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The role of city managers and external variables in explaining efficiency differences of Finnish municipalities

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Abstract

We study whether Finnish city managers' characteristics and work environment, in addition the external factors, explain differences in cost efficiency of service provision in Finnish municipalities. First, Data Envelopment Analysis (DEA) is employed in calculating efficiency scores for municipalities. In DEA the outputs consist of six to ten volume indicators of services in health, social and education sectors. As the combined input, the cost of providing (either producing or buying) these services is used. Next, the DEA efficiency scores are explained with regression models. As external factors, we use variables which characterize the municipality, its location and its population. Our main interest, however, is in the role of city managers, who as civil servants chosen by city councils are somewhat comparable to CEOs in private firms. Here, we use survey data from an earlier (1996) EU project, namely U.Di.T.E Leadership Study. It allows us to test whether Finnish city managers' characteristics (like age, education level, gender, political membership) and work environments (like cooperative vs. disagreeing, contact intensity etc) explain efficiency differences in addition the external factors.

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1. Introduction

Basic services (merit goods) are provided by the public sector in most developed countries. In some cases the public sector finances these services and also acts as the producer. In other ones, the private or non-profit sector is the main producer. Also, the level of government at which key provision/production decisions are made, varies from centrally organized service systems to highly decentralized ones, which may have several tiers of government.

In Nordic countries Norway and Sweden have three tier governments, and also Denmark, after a municipality reform in 2007, has still three tiers (municipalities, regions and central government), although the regions no longer have their own revenue sources. Finland has differed from the other ones by having had two tiers all the time without an intermediate level with its own decision making bodies, tasks and own revenue sources. The provision of an extensive list of basic services is decentralized to municipalities the number of which was 455 in mid 1990s, but it has decreased especially during last few years to 342 in 2010. According to Local Government Act councils of municipalities are ultimate decision making bodies in Finland. In addition, there are municipal governments (executive boards) and city managers (local government CEOs), who are civil servants and not elected political mayors in the Finnish case.

The purpose of this study is to analyze whether, in addition to the characteristics of municipalities, the city managers' characteristics and their work environments affect the efficiency of municipalities. One may ask whether Finnish city managers are Niskanen (1971) type budget maximizing bureaucrats, who use their capabilities (like education) to promote their own interests and cause inefficiency. Alternatively, they may be career concerned civil servants, who want to proceed from small municipalities to big cities, where they earn more and enjoy the respect and fringe benefits of a more visible job. If efficient management can be at least partly signaled to outsiders, career concerns are best promoted by using ones capabilities (like education) to enhance efficiency. The latter alternative should be most relevant for young city managers, whereas those at the end (top) of their career may put a greater weight on choices that create slack to promote their own interests and less weight on efficiency. Although the Finnish city managers are in international comparison in powerful position, they work with politicians and the staff of municipal service sectors. Thus, their choices and performance also depends on their work environment. The cooperativeness of stakeholders and employees, the contact networks and other factors related to the city managers' work environment may also affect efficiency in service provision.

We limit our study to provision of basic municipal services in Finland. The services considered cover basic education and health services, as well as social and cultural services, while specialized health services, transportation, land use and utilities are not included. Thus, our results do not cover all activities of municipalities. Also, the excluded sectors include activities, where economies of scale may be far more important than in basic services. It should be noted that unlike numerous sector specific studies, which consider schools, health centres etc. separately, we regard municipalities as multi-product firms, which provide (either produce or buy) several services under political and administrative decision making. Our approach is also different from the numerous studies, which have explained variation in total expenditure per inhabitant, since high or low per capita expenditure level does not necessarily tell anything about efficiency of provision.

In the first stage of our analysis, Data Envelopment Analysis (DEA) is applied to produce efficiency scores for municipalities. In DEA, six to ten volume indicators of various basic services are used as outputs, and the single input variable is aggregate net cost of provision. In this setting, where service provision is carried out either by own production or by buying from other municipalities or the private sector, our efficiency concept is neither technical nor cost efficiency of production. We use the term cost efficiency of provision. In the second stage, regression analysis is applied to explain the efficiency scores

with various types of variables. They include indicators related to location, spatial structure and the size of municipalities, diversity of service provision, share of own production vs. outsourcing, income level and unemployment rate, age structure of municipal employees, political structure and the grant system. These were also included in our earlier study (Loikkanen and Susiluoto 2005), which used data from 353 out of about 450 Finnish municipalities during 1994-2002. The contribution of this piece of work is to study, in addition to the above variables, the impact of city (municipal) managers on efficiency of service provision. We study whether city managers' characteristics, work environment and other similar variables also explain efficiency differences across municipalities.

The information on city managers concerns the year 1996 and comes from an EU project U.Di.T.E Leadership Study. The name of the study stems from the organization of European local government chief executive officers, Union des Dirigeants Terrotoriaux de l´Europe. The project studied the role of city managers using a common survey in various countries. We use the Finnish results of this survey in our analysis to define some potentially relevant variables to explain efficiency differences of municipalities. More generally, the results of Finnish survey are reported in Sandberg (1998), in an article of a book edited by Klausen and Magnier (1998), which summarizes the results of 15 countries in the whole EU project. As the city manager survey was done in 1996, we do not use data on 1994-2002 as in our previous study. Here, only the years 1994-96 are included and we explain the annual efficiency scores of these years. The combined data, which includes variables both from the earlier DEA study and the U.Di.T.E Leadership Study, consists of 250 municipalities. We use 192 of them confining ourselves to municipalities in which the city managers had been in office at least for three years.

