the former part-time employees. There has been an increase of available hours from permanently employed workers, of 16 000 hours per year. The distribution between full-time and part-time workers has also changed. There has been a remarkable increase of the staffing requirement, in contrast to distrtict 1. In the case of district 2 the increase in staffing requirement comes from expanded budgetary limits. The budgetary limits were expended because the former udget did not have sufficient resources to secure a certain level of given quality. When the change process was implemented the budget was therefore revised and expanded.

Total hours available from permanently employed personnel: **660 000**
Full-time: **561 600** (351 people)
Part-time: **98 400** (82 people)

Staffing requirements: **728 875** hours a year.

- The permanently employed personnel cover 90,55% (660000/728875=0,9055) of the manning demand, which results in a 9,45 % understaffing.
- A 3,25 % increase in understaffing from the basis of comparison, 2011.

Ordered vacant hours: 20 516,96
of which manned with on-call workers: 10 848,83(52,9 %)

By adopting the political aim, one of the overall objectives automatically is to cover the staffing requirement with standard workers, instead of on-call workers, to the greatest extent possible. However, this is not what the wards are being measured on. What they are being followed-up and measured on is the amount of resource hours that they distribute. A risk of a distorted result is therefore present, as the old expression “what you measure is what you get” declare (Kaplan & Norton, 1992). One of the project managers expressed that she noticed this problem before implementing the pilot project in her district. The ambition of their pilot project was therefore to first and foremost cover the aggregated staffing requirement of the whole retirement home, i.e. of the whole house, meaning that personnel may change place of work within the house, between wards, before being used on resource hours. This leads to greater quality, according to the project manager, since when they presumably already know each other from

before, the personnel feel more confident to change place of work. The change would therefore not be as extensive and with greater confidence comes greater quality of work. Moreover, by changing place of work on resource hours substitutes will see new ways of working, which they are able to bring back to their original place of work. By exchanging experiences and ideas with each other, the quality of the giving care is likely to increase.

Even when personnel have to substitute for each other outside their original retirement home, a greater confidence is now present, according to one of the project manager due to the fact that they have to a great extent substituted on only a few different wards. This means that they feel confident changing place of work since they quickly get familiar with the new places. In same time, the ward who is receiving a substitute feels confident as well, knowing that it is an experienced standard worker coming, not an on-call worker. This means that the standard worker presumably know all routines, and the receiving retirement home will not have to supervise. This means that the amount of on-call workers probably is going to decrease since the personnel is feeling confident and secure, and thus the short-term absence due to illness will decrease. This has been the fact since the implementation started.

7. Analysis

In this section we discuss the empirical observations, both the findings from Göteborgs Stad and the observed factors that will have an influence on the financial outcome of the project of offering full-time employment to all part-time employees in combination with an introduction of an internal personnel pool. The analysis is based on the theoretical framework.

4. Analysis

Employment level and internal personnel pool – box 1 and 3

The political aim of optional level of employment has successfully been implemented in the two districts in our case object and there has been a markable increase in full-time employments from the former part-time employees. The calculations from both districts show that the initial expressed fear of overstaffing when implementing the political directive is without sufficient reasons. The scheduled understaffing seems to be chronicle and is larger than what the organization probably understood in the first place. This indicates that the direct salary costs that follow from the offer will not be higher than the present, even though the share of full-time employees has increased. The reason to this is that a overstaffing will not occur and that the use on on-call workers should decrease at the same time. On the other hand, if the needed overstaffing do not occur the foundation of the personnel pool is lost. Moreover, when we compare the actual statistical data from before and after the implementation we are able to clearly see the circumstance that both districts have revised their staffing requirements. This in turn may indicate that the districts have thoroughly thought through their needs and have reorganized themselves to more effectively allocate the resources.

According to Bergström et al. (2007) internal personnel pools have been implemented in Swedish healthcare before but been withdrawn because of unsuccessful results. We see an importance to stress what the differences between these implementations and today's implementation might be. What points at that today's implementation should be more successful than the former ones? There are some factors that may lead to an unsuccessful outcome in former implementations, which not is at risk of happening in