The structure of the paper is as follows. In section 2, we make a short survey on the approaches and results of earlier studies, which have considered the efficiency of municipal service provision without paying attention to the role of city managers and their work environment. Section 3 contains first a discussion on what is known about the effect of CEOs' characteristics on performance (profitability measures) of private firms (limited companies). Then, there is a discussion on the role of managers in public sector such as city (municipal) managers, and a description of our research strategy. In section 4, we briefly describe the role of municipalities in the Finnish system of local government. In section 5, we present the data (input and output variables of municipalities) and the results of DEA analyses, which are efficiency scores. Section 6 starts with a discussion on what factors could be relevant in explaining cost efficiency differences among municipalities. Here, we also consider the role of city managers and their work environment, and the possibilities to use city managers' survey data to generate relevant variables. In section 7, we present estimation results of regression models where the dependent variable is the DEA efficiency score and independent variables include various characteristics of municipalities and city managers, and their work environment. Summary of the study is presented in section 8.

2. Studies on the efficiency of municipalities

In this section we make a selective survey of studies, which have evaluated the efficiency of municipalities viewed as multi-service providers. A traditional approach to evaluate efficiency differences of production units is to use its input and output indicators (quantities) to study productivity defined as the ratio of weighted outputs to weighted inputs. Market prices of outputs and inputs are used as weights. In case of public sector activities, market prices for outputs are typically unavailable. To overcome this problem, average unit costs are frequently used as weights. Alternatively, nonparametric methods such as DEA have been used because these applications do not require information on input or output prices. Once productivity differences have been derived empirically, the second step is often to explain them with regression type models.

In Borge, Falch and Tovmo (2004), the authors study the effects of political and budgetary institutions on the efficiency of public service production within the Norwegian local government sector. The main outputs of each municipality are aggregated into a single output and divided by aggregate resources to get measures of efficiency for each municipality. Then, the efficiency indicators are explained in a regression model by the characteristics of municipalities. According to the results, low efficiency level is associated to fragmentation of political power, socialist influence in municipal councils and high level of revenues at municipal level.

De Borger et al. (1994) study the technical efficiency of 589 Belgian municipalities with cross-section data in 1985. In the first stage they use the non-parametric Free Disposal Hull (FDH) method for deriving a frontier production function and efficiency scores for municipalities. Municipal service production is measured by three inputs, which are the number of blue and white collar workers, and the space of buildings. The five outputs measure surface of roads, number of minimal subsistence grant recipients, students enrolled in primary schools, surface of public recreational facilities and a proxy for services delivered to non-residents. When efficiency scores of municipalities are explained by Tobit-models it turns out that high efficiency is positively related to the size of municipality and the average level of education among population. Average income level and the ratio of grants to revenue are negatively related to efficiency.

Already prior to De Borger et al. (1994) study, Van den Eeckaut et al. (1993) had studied efficiency of Belgian municipalities both with FDH method and DEA. In their case, the output variables were rather far proxies for the services of municipalities.

De Borger and Kerstens (1996) compare the results of two non-parametric methods (FDH and Data Envelopment Analysis, DEA) and three parametric methods (one deterministic and two stochastic) in the analysis of efficiency in municipal service production. The single input variable is total expenditure, while the five outputs are as in De Borger et al. (1994). The respective frontier production functions and related efficiency scores for municipalities are calculated with each method. Efficiency scores produced by various methods lead to somewhat different levels of average efficiencies and rankings of municipalities. As a second step the five sets of efficiency scores are explained by regression methods and the results are then compared. These analyses produced surprisingly similar results. As a whole, the level of taxation and education level are positively related to technical efficiency, while average income level and the ratio of grants to revenue are negatively related to efficiency.

Balaguer-Coll et al. (2002) study efficiency differences of Spanish local governments. According to the results, a wide margin exists within which managers could increase local government efficiency levels, but a great deal of inefficiency is also due to exogenous factors. The effect of size of the entity on efficiency was not straightforward. High per capita tax revenue and high per capita grants tend to cause inefficiency, while a high amount of commercial activity has a positive efficiency effect. In another study Balaguer-Coll et al. (2003) used nonparametric activity analysis for estimating efficiency differences of local public governments in Valencia, Spain. The aim was to determine whether the inefficiencies were primarily overall cost, technical or allocative in nature. In the second stage, nonparametric smoothing techniques were used to identify some critical determinants of inefficiency, focusing both on political and fiscal policy variables. According to the results, low efficiency was largely attributable to allocative factors and also smaller municipalities tended to be inefficient.

Afonso and Fernandes (2003) study expenditure efficiency of Portuguese local governments by the FDH method. They compute efficiency scores for 51 Portuguese municipalities located in the region of Lisbon and Vale do Tejo (RLVT) in order to estimate the extent of municipal spending that seems to be 'wasted' relative to the 'best-practice' frontier. The results suggest that RLVT municipalities could achieve, on average, roughly the same level of local output with 39 percent smaller resources.

Coffe and Geys (2005) study the effect of social capital on the performance level of 305 Flemish municipal governments in 2000. The variable to be explained is the municipality's surplus for the fiscal year as a share of total revenues. Measures of associational life, voting activity and crime rate are used as indicators of social capital. According to the results, a higher level of social capital leads to a better quality of local government's financial management.