Göteborgs Stad today. For example, in the 1990s the pool was not yet employed when implemented, the demand could not be satisfied fast enough which in turn lead to the use of on-call workers instead of the pool (Bergström et al., 2007). Moreover, in 1997 the personnel pool was external and only staffed with full-time employees. The failure this time came from the fact that the pool was not used to its full potential and therefore only resulted in increased costs. Furthermore, in the 1990s, the shifts in the pool were insecure since they were not scheduled, which lead to an unhealthy working environment for the ones in the pool (Bergstöm et al., 2007). The municipality of Årjäng experienced a similar problem where the shifts were never scheduled; they were often shorter than eight hours and often took place on inconvenient hours. The employees in this municipality experienced a very stressful working environment due to this. Another negative outcome happened in 2001 when the pool was seen as an external division of the organization where the personnel in the pool had higher salary than those outside (Bergström et al., 2007). These failures will not be at risk of happening when dealing with the initiative of a personnel pool like in the case of Göteborg Stad, since all the existing employees should be a part of the pool regardless employment level. This means that it is an internal pool and that the pool is already employed. Moreover, Göteborgs Stad has chosen to scheudle the resources hours as ordinary shifts. The fundamental idea is that existing part-time employees will increase their employment level and thereby create an overstaffing which result in redundant hours. The only time there is a risk of not using the personnel pool to its full potential is if the overstaffing is too large and the resource hours, i.e. supply, are higher than the needed hours. This, however, does not seems to be a problem that Swedish municipalities should have to deal with in the near future, if our simulations are representative, once again because of understaffing, i.e. the existing employees are too few to fill the demand of a personnel pool. As we saw in our simulation model, there are no existing redundant hours to this point and to make the personnel pool work new personnel would therefore be needed to be employed to increase the available hours.

However, there are some factors that lead to an unsuccessful outcome at former implementations of personnel pools that still are at risk of happening today. Bergström et al. (2007) interviewed a departmental manager for their book “Den nya arbetsmarknaden” and he thought that why the personnel pool did not work back in 1997 was because the healthcare sector is a round the clock business and the needs are varied during the day. This is true even for the geriatric care. It is not possible to staff all highs and lows during a day without ever being too many or too few since no employee would ever agree to such a schedule. Furthermore, Bergström et al. (2007) argues that to be able to succeed with a personnel pool, one will have to have the ability to predict short-term demand variations which means an optimized staffing. This may be a problem today as well and may indicate that the initiative today in fact is not more successful than any other implementation. To have the ability to predict short-term demand variations at the same time as the employees should have a healthy working environment is hard. With that said, even though the organization may succeed to find an optimal overstaffing in the personnel pool, the problem with schdueling is critical. One tried out solution is divided shifts, which is neither preferable nor healthy for the employees. The question remains if a personnel pool is able to succeed, even when the apparent prerequisistes are present, in a sector that has a round the clock business with very variable daily needs.

Some things that Göteborgs Stad have done that deviate from all other initiative that we have studied is the fact that they try to prepare the employees on the coming change, e.g. by letting them visit each other’s wards during a day or two and try out to be a substitute for a day to get used to the idea. When dealing with a problem where knowledge is lacking, education is preferable to overcome this empistemic uncertainty (Walker, 2000). Another important idea from one of the project managers is the importance of prioritizing the aggregated demand for the whole house before starting to create resource hours for external employees. This, however, we expect that larger retirement homes will have a possibility to succeed with, which is another important factor of consideration when discussing whether or not an internal personnel pool will be successful, namely it depends to a great extent on the size of the retirement homes. When dealing with large homes, the personnel are able to substitute on different wards within the same house. Personnel have, to one of the project managers, expressed less resistance to work as a substitute if the change is within the house, instead of in a different retirement home. To start with a more

smooth change, increased motivation and decreased resistance to the implementation of a personnel pool may be achieved. Likewise, when dealing with a larger municipality there may be more retirement homes and therefore more personnel needed each day. This could indicate that the chances to distribute and employ the resources hours are higher. In smaller municipalities with smaller retirement homes, this possibility could be reduced and the solution of an internal personnel pool may not work as efficient since the demand may not exist in the same extent as in a larger municipality. Due to this, our expectations are that the solution of a personnel pool may have greater chances to be successful for larger municipalities since there are more shifts in total, hence greater demand of the resources hours.

We further expect that the effect of this implementation to a great extent will depend on the distribution of different work arrangements. In the case of Göteborgs Stad, which our simulation model is based on, they are understaffed with a high proportion of on-call workers. This means that they need a great increase of employment levels to reach an overstaffing from ordinary workforce, which in turn will form the internal personnel pool. On the contrary, a municipality with a low, or even non-existent, understaffing will not need as high level of increase to reach an overstaffing, hence they will be able to form an internal personnel pool easier with only a small increase of employment levels. On the other, we want to stress the fact that in municipalities with a low, or non-existent, understaffing the risk for overstaffing, which not is used to its full potential, is prominent and could therefore presumably lead to increased costs.

In line with what Håkansson (2001) and Furåker (2009) have declared about flexibility strategies, we can conclude that numerical flexibility is used before as well as after the implementation of an internal personnel pool. The difference before and after the implementation lies in the fact that before the internal personnel pool, the numeric flexibility was reach through the use of on-call workers while it is now reached through the original standard workers through the personnel pool. Moreover, flexibility reached with increased use of flexible, non-standard work arrangements may lead to increased profitability (Håkansson & Isidorsson, 2009), which in a municipality would mean increased budget efficiency. These findings stand in contrast to the way Göteborgs Stad is trying to solve the flexibility problem that may arise when implementing the political directive. Their solution is based on letting existing part-time employees increase their employment level and together with existing full-time employees form the personnel pool. Through this numeric flexibility is reached and costs may be held within the same limit as before, hence for a municipality this means that budgetary limits are not being overdrawn. This means that the findings of Håkansson and Isidorsson (2009) could be untrue in this case.

Findings of Håkansson (2001) and Atkinson (1994) states that the use of numeric flexibility not only is a positive factor. It may lead to segmentation in a workplace, for example between full-time employees and those with flexible staffing arrangements, which in turn may risk a constitution of an A and B-team (Ibid.). The A-team, constituted by the full-time employees, has greater development opportunities than the B-team does. Another risk with segmentation is that the flexible workers may have greater capacity than utilized and that solidarity among employees is decreased (Mulinari, 2004). We think that a similar risk of segmentation may be present when implementing an internal personnel pool as well. This was the case both in the municipality of Årjäng, and in 2001 in the Swedish healthcare when the personnel pool was seen as an external division (Bergström et al., 2007). It is therefore important to include the whole workforce in the pool, which Göteborgs Stad does. When including the whole workforce in the personnel pool, it will also be secured that no capacity from employees is left unutilized, since all employees then have their desired employment level. Though in contrast to these findings, we believe that the risk for segmentation may still be present even though the whole workforce constitutes the internal personnel pool. When all employees are included independent of employment level, the former full-time employees will be forced to be flexible to be part in the personnel pool, without receiving any further advantage since they already have their full-time employment. The former part-time employees however, “receive” a full-time employment in exchange to the given flexibility, which presumably would make them more motivated to be part of the personnel pool. There might be a great risk of conflict between these two groups and therefore a risk of segmentation, even if the groups are thought of as a single A-team according

to the theory from Atkinson (1994) and Håkansson (2001). A way of structuring the personnel pool to avoid this risk of unmotivated former full-time employees could possibly be to only include the new full-time employees in the pool, hence exclude the former full-time employees. Our expectation is however that this solution would lead to a more obvious segmentation between the two groups since the new full-time employees has to offer flexibility in exchange for a full-time employment while the former full-time employees are left unaffected. The new full-time employees will therefore obviously form a B-team. If a municipality should have this approach when implementing a personnel pool, it could affect the part-time employees' choice of employment level in the first place, since no one would prefer to be part of a B-team. This means that an approach and structure like this presumably could obstruct the possibility to have an effective personnel pool. For further influence on the effectiveness of the pool, we want to point at the importance of motivation from the departmental managers to all employees, since there is still a risk of resistance from former full-time employees no matter what type of personnel pool is implemented, which may lead to segmentation. The resistance may increase short-term absence and similar complications, which will affect the personnel pool's efficiency negatively. Something that, on the other hand, may decrease resistance is high solidarity among employees, which is met when not having a segmented workplace (Mulinari, 2004). When using on-call workers, segmentation between them and the ordinary workforce is present (Davis-Blake et al., 2003) but solidarity among the ordinary workforce is presumably high. When having a high solidarity the chance that employees will accept and work the resource hours is presumably higher, which will have a positive effect on the personnel pool. The question is if solidarity among ordinary workforce may decrease when implementing the personnel pool since segmentation between former and newer full-time employees then is present, instead of between on-call workers and the ordinary workforce. This could have a negative effect on the personnel pool, which may be something that the departmental managers have to deal with.

Quality – box 2

In what way a full-time employment have consequences on the personnel's health is abstruse. On one hand, a case study done in the municipality of Linköping shows that a lower share of part-time employment resulted in a lower share of absence due to illness (Ingmarsson et al., 2010). On the other hand, since the geriatric care involves a very arduous workload (Gustafsson & Szebehely, 2005), an increase to full-time employment may rather lead to a worse health situation. We want to point out that these findings are two extremes. The fact that Göteborgs Stad has implemented an optional employment level for their employees means that they have taken the arudouness into account by making an increase as well as a decrease of the employment level possible for their employees. Göteborgs Stad's mode of procedure states the importance of highlighting both sides.

In Göteborgs Stad the share of part-time employment and absence due to illness are both high. This may, according to Ingmarsson et al. (2010), indicate that with a full-time employment comes better health, thus lower absence due to illness, as well as higher motivation. This research also stresses that full-time employment result in higher quality and effectiveness from the personnel. With that said, Swedish municipalities could presumably experience a decrease in short-term absence, as well as greater quality and efficiency in the given care, when implementing the political directive that they are now facing. This in turn, could result in that not only does the understaffing decreases, when the existing personnel are healthier, but also will the hours be worked with greater quality and more efficiency. The latter means that the organization may get more out of each employee. The available hours could therefore be greater than our simulations indicates since we have not taken this fact into consideration. With lower short-term absence from existing personnel the personnel pool has greater resources and is more likely to be successful. If the internal personnel pool would be successful in this way, one can wonder if the costs will even decrease. As mentioned above, when the employees are satisfied and motivated they give greater quality of their work, which could mean that they work more efficient, which further could result in that overtime compensation is not paid out. Overtime compensation is one of the greatest costs in geriatric care and to be able to hold this cost down could be very successful in financial terms. Furthermore, the public sector is a non-profit organization, which means that the budget should be used, yet not overdrawn. This

could lead to that the saved costs that this efficiency may result in could be used in a more effective way, for example new personnel could be employed which mean that the workload could be further reduced and the understaffing would be decreased.