At this stage, it is instructive to summarize the findings of our earlier study as this study will use some of its results (efficiency scores of municipalities during 1994-96) to study the role of city managers. According to Loikkanen and Susiluoto (2005) peripheral location, high income level (high wages), large population, high unemployment, diverse service structure and a big share of services bought from other municipalities tend to reduce efficiency of municipal service provision. Big share of municipal workers in age group 35-49 years, dense urban structure, big share of services bought from private sector and high education level of inhabitants tend to increase efficiency. These results apply for 1994-2002 and also mostly for its sub-periods. Great state grants reduced efficiency in first years after the end of matching grant era in 1993. Later, during the block grant era our grant variable was unrelated to efficiency. Political variables and turnover in local elections did not explain efficiency differences.

The basic question of this work is whether the characteristics of city managers and their works environments, in addition to the above variables, explain efficiency differences. This is a similar question as whether entrepreneurs or CEOs affect the performance of private firms.

3. Studies on the impact of CEO and city manager characteristics and work environment on performance

Is it possible for leaders to have a substantial effect on the overall performance of the organizations they lead? What do we know about such effects in the case of private firms' CEOs and managers of public sector organizations? Especially, what do we know of the impact of city (municipal) managers and their work environment on efficiency of municipal service provision?

We shall first present some preliminary findings from the CEO literature, and consider public sector managers thereafter. Before that, we note that leaders are an important human resources of organizations, but also work organization, incentives and work relations of all employees have a role to play on the their performance. Pfeffer (2007) makes a survey on the effects of organizational behavior from a human resources perspective, but the focus of the article is not directly on CEOs or top managers.

3.1. CEOs

A somewhat astonishing feature of textbooks on microeconomics is the absence of the entrepreneur in the theory of the firm, although the entrepreneur is someone who "specializes in the taking judgemental decisions about the coordination of scarce resources" (Casson 2003, p. 23). Despite the fact that there are many theories of entrepreneurship by economists and non-economists, this state of affairs reflects the difficulty of neoclassical in modeling of entrepreneurs. After their survey, Bianchi and Henrekson (2005) conclude that an individual real-world entrepreneur, even if highly stylized, cannot at present be modeled in mainstream economics, since he or she does elude analytical tractability. This state of affairs is in sharp contrast with the vast emphasis of entrepreneurship in various other connections.

Here, we are interested in CEOs who are also rather absent from basic theory of the firm although there is a large literature on CEOs. Omitting cases where the entrepreneur or a major owner of company is also the CEO, the relationship between the executive and owners is often considered

using agency theory. Here the two parties, the principal (owner) and the agent (CEO) form a relationship where the CEO performs organizational tasks on the behalf of the owner (Dahlstrom and Ingram 2003). The selection and business life with chosen CEO offers challenges to the owners due to imperfect and asymmetric information. These involve hidden characteristics of CEO candidates which may lead to adverse selection (choosing "lemons") when choosing amongst CEO candidates if choices are made on the basis of average qualifications (Akerlof 1970). In order to avoid these problems, signaling, screening and third party evaluations can be used to achieve better matches.

Once a CEO is chosen, there is most often incomplete observability between the efforts of the CEO and the success of the firm. The latter depends, besides on what the CEO does, also on other factors in a way where it is hard to separate each factor's contribution. Under these circumstances it is hard to make a simple salary contract with the CEO, which would take into account his/her characteristics and effort, and the performance of the firm. The result may be a moral hazard problem, where the CEO's effort remains low and leads to inefficiency. As a remedy to such problems, long contracts with many observations have been suggested to overcome the information and incentive problem. On the other hand, Fama (1980) claims that no complicated explicit contracts are needed as CEOs are interested in their careers, which motivate them to be efficient.

Holmström (1999) analyses Fama's proposition that career concerns lead to efficient managerial behaviour in a dynamic setting and finds that under certain restrictive conditions Fama's conclusion is correct, but more generally, it is not correct. When the CEO's behavior and the learning process about the relation between CEOs effort and the firm's performance are taken into account, long time horizon, career concerns and reputation building do not resolve the incentive problem. Thus there is room for contracts even in a multi-period dynamic setting. What is interesting in Holmström's result is that the need for incentives to increase CEOs effort is smaller in early stages of career than in later stages. From this we infer that if, however, these incentives are constant or do not increase sufficiently over life-cycle, one would expect firms led by young CEOs to perform better than firms led by old CEOs.

Gibbons and Murphy (1992) add explicit contracts to Holmström's (1999) model and show that career concerns can still create important incentives. Total incentive effects are optimized by a combination of implicit incentives from career concerns and explicit incentives from an explicit compensation contract. Their model also predicts that incentives to supply effort (work) from the compensation contract should be strongest for workers close to retirement and in jobs with no promotion opportunities. Respectively, they should be weakest for those in early stages of their careers when there are opportunities for promotion. An empirical analysis of CEOs salaries in biggest firms indicates that the performance based component is highest for CEO during last years before retirement.

What relevance does the above have to an analysis of Finnish city managers (CM)? Also they are civil servants (agents) chosen by city councils. The council and the city government are principals who do not know the true characteristics (talent) of CM, but they as well as outsiders can learn over time about the relation between CM's effort and performance. One career option to a CM is, like in the above models, to stay in the municipality and try to get better pay by good performance (efficiently provided services). In public sector, however, the performance based pay component tends to be non-existing or limited. Under these circumstances, a key incentive for effort is offered by such career concerns which are based on moving upward in the hierarchy of municipalities, where the top is the CM of Capital City. A rather typical career of a successful CM begins in a small municipality, builds reputation and proceeds to medium size and big cities where salaries are higher. In a similar logic Eichenberger and Funk (2009) suggest an important role for implicit career concerns for politicians as well as for public servants. In order to improve incentives for

politicians they propose to open the political markets which would enhance the politicians' career incentives.