On the other hand, as Gustafsson and Szebehely (2005) stressed, an arduous workload in combination with a full-time employment could result in even lower quality of the given care and a higher share of short-term absence since the geriatric care may be a sector where full-time employment actually is not appropriate (Gustafsson & Szebehely, 2005). This fact corresponds to the finding of Mulinari (2004); that flexibility from the employer's point of view actually may be inflexibility for the employees. If the employees want and need to work full-time because of salary etc., but the geriatric care is too arduous to work full-time, the employees are forced to either be very flexible to make it work or decline the opportunity of full-time employment and thereby lose the increased salary etc. It may be seen as a vicious circle in this sector and, according to us, a circumstance that needs to be taken into account when implementing this process of change.

In Göteborgs Stad the starting point and expectation of this project is that the delivered quality is presumed to increase with a decreased share of on-call workers, when full-time workers replace them. We want to discuss the fact that the overall capacity of a on-call worker not necessarily need to be lower than for a full-time worker, especially not when the full-time worker is part of a personnel pool. The common criticism against on-call workers is mainly the lack of education and that the on-call workers, in some cases, do not have the permission to distribute medicine, nor are they familiar with the many routines on every ward. To include them and make them as efficient as ordinary workforce is thereby hard (Håkansson, 2001). All this could result in that the ordinary workforce will have to take on a greater workload by doing the tasks that demand permissions and work as a supervisor for the on-call worker, hence, an A and a B team is created (Håkansson, 2001). This in turn may increase the feeling of stress and the unwillingness, from the ordinary workforce, to work with on-call workers. Nevertheless, some on-call workers have been working in the geriatric care sector for a long time and even if they are in some cases lacking education, their experiences could, according to us, be seen as equally important as permanently employed personnel's. Even if the on-call workers do not have all the necessary permissions, the over-all aim for this sector is to give care of good quality. We believe that an on-call worker in some cases could be just as competent in this area as an ordinary worker and that the motivation could be the same as an ordinary worker, or even higher, since flexible work arrangement lead to higher satisfaction (Hyman & Summer, 2004).

Moreover, there may be several similarities between working in a personnel pool and working as an on-call worker, especially regarding quality. Our expectation is that the quality delivered from the resource shifts may be lower than the quality delivered at the ordinary workplace since there will be a lack of knowledge of the local routines. The reason to this is mainly that ordinary personnel that have worked several years in the same ward may now, in the personnel pool, experience immaturity and uncertainty when arriving at a new place of work. To be part of the personnel pool may therefore result in insecurity, an increased share of the absence due to illness and reduced continuity, which in turn may have a negative influence on the devotion and the motivation at the new place of work (Jacobsen & Sintorn, 2011). It may also lead to that the substitutes from the personnel pool execute less complex tasks and segmentation is thereby created (Håkansson, 2001). From this point of view, our expectation is that the on-call workers are actually able to overachieve the full-time workers in the pool in terms of given care and motivation, since they are more familiar with flexibility and may therefore be more willing to accept this work arrangment. Furthermore, if the understaffing is widespread in a municipality, our expectations is that it should be preferrable to employ some of the on-call workers instead of employing new personnel, since they are used to the organization and will lower the training period.
In Göteborgs Stad there have been several protests against the personnel pool from the ordinary workforce (SVT, 2013), which points at a lack of motivation, which in turn could result in losses in quality. Many employees stress their fear of changing place of work and the flexibility that may be expected from them

and with that comes low motivation. The short-term absence could presumably then increase when implementing this change, since the resistance may be high. In district 1, in our empirical observation, we saw a decrease in the amount of employees. We do not know the reason for this decrease, but wonder if it may be beacuase the employees fear the pressure of flexibility and therefore chose to resign and change job. If the short-term absence would increase because of the full-time employment initiative, in combination with the arduous workload existing in geriatric care, the personnel pool could possibly have even less available hours than now estimated. The understaffing would therefore be even greater than today. A decreased share of on-call workers that are familiar to flexible places of work, in combination with the unmotivated ordinary workforce in the personnel pool may, hypothetically, further contribute to decreased quality. This stand in contrast to the previous expected idea of increased quality with a decrease share of on-call workers. With that said, the fact that educated, experienced ordinary workforce forms the pool may not automatically lead to greater, or even the same, effectiveness than before the use of the personnel pool. This may be the fact since even though they are experienced they may be unfamiliar with the different routines on the new places of work and are unfamiliar to changing their place of work.

With that said, even if the hours needed are fulfilled with the capacity of the personnel pool rather than on-call workers, the effectiveness and quality do not necessarily have to increase. Nevertheless, we want to stress the fact that the lack of knowledge of routines at a new place of work will decrease after working with the personnel pool for a while. The personnel will work as substitutes at only a few different places of work and will therefore, after a while, be familiar to these new places as well as their ordinary one. This further stresses the importance of letting the personnel test out places of work to get to know each other and get known to the idea of changing places of work. One of the greatest advantages, according to the projects in Nynäshamn and Årjäng, with changing places of work was the ability to gain knowledge of different, more efficient work routines and thereby learn from each other. The effect when an ordinary worker is able to propose new changes in work routines will presumably give a greater effect and meet less resistance than if a on-call worker propose it. The ability to develop the organization is therefore increased. This may be seen as one of the main advantages with the personnel pool.

Changes in geriatric care will affect the municipality as a whole (Ingmarsson et al., 2010). Since the political directive is turned to all part-time employees, on-call workers are excluded. The probability that they will lose their job in the geraitric care is therefore present, which means that even if one sector discards the use of on-call workers, the problem is not solved. When excluded from the political directive the on-call workers are therefore still a burden for the municipality (Ingmarsson et al., 2010), since the municipality's maintenance responsibility for these on-call workers still exist. Even if unemployment does not affect the municipalites financially, since unemployment is a concern for the public buget, it may mentally and maintenance wise still affect the municipalities. With that said, it is important to keep in mind that all sectors in the municipality should be thought of as one unity. In our opinion, this in turn means that sectors would have a lot to gain by facilitating for each other, for example adjust the opening hours of the childcare to make them in line with the inconvinient hours of sectors like the geriatric care. This would possibly result in a win-win-situation, where the personnel would have ability to work these hours, i.e. increase to a full-time employment, and the organization may have more available competent personnel for these shifts. The healthcare and geriatric care may not be managed like the industry sector since the personnel cannot be exchanged with machines to make the daily work more efficient. This circumstance was obviuos when examining district 2 where the budgetary limits was expanded, and thus the staffing requirement, to be able to provide the level of quality needed. This fact makes it even more important to include qualitative factors in decision support for municipalities, since it is the feelings and actions of the personnel that influence the outcome.

8. Conclusion

In this section we summarize the empirical observations of the research with reflections related to the research question and the purpose. What this thesis has contributed with will follow and the section ends with suggestions for future research.

The purpose of this thesis was to create a decision support model for all Swedish municipalities that now are facing the political directive of offering full-time employment to all part-time employees. We examined the factors that may influence the financial outcome of a simultaneous offer of full-time employment and an internal personnel pool. The research was based on previous projects and researches and the factors found formed the main part of the developed decision support model. The other part of the model is constituted by simulations from our case object, Göteborgs Stad, and explains through scenarios how different shares of increased employment levels together with the staffing requirements may affect the financial outcome.

After analyzing the empirical observations from Göteborgs Stad compared to the findings of other initiatives of a personnel pool, it is still abstruse whether the desired form of a personnel pool in our case object could be more successful than previous similar initiatives. The reason is that some of the risks that previously have lead to unsuccessful outcomes still are present in this initiative. We have found several factors that may have an influence on the financial outcome of an offer of full-time employment at the same time as an initiative of a personnel pool is implemented. First of all, factors influencing employees' choice of employment level are important since those will affect the proportions of the personnel pool. The factors involve work environment, family, sacrifices needed, economy and individual preferences. How the employees' choice of employment level will influence the financial outcome are, to a great extent, connected with the staffing requirements and the initial distribution of work arrangements in each municipality, since the aim with the internal personnel pool is to reach an optimal overstaffing. It is not only the employment levels that will affect the financial outcome of such an implementation. The attitudes from managers and employees together with the structure of the personnel pool, educational level of the personnel and the municipality's geographical area will also influence the quality of the implementation and thus the outcome of the change. It is further important to keep in mind that the whole workforce preferably should be included and equally affected by the change, otherwise segmentation may arise and solidarity and motivation may be lost. All in all, there are many factors pointing in the same direction, namely that the key to a successful implementation process is a high degree of motivation and acceptance to the change, among the employees, and a satisfaction with the new way of working. Satisfaction could presumably lead to a willingness to work outside the own place of work and do some

sacrifices, which presumably is factors that will have a major influence on the effectiveness of the personnel pool. With greater satisfaction come greater quality and less short-term absence which further could increase the success of the personnel pool. Furthermore, when using a personnel pool where all employees are included, numerical flexibility is reached and segmentation may be avoided. This could presumably lead to greater solidarity among the workforce.