We shall return to career concerned city managers and the like later, and turn our attention to empirical issues concerning CEOs in private firms. What do we know about the relationship between personal characteristics of CEOs and the performance of private firms? Next, we refer to findings from some earlier studies.

There are studies on how the CEO's personality type as leader affects performance. For instance Waldman et al (2001) have studied data from 48 Fortune 500 firms. They assess transactional and charismatic CEO leadership as predictors of profitability of firms, and hypothesize that this relationship depends on perceived environmental uncertainty, as reported by immediate subordinates of CEOs. According to results of this study, uncertainty strongly moderated the relationships between performance (measured in later years) and both transactional leadership and charisma. However, the interaction of transactional leadership and uncertainty had no significant effect beyond that of the charisma-uncertainty interaction. Consistent with expectations, charisma predicted performance under conditions of uncertainty but not under conditions of certainty.

How do the personal characteristics of CEOs like their age, tenure or gender affect performance of firms? Although it seems that the role of CEOs' characteristics have been studied extensively, here we mainly refer to a recent Finnish study by Kotiranta et al (2007). It concerns Finnish CEOs and is thus culturally comparable to our own study on city managers. Furthermore, it includes quite a few of interesting variables, although its focus is on gender effects. Besides a survey on the gender topic, it has results on CEOs' characteristics and firms' profitability. The study has data from 2003 and it covers 12738 Finnish limited companies, which all had at least 10 employees. As performance measures, the study used return on assets (ROA), returns on investment (ROI) and return on sales (ROS). In addition to gender, also the age of CEO is included. Other covariates related to management consist of average age of board members, age difference between oldest and youngest board member, and whether CEO acts as chairman of the board. There are also a number of covariates related to the firms being part of a multi-firm conglomerate (share of exports, capital intensity, foreign ownership share). There were 18 sectors (17 dummies), regional dummies, size variables by employment, and five age classes for the firms. The variables of main interest in the study were the female CEO dummy, the female chair of board dummy and the share of women in board (both separately and all in the same model). With one exception out of 12 regression models, the female CEO and female share in board gender coefficients are positive and statistically significant. Female head of board has no significant impact of performance measures. On average the impact of female CEO means a ten percent higher profitability. The authors then engage in a critical discussion on whether women are better CEOs, or is there a selectivity bias (are women more screened small group and thus better or do women end up being CEOs in more profitable firms).

What about the impact of other personal characteristics of CEOs? In the Kotiranta et al (2007) study the age of CEO had a negative and statistically significant effect on ROA and ROS, but it was insignificant for ROI. After windsoring of performance measures, the coefficient of age got a negative and significant coefficient in case of ROI, too. The size of board had invariably a negative and significant effect on all three indicators. The average age of board members had no effect, except after windsoring, ROA was negatively affected by average age. The age difference between oldest and youngest board member had mostly a negative sign, and it was also significant for ROA and in some models for ROI, too. On ROS there was no significant effect in any model. The dummy indicating that the CEO was also chairperson of the board got invariably a positive coefficient, which was also significant for ROA, and for all three indicators (ROA, ROI and ROS) after windsoring. Note that this study did not study the impacts of compensation system on CEOs' performance.

As for location, dividing Finland in four areas, Kotiranta et al. find that firms located in Southern Finland are more profitable in terms of ROA, and after windsoring also in terms of ROI and ROS relative to Eastern and Northern Finland. In windsored models also Western Finland gets a positive on ROA and ROS. As for size of firm in terms of number of employees, ROA and ROS are unaffected by size class dummies, whereas ROI is higher in most of the size classes below 250 employees than in the class above 250. Finally, as the age of the firm increases from 0-4 years, ROA and ROI decrease, whereas ROS is unaffected. After windsoring, the same applies for ROA, whereas for ROI, firm's age class has a negative and significant impact only in case of oldest (20- years) age group. Windsoring results in getting positive and significant coefficients for ROS in case of oldest firms in part of the estimated regression models.

There are studies on CEOs, which analyze the impacts of exogenous shocks on their firms' performance. Using Danish data, Bennedsen et al. (2006) study how CEO's death and deaths of CEO's immediate family members (spouse, parents, children and so on) affect the firm's later performance. They find that CEO's (but not board members') own and family deaths are strongly correlated with declines in firm operating profitability, investment and sales growth. The strongest negative shocks in performance are caused by the death of CEO's children and death of CEO's spouse.

3.2 City managers and leaders in public organizations

Can we expect to get similar results when we study the performance of public sector leaders like city managers? Because municipalities are nonprofit organizations and their governance structure is different from firms (see Fischel 2006), it is hard to say whether similar results apply to city managers. Business governance is based on the interest of stockholders, who elect the board, and the board elects the CEO. In the municipalities residents choose city (municipal) councils, and the councils elect city governments where, in the Finnish case, all (main) political groups are proportionally represented. No major group is outside government (in opposition). In Finland councils also elect city managers, who are formally civil servants rather than politicians. They can be members of some party or non-partisan people. In many cases they are career city managers, who move from smaller municipalities to bigger ones during their work life. In the biggest cities, however, city managers are often former local politicians who have been in city councils and city governments, and quite a few of them have been in national politics, too (MPs, ministers or the like).

When studying the impact of city managers on the performance of their organization, one has to define some relevant measure(s) of performance and explain how the manager and his or her characteristics can affect it. Our performance measure will be cost efficiency in basic service provision, and it will be considered in more detail later. Can it depend on managers' job type, personal characteristics and their work environment?

At one extreme city managers have no power of their own. They only execute the decisions of municipal councils and their governments. At the other extreme, city managers have agenda control, which means that they define the alternative(s) to be considered and thus affect the outcome of political choice. On the other hand, they have informational advantage in the sense that they usually know better the production technologies, costs, service demands etc. than politicians. They may also be in better position to evaluate and execute municipality reforms than other municipal decision makers, although the councils must make final choices.

Assume that city managers can choose their actions (effort) and they also have at least some power in allocating resources in their municipality. According to Niskanen's (1971) bureaucracy theory city managers pursue their own interests by maximizing the size (expenditure) of their organization. Instead of using their capabilities (like education and work experience) to enhance performance (low costs, good

quality services) they create bureaucratic slack and high costs by promoting their own interests. This approach seems relevant if the city managers job is best viewed as a life-time job with no other alternatives.

Niskanen's bureacrace theory is less relevant if there is a national market for city managers and the successful managers make careers by moving from small municipalities to bigger ones. As suggested by the career models discussed earlier, reputation building leads to signalling about their abilities by good performance especially at early stages of their career. Thus city managers use their talents, education and experience to enhance efficiency in service provision when they are young to build a good reputation which makes promotions to bigger municipalities more probable. City managers close to the age of retirement have no career incentives to enhance efficiency. If the pay and performance are not sufficiently linked at that stage, old city managers are like Niskanen's bureaucrats if they have room for pursuing their self interest.

The above considerations would suggest that in the career concerned case CM's high education and other talents are good for performance (efficiency) when young, but these effects fade away and may chage sign at the end of the career. Also, having been for a very long time the city manager in a small municipality suggests that the CM has not been able to build a good reputation and career by getting jobs in bigger municipalities. Thus, short spells of working in small municipalities are related to efficiency more probably than long spells. Also, the system of tenure track, where CM nominations are temporary or they are made permanent only after assessment (or terminated) may enhances efficiency by increasing the incentives for building reputation by good performance.

In cases where bureaucratic self interest is most probable to dominate, its room is limited in cases, where public sector activities are more understandable and visible to politicians and the electorate. Because of this, small municipalities and organizations should have less bureaucratic slack than big cities. Also direct democracy and related citizen's interest and involvement should increase visibility and limit slack relative to representative democracy (Pommerehne 1978). In Finland, only representative democracy is applied and referenda at local level are new, rarely applied and only consultative. Thus, there is no variation in the form of democracy across municipalities.

Political power presumably affects allocation of resources between private and public sector and expenditure structure at local level. Usually, left wing parties want more and right wing parties less of publicly provided services. But do political parties or compositions in municipal councils affect efficiency of service provision? Does the left or the right or some other group have a better knowledge of efficient service system? Does it matter for efficiency, whether the city manager is independent or a party member, and furthermore, does it matter whether the manager's party is the same as that of the majority or biggest group in council (and city government)?

Many public sector leaders and city managers, especially in big cities, are heads of many subsectors and a big amount of employees. Whether they get along well or badly, not only with the political bodies, but also with their colleagues in administration may affect performance. Cooperation or conflict may result from divergent (political and other) objectives, but it can also depend on the type of leadership pursued by the city manager. Objectives and leadership type may be systematically related to such characteristics as education level and type (engineer, economist, lawyer or local government studies degree). It may also be associated to gender, as Kotiranta el al (2007) results on CEOs suggested, although the literature is mixed on both whether male and female leaders are different, and whether gender affects performance.

To give some examples on the role of gender, when studying men and women in top managerial positions, they are often found to act similarly like in Donnell and Hall (1980) and Duerst-Lahti and Johnson (1992). Also the survey by Karsten (1994) and Duerst-Lahti and Kelly (1995) support the view

of no gender differences. On the other hand, there are quite a few studies which suggest that there are differences between the management styles of men and women (Rosener 1995, Stivers 2002).

A local public sector example of studying gender effects with well defined performance measure is offered by Johansen (2007), who studies the management and performance of school superintendents in Texas. The study aims is to find out if female and male managers use different strategies and what influence these strategies have on organizational performance. Using data and superintendent survey responses from Texas school districts from the years 2000 through 2005, differences between male and female managers are discovered. Female managers and the strategies they use have a positive influence on performance, which is measured by student scores in standardized tests.

As for cities, the roles of councils, local governments (executive boards) and mayors or city managers varies. There are studies which investigate whether the form of top leadership affects efficiency of cities. For instance Hayes and Chang (1990) study the relative efficiency of city manager and mayor-council forms of government. Deno and Mehay (1987) study municipal management structure and fiscal performance to find out whether city managers make a difference. O'Brien (1995) studies police and firefighter bargaining outcomes, and asks does it matter who bargains for the municipality? In a recent study Kreft (2007) claims that previous research has concluded that there are no efficiency differences between EMC and CM city governments, but the CM form has recently surpassed the EMC form to become the most popular U.S. city government. He makes an efficiency comparison of city managers (CM) and elected mayors (EMC). His study relies on capitalization theory of local public goods and he estimates a hedonic price model for Ohio metropolitan home sales. Results show that houses within a CM city have a pricing premium that can be attributed to the relative efficiency of the CM government.