This research indicates that assumptions always should be supported by thoroughly investigated prerequisites, to reduce the risk of taking decision which not corresponds to reality. The hypothesis of Göteborgs Stad, that increases of full- time employments will not increase the costs if it is combined with a simultaneous decrease of on-call workers, have not been further investigated. The simulation model shows that the underemployment is too widespread in the two districts and the increased levels of employments will be too small to form an internal personnel pool. The size of the permanently employed workforce will not be able to cover the staffing requirements, and thus no redundant hours will occur, which still will make the organization dependent on on-call workers to manage the daily work. The importance of profound investigated prerequisites is of certain significance, especially when implementing a process of change of these proportions that Swedish municipalities now are facing, which further point at the great need of a decision support model. How information is presented in a decision support model is of great importance and will probably affect the user-friendliness and thus the effectiveness of the support (Bisdorff, 1999). In this case, our expectations are that a simplistic explanation could lead to that the municipalities keep having a deviated perception of the problem, and thus taking decisions that does not corresponds to reality. With that in mind, we created a hybrid decision support model and have therefore given all Swedish municipalities, as well as future researchers, an important foundation for further development of decision support and the adaption to the political directive of full-time employment for everyone.

8.1 Future research

For future researchers one of the most valuable aspects to investigate further would probably be to quantify the factors that influence the choice of employment level and the quality of the implementation, i.e. our box 1 and 2 in the decision support model. We also recommend other researchers to fill in on investigation regarding perceived quality by the users, stress levels of the personnel, chaning working environment etc, since these parts are not a part of our research but yet are results that may influence the outcome. Since we only will make a predictive analysis, we also recommend others to see what the outcomes may be in a few years regarding different shares of full-time employment during this time period, especially regarding the fact that the employees will be able to choose different employment levels from one year to another. This may have different consequences on the financial outcome.

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Appendix

Appendix 1

Underemployment and employment in Sweden

Source: Arbetskraftsundersökningar (AKU), SCB

Calculations of underemployment rate.
Total amount employed woman in the municipality sector: 614 900
Of which 48 700 are underemployed: 48 700 / 614 900 = 0,079, 7,9 %

Total amount employed men in the municipality sector: 177 600
Of which 9 800 are underemployed: 9 800 / 177 600 = 0,055, 5,5 %

Undersysselsatta deltidsanställda 20-64 år efter sektor 2011

Antal i 1 000-tal, procentuell fördelning och könsfördelning (%)

Ålder Sektor	Antal		Procent		Könsfördelning	
	Kvinnor	Män	Kvinnor	Män	Kvinnor	Män
Kommuner	48,7	9,8	35,6	17,4	83,3	16,7
Landsting	6,1	0,6	4,5	1,1	90,6	9,4
Staten	2,3	0,9	1,7	1,6	71,4	28,6
Privat	79,6	45,0	58,2	79,8	63,9	36,1
Totalt	136,8	56,4	100	100	70,8	29,2
Uppgift saknas	1,5	0,9				

Personer 20-64 år efter arbetskraftstillhörighet och vanligen arbetad tid 2011

Procentuell fördelning

Kvinnor						Män					
År	Heltid 35- tim	Lång deltid 20-34 t	Kort deltid 1-19 t	Arbets-lösa	Ej i arbets-kraften	År	Heltid 35- tim	Lång deltid 20-34 t	Kort deltid 1-19 t	Arbets-lösa	Ej i arbets-kraften
2011	52,7	20,5	3,8	5,3	18	2011	74,2	6,1	2,3	6,0	11,3

Anställda 20-64 år efter sektor 2011

Antal i 1 000-tal, procentuell fördelning och könsfördelning (%)

Näringsgren Sektor	Kvinnor		Män		Könsfördelning	
	Antal	Procent	Antal	Procent	Kvinnor	Män
Totalt	**1973,6**	**100**	**2 003,2**	**100**	**49,6**	**50,4**
därav						
Kommuner	614,9	31,2	177,6	8,9	77,6	22,4
Landsting	198,4	10,1	52,0	2,6	79,3	20,7
Stat	121,9	6,2	120,2	6,0	50,3	49,7
Privat	1020,4	51,7	1 620,4	80,9	38,6	61,4
Uppgift saknas	18,1	0,9	33,0	1,6	35,4	64,6
Totalt	1973,6	100	2 003,2	100	49,6	50,4

Appendix 2

District 1

start '11	District 1	STAFFING REQUIREMENT			
Retirem. home	Ward	Interval	Period	h/w	h/year
Altplatsen	1:1+2:1		22/10-18/11	738	38 376
Altplatsen	1:2+1:3		22/10-18/11	650	33 800
Altplatsen	2:2+2:3		22/10-18/11	650	33 800
Altplatsen	natt		29/4-9/6	358,45	18 639,40
Björk/N.Dr	Björkås		14/5-8/7	589,45	30 651,40
Björk/N.Dr	natt			140	7 280
Björk/N.Dr	N. Dragspelsgatan		14/5-8/7	520	27 040
Björk/N.Dr	natt			140	7 280
Flatås Gård	korttid		30/4-27/5	724	37 648
Flatås Gård	natt			140	7 280
Gerdas gård			3/12-27/1	2536	131 872
Gerdas gård	natt			350	18 200
Granliden	A + B		12/12-22/1	605,45	31 483
Granliden	C + D		24/1-6/3	479,15	24 915,80
Granliden	E + F		24/1-6/3	446,45	23 215,40
Granliden	natt		7/3-29/5	283,3	14 731,60
Högsbotorp	vån 1		31/10-25/12	717	37 284
Högsbotorp	vån 2		31/10-25/12	669	34 788
Högsbotorp	vån 3		31/10-25/12	628,25	32 669
Högsbotorp	natt			350	18200
Järnbrott	vån 1		8/10-2/12	616,5	32 058
Järnbrott	vån 2-3		8/10-2/12	720	37 440
Järnbrott	natt			280	14 560
Kaverö	vån 1		31/10-25/12	711,5	36 998
Kaverö	vån 2		31/10-25/12	799	41 548
Kaverö	vån 3		31/10-25/12	799	41 548
Kaverö	natt			350	18200
Uggledal	A + B		31/10-11/12	551	28 652
Uggledal	C + D		12/12-22/1	630,5	32 786
Uggledal	natt		10/9-21/10	210	10 920
		Totalt staffing requirement			**903 864**

present '13	District 1	STAFFING REQUIREMENT			
Retirem. ho	Ward	Interval	Period	h/w	h/year
Altplatsen	1:1+2:1		11/3-7/4	738	38 376
Altplatsen	1:2+1:3		11/3-7/4	650	33 800
Altplatsen	2:2+2:3		11/3-7/4	650	33 800
Altplatsen	natt		29/4-9/6	358,45	18 639,40
Björk/N.Dr	Björkås		10/6-1/9	589,45	30 651,40
Björk/N.Dr	natt			140	7 280
Björk/N.Dr	N. Dragspelsgatan		15/4-9/6	520	27 040
Björk/N.Dr	natt			140	7 280
Flatås Gård	korttid		4/3-28/4	801	41 652
Flatås Gård	natt			140	7 280
Gerdas gård			22/4-26/5	1880	97 760
Gerdas gård	natt			350	18 200
Granliden	A,B,C,D,E,F		29/4-9/6	1464,45	76 151,40
Granliden	natt		29/4-9/6	280	14 560
Högsbotorp	vån 1+2		13/5-7/7	1107,15	57571,8
Högsbotorp	vån 3		13/5-7/7	612,3	31 839,60
Högsbotorp	natt			350	18200
Järnbrott	vån 1		20/5-16/6	555,45	28 883,40
Järnbrott	vån 2-3		20/5-16/6	763,3	39 691,60
Järnbrott	natt			280	14 560
Kaverö	hela		18/3-12/5	2661	138 372
Kaverö	natt			350	18200
Uggledal	A + B		1/4-26/5	527,45	27 427,40
Uggledal	C+D		1/4-26/5	495,15	25 747,80
Uggledal	natt		1/4-26/5	388,5	20 202
		Totalt staffing requirement			**873 166**

Basic staff 2011, District 1					Basic staff 2013, District 1			
	Number	**h/y**	**total h/y**			**Number**	**h/y**	**total h/y**
Full-time	335	1600	536 000		**Full-time**	397	1600	635 200
Part-time	189	1200	226 800		**Part-time**	105	1200	126 000
			762 800					**761 200**

2011	Ordered vacant hours district 1									
Shifts	**Tot. Hours**	**h/shift average**	**Hour resource**		**Hours pool**		**Hours On-call**		**Tot. Hours employe**	**Refused hou**
11004	80 914,43h	7,35	13 342:42	16,50%	15 933:08	19,70%	41 319::58	51%	70 595:48	10 318,95