In another recent study Enikolopov (2007) compares ECMs and CMs. According to his model, because of the different career incentives, elected politicians are more likely to use patronage jobs to achieve personal political goals than appointed bureaucrats. He uses panel data on local governments in the U.S. to confirm the predictions of the model. He gets the result that privatization of public services provision leads to a decrease in public employment only in communities with appointed chief executives. He also offers a short survey of relevant politicians vs. bureaucrats' literature in his section 2.

Municipalities and their leaders do not operate in isolation. Instead they compete for residents and businesses, which may also affect their performance as Tiebout (1956) suggested. Revelli and Tovmo (2007) study whether the production efficiency of Norwegian local governments exhibits a spatial pattern that is compatible with the hypothesis of yardstick competition. The paper exploits unique information from a survey on local politicians' attitudes towards comparative evaluation of local bureaus' performance against other jurisdictions' (benchmarking). Merging the latter information with the observed interdependence in efficiency, the paper provides evidence that comparative performance evaluation generates positive spatial auto-correlation in local efficiency indicators.

Some of the insights of the preceding sections will be taken into account in our study of Finnish city managers. Our approach, data sources and modeling strategy in studying the role of city managers will be presented in section 5. Before that, we shall briefly summarize the role of municipalities in the basically two-tier government system of Finland. This is important, because it indicates that city (municipal) managers are leading complicated organizations, which typically produce themselves a wider range of services than local governments in most other countries, where intermediate government levels take care of a number of these tasks.

4. The role of municipalities in Finland

The Finnish public sector is a two-tier system with central government and some 340 municipalities, the latter ranging in size from a few hundred to more than half a million people. The main tasks of central government and social security funds mainly consist of providing national public goods, higher education and transfers, whereas the local public sector concentrates on local public goods and basic services (merit goods). The latter consist of social services and health care, education and cultural services, infrastructure maintenance and environmental protection. Nearly two-thirds of all public consumption and investment expenditure are used at local level in Finland.

One out of four employed people in Finland worked in the public sector in 2007. Central government employment was about 154 000 man-years and local public sector employment 457 000 man-years. About 80 % of employees in the municipal sector work in social, health and education services. Because the nationally dictated tasks of municipalities are broad and expensive, they co-operate in joint organizations, e.g. in health services and education. Unlike in Denmark, Norway and Sweden, where the intermediate level of government is responsible for some large scale services, in Finland this level with its own tax powers and decision making units does not exist. Finnish joint municipal authorities have no taxing powers of their own and their decision making bodies are not directly elected.

Municipalities levy a local (earned) income tax and a minor property tax (since 1993) on residential and non-residential real estate. Tax base and deductions are determined by central government, but each municipality decides independently on its income tax rate and tax rates (within bounds) for different forms of property.

Earlier municipalities could tax corporate income directly, but after the tax reform of 1993 it became solely a central government tax. However, a share of the accrued corporate income tax revenue is paid to municipalities by portions that are fixed in the Income Tax Law. This share has been reduced over time.

In addition to tax revenues, there are state grants to municipalities. Before 1993 about 99 % of state grants to municipalities were matching grants such that the matching rates varied by sector and characteristics of municipalities. In 1993 reform, grants became non-matching block grants based on so called "calculated expenditures". Related to the economic crisis of early 1990s in Finland, the central government cut the grants throughout 1993 – 1996. They covered 50 % of net operating expenditure in 1993, whereas in 1998 they covered only 24 %. Fast income growth during late 1990s enabled the municipal sector to cover the grant reductions at least partly by relying on its own revenue sources.

Since the 1993 reform, block grants consist of general grants and sector based block grants, which together with received or paid tax equalization form the total grant amount allocated to each municipality. This total is lump sum money, which is not tied to any particular activity. The 1997 grant reform revised the criteria for calculating sector specific components of block grants.

In principle, Finnish municipalities have nowadays a lot of power in deciding how to allocate their own resources and lump-sum type transfers. In practice, decentralization of power is, however, restricted since national laws determine the obligations of municipalities and give residents subjective rights to several basic services.

The governance structure of local governments is basically the same in all municipalities from small rural ones to major cities. The electorate chooses the municipal councils every fourth year. Note that in all Finnish elections, votes are given to individuals rather than party lists. Then there are municipal

governments, which include all parties represented in elected councils in proportion to the number of council members. Thus, there is no real opposition and municipal elections do not typically cause major changes in local politics. In principle councils decide, but a very common view is that the real power is in the hands of the municipal governments and boards and top civil servants. Elected councils are very often regarded as rubber stamps of government decisions. Councils are claimed to rarely change the decisions of governments, which themselves may be heavily affected by city managers' and other top civil servants' agenda control (Heuru 2001, Ryynänen 2001, Sauri 2003).

Formally, the chairpersons of councils are number one posts in municipalities, but their task is technical leading of meetings. Similarly, the formal task of chairpersons of municipal governments (who do not need to be council members) is to lead their meetings technically. Neither of them, however, represents the municipalities politically in most occasions. This task is allocated to city (municipal) managers, who represent the views of local governments. In most European countries, city managers are (directly or by councils) elected mayors, who are also chairs of local councils or governments or both.

The Finnish arrangement is rather remarkable, since it means that basically non-political civil servants have political tasks. Their periods of office are either fixed in advance (but the number of years vary) or the positions are permanent. The choices of city managers do not necessary take place even close to local elections. Most city managers are in the civil servants market making careers in the public sector. Some of them are (or have been) members of political party, but there are a lot of non-partisan city managers, too. They apply to pubicly open city managers' posts, and when they are chosen, they move from one municipality to another during their work life. The biggest cities, however, do not most often choose city managers (mayors) from "the market". Although also there, CMs are civil servants, they are de facto local politicians, who have risen up from their city councils and governments or from national politics to this position being elected by local councils. City managers in Finnish cities are called mayors in English although they are civil servants. In biggest cities, there are also deputy mayors. Parties allocate these civil servants' posts between themselves in proportion to seats in city council.

In the governance structure of Finnish municipalities, political power is dispersed. Council members and chairpersons of the council and city government are lay politicians. The may have much power in decising how much resources (money) are to be used for alternative purposes. The city manager may affect these choices as well, but most importantly he/she is responsible for management of the municipal service system and its efficiency, and this is what we are interested in. How does efficiency of service provision depend on city managers type of job personal characteristics, leadership abilities and work environment?

Our focus is on cost (or expenditure) efficiency of basic service provision, and we proceed as follows. First, we use net operating costs of basic services (as input) and respective service volumes (as outputs) to derive efficiency scores of municipalities. As a second stage, we explain these scores in regression models by variables related to both characteristics of the municipalities and their location, economy and demographics, and with characteristics of city managers and their work environment. The information on city managers comes from the Finnish survey results of U.Di.T.E EU-project (see Sandberg 1998) conducted in spring 1996.

5. First stage: Application of Data Envelopment Analysis

In this study we follow a two stage approach. In the first stage, we use Data Envelopment Analysis to determine cross-section frontier production functions and efficiency scores with data for each year during 1994-1996. These results come directly from our earlier study (Loikkanen and Susiluoto 2005) which covered the years 1994-2002. The reason for constraining the data is due to having city manager information on 1996 only. In the second stage annual efficiency scores during 1994-1996 are explained in regression models by characteristics of municipalities and city managers.

5.1 Data Envelopment Analysis

Data Envelopment Analysis (DEA) is based on the work by Farrell (1957) and further elaborated by Charnes et al. (1978) and Banker et al. (1984). This approach (see e.g. Färe et al.1985) has been widely used in empirical efficiency (or productivity) analysis especially in cases where the units (DMUs) use multiple inputs to produce multiple outputs, and there are problems in defining weights and/or specifying functional forms to be employed in analysis. As DEA does not require input or output prices in determining empirical efficiency frontiers based on best practice technology and related measures of inefficiency, it has become especially popular in the study of public sector. These applications include efficiency studies concerning e.g. schools, hospitals and theatres. Also private sector applications have been numerous as can be seen e.g. from Seiford and Thrall (1990), where the method is also introduced.

Several DEA studies of public sector efficiency have also been made in Finland. To take only a few examples, Kirjavainen and Loikkanen (1993, 1998) employed the method to investigating efficiency differences between senior secondary schools. Linna (1999) used the method to measuring Finnish hospital performance, while Luoma and Järviö (2000) studied productivity of health centres. This study uses DEA results of our previous study (Loikkanen and Susiluoto 2005) on cost efficiency on municipalities and explains them in regression models with covariates which now also include city manager information.

5.2 Data and the four DEA models

There were 455 municipalities in mid 1990s in Finland. In the first stage of our study, we excluded for reasons of comparability and reliability the municipalities of Åland archipelago, small municipalities with less than 2000 inhabitants, as well as municipalities which merged during 1994-2002. The data in our DEA analysis consists of 353 municipalities with a median population of 6000 inhabitants, and it was obtained from Statistics Finland for the period 1994-2002. Instead of a single model, four DEA model variants are applied annually.

When estimating the DEA scores, no measures on labor or capital input use were available. Thus, we had to use a single money-metric measure of municipal resource use in basic service provision. It is the sum of net operating costs of providing health and social services, culture and education each year, evaluated at 1995 prices. A proportional share of administrative costs in these activities was included in the expenditures, but general administration costs of the municipality (city council, centralized planning etc.) were excluded.

Municipalities can either produce basic services themselves or they can act as providers of services produced elsewhere (by another municipality, a joint municipal authority, a non-profit organization or a commercial firm). Ideally, efficiency could be evaluated from both the provider and the producer points

of view. Unfortunately, this was not possible, because the dual role of municipalities could not be separated in all service sectors. Consequently a mixed approach had to be followed. In the case of health and social services, we measured the cost of providing the services to the inhabitants (own production of the municipality plus purchased services minus services sold outside), while in education we measured the costs of municipal production. Thus, our money-metric input concept measured partly expenditure and partly production costs. On output side, we had volumes of services provided (produced or bought), and in this setting we used the term cost efficiency in basic service provision. As such our efficiency concept is not equal to technical efficiency or cost efficiency of service production.

We used volumes of ten basic municipal services in health, social services, cultural and education sectors for output measures. More specifically, the outputs were days in children's day centres and family day care, visits in open basic health care as well as in dental care, days of bed wards in basic health care, days of institutional care of the elderly and of the handicapped, hours of teaching in comprehensive and senior secondary schools as well as the number of loans in municipal libraries. Four variants of DEA models were defined, differing mainly with respects to number of outputs and weighting. The only input, net operating costs was the same in all models. Specialized health care, local infrastructure, transportation and utilities were not included.

DEA calculates the efficiency of a DMU by dividing a weighted sum of its outputs by a weighted sum of inputs. Weights of inputs and outputs are not given in advance, but they are determined as part of the solution to the maximization problem. In the simplest case, each DMU is allowed to weigh its inputs and outputs freely to maximize its relative efficiency. Even in our case of a single input, freely determined weights can be problematic, as some outputs could get zero weights, and the efficiency of a municipality would be based on part of the outputs only. This is inconsistent with the fact that municipalities in Finland are obliged to provide the types of outputs concerned. Thus, we technically restricted the efficiency analysis by requiring positive weights for all outputs. We used unit production costs as basis of output weights, and defined "weight tunnels" for the allowed variation of relative output weights. Data for unit production costs was obtained from Hujanen 2003, Hujanen et al. 2004 and Tilastokeskus 2003.

5.3. DEA results on cost efficiency differences of Finnish municipalities 1994-2002

We now briefly present some DEA results from our previous study, which concerned the time period 1994-2002. Later in our second stage of analysis we only use efficiency scores for 1994-1996.

Four DEA models and related cost efficiency scores of municipalities were calculated for each year 1994-2002 assuming constant returns to scale (CRS) for the efficiency frontiers. A long run picture of cost efficiency was obtained by considering the average efficiency scores of municipalities by model type during the whole period 1994-2002. The four models gave a very similar picture on the relative cost efficiencies of the municipalities, correlation coefficients ranging from +0.87 to +0.99. The number of efficient municipalities (on frontier) varied annually from 7 to 26. Averages of annual median efficiency scores ranged from 0.856 to 0.898 suggesting that on average 10-15 % more output could be produced with given resources, if all municipalities were fully efficient.

One of the intrinsic properties of DEA is that the number of efficient DMUs, and also average efficiency scores, tend to increase the more inputs and outputs there are in the analysis. This tendency was also present in our results. We consequently rescaled the original efficiency score distributions before calculating averages across models and years, in order to equalize the importance of the four models for the final average results.

No municipality was fully efficient during all of the years from 1994 to 2002, so none of them had the efficiency score one (100 per cent) for the whole research period. However, a few municipalities got very close to this. Median cost efficiency of basic service provision for 1994-2002 was 87.2 per cent.

Municipalities in the "top ten" ranking list were all in southern Finland. Like most Finnish municipalities, they were generally small by population (range 2 500 – 22 800 inhabitants) and they mostly had an urbanization rate and income level above median. The largest cities were missing from the top list. Peripheral location was the most significant common factor of the weakest performing municipalities. The weakest ten were all in northern Finland, six of them in Lapland. They all had low levels of urbanization, unemployment rates over 20 per cent and income levels around or below median. Their population ranged from 2 800 to 18 200 inhabitants, also a typical size range for Finnish municipalities. In the group of largest municipalities, the only immediately visible pattern was the modest performance of the three Capital Region cities Helsinki, Espoo and Vantaa.

As to temporal stability of the cost efficiency figures, a clear positive correlation (r = +0.63) was found between the average scores of 1994-96 and 2000-2002. For succeeding years the correlations were generally +0.8 or higher, and between any single year and all other years correlations ranged around +0.6 to +0.7. Some municipalities shifted between the lower and upper end of the distribution over time, but this was not common.

6. How are characteristics of municipalities and city managers related to cost efficiency?

As the second stage of our two step analysis, differences in the DEA efficiency scores are explained two sets of variables. First, there are indicators related to location, spatial structure and size of municipalities, diversity of service provision, share of own production vs. outsourcing, income and education level of inhabitants, unemployment rate, age structure of municipal employees, political structure and the grant system. They were all included in our previous study (Loikkanen and Susiluoto 2005). In section 6.1 we present hypotheses concerning their expected effects.

Secondly, we have variables related to city (municipal) managers and their work environment. In section 6.2 we introduce our data on city managers, which mostly comes from a survey of U.DI.T.E Leadership Study. We present the variables to be used in explaining cost efficiency and discuss their expected impacts. Our estimation results will be presented later in section 7.

6.1 Characteristics of municipalities, their demography and politics

In DEA analysis our input variable was net costs of providing the included basic services. These costs were deflated over time, but regional (municipal) variation in input prices could not be eliminated. Service provision is labor intensive and thus by including average income level of inhabitants at municipal level, we wish to correct for missing regional deflators. Besides income level, also the user cost of capital (especially land) tends to be high where incomes are high (big cities). Thus our income variable is expected to have a negative relation with efficiency.

Education level of inhabitants, besides being correlated with income, can also have other roles. Educated inhabitants may be less time consuming customers. On the other hand, assuming that municipal workers are also better educated when the general education level is high, they may be more efficient workers. Thus, we expect education level to be positively related to efficiency. We also have information on the age distribution of employees working in the basic welfare services in the municipality. We construct

three age groups, but it is hard to make a hypothesis to what extent for instance recent education of young employees is better than work experience of older ones for efficiency.

Basic public services are produced in networks of schools, health centres and the like. There are for sure economies of scale at "plant" level, but the spatial distribution of population and its structure affects the size distribution of plants and their rate of utilization. There may also be economies of scale related to the size of the network, e.g. due to common fixed inputs shared by all, but there is also the possibility of bureaucratization of a big sector