Appendix 3

District 2

start '11/12	District 2	STAFFING REQUIREMENT				
Retirem. home	Ward	Interval	Period	h/w	h/year	
Backahus	Hus 1-2	kl 06-22	12/9-13/11	541,45	28 155,40	
Backahus	Hus 3-4	kl 06-22	14/11-25/12	537,25	27 937	
Backahus	Natt		25/2-7/4	70	3 640	
Bäckebol	vån 1	kl 06-22	14/11-1/1	601	31252	
Bäckebol	vån 2	kl 06-22	14/11-1/1	593	30 836	
Bäckebol	vån 3	kl 06-22	18/4-29/5	661	34372	
Bäckebol	natt		26/3-6/5	350	18 200	
Glöstorpshöjden		kl 06-22	9/4-20/5	1843,25	95 849	
Glöstorp	natt				10 950	
Kärrahus	Bohus	kl 06-22	20/2-1/4	456	23 712	
Kärrahus	Carlsten	kl 06-22	20/2-1/4	333,5	17 342	
Kärrahus	Elfsborg	kl 06-22	20/2-1/4	333,5	17 342	
Kärrahus	Fredsh.	kl 06-22	20/2-1/4	333,5	17 342	
Kärrahus	Kronan	kl 06-22	20/2-1/4	456	23 712	
Kärrahus	Lejonet	kl 06-22	20/2-1/4	456	23 712	
Kärrahus	Orrekulla	kl 06-22	20/2-1/4	333,5	17 342	
Kärrahus	natt		20/2-27/5	280	14 560	
Lillhagsp.	entré	kl 06-22	12/3-22/4	423	21 996	
Lillhagsp.	vån 2	kl 06-22	12/3-22/4	588	30 576	
Lillhagsp.	vån 3	kl 06-22	12/3-22/4	532	27 664	
Lillhagsp.	vån 4	kl 06-22	12/3-22/4	574	29 848	
Lillhagsp.	hus 9	kl 06-22	12/3-22/4	454	23 608	
Lillhagsp.	natt		23/4-3/6	420	21 840	
Lillekärr	Donsö	kl 06-22	20/2-1/4	307,75	16 003	
Lillekärr	Hållö	kl 06-22	20/2-1/4	306	15 912	
Lillekärr	Mjölskär	kl 06-22	20/2-1/4	305,58	15 890,16	
Lillekärr	Måseskär	kl 06-22	20/2-1/4	300,92	15 647,67	
Lillekärr	Vinga	kl 06-22	20/2-1/4	305,25	15 873	
Lillekärr	natt		2/4-13/5	304,5	15 834	
		Totalt staffing requirement			**686 947,23**	**h/y**

present '13	District 2	STAFFING REQUIREMENT				
Retirem. ho	Ward	Interval	Period	h/w	h/year	
Backahus	Hus 1-2		20/5-16/6	458	23 816	
Backahus	Hus 3-4		20/5-16/6	458	23 816	
Backahus	Natt		25/2-7/4	70	3 640	
Bäckebol						
Bäckebol						
Bäckebol	vån 1,2,3		20/5-30/6	2067,15	107 484	
Bäckebol	natt		14/1-24/2	346,3	18 007,60	
Glöstorpshöjden			3/6-14/7	2143	111 436	
Glöstorp	natt				10 950	
Kärrahus	Bohus		27/5-16/6	456	23 712	
Kärrahus	Carlsten		17/6-11/8	333,3	17 331,60	
Kärrahus	Elfsborg		29/7-22/9	291	15 132	
Kärrahus	Fredsh.		17/6-11/8	333,3	17 331,60	
Kärrahus	Kronan		17/6-11/8	456	23 712	
Kärrahus	Lejonet		17/6-11/8	455,3	23 675,60	
Kärrahus	Orrekulla		17/6-28/7	333,3	17 331,60	
Kärrahus	natt		4/3-16/6	350	18 200	
Lillhagsp.	entré		17/6-8/9	546	28 392	
Lillhagsp.	vån 2		17/6-8/9	542,3	28 199,60	
Lillhagsp.	vån 3		17/6-28/7	559,3	29 083,60	
Lillhagsp.	vån 4		6/5-16/6	564,3	29 343,60	
Lillhagsp.	hus 9		6/5-16/6	925,45	48 123,40	
Lillhagsp.	natt		11/2-24/3	420	21 840	
Lillekärr	Donsö		17/6-11/8	280,45	14 583,40	
Lillekärr	Hållö		17/6-11/8	277,45	14 427,40	
Lillekärr	Mjölskär		17/6-11/8	277,45	14 427,40	
Lillekärr	Måseskär		17/6-11/8	277,45	14 427,40	
Lillekärr	Vinga		17/6-11/8	277,45	14 427,40	
Lillekärr	natt		21/1-3/3	308,15	16 023,80	
		Totalt staffing requirement			**728 875**	**h/y**

Basic staff 2011, District 2					Basic staffl 2013, District 2			
	Number	**h/y**	**total h/y**			**Number**	**h/y**	**total h/y**
Full-time	236	1600	377 600		**Full-time**	351	1600	561 600
Part-time	222	1200	266 400		**Part-time**	82	1200	98 400
			644 000					**660 000**

2011	Ordered vacant hours district 2									
Shifts	**Tot. Hours**	**h/shift average**	**Hour resource**	**Hours pool**	**Hours On-call**	**Tot. Hours employe**	**Refused hou**
4535	31648,65	7	5725,3	0	22369,35	28094,65	3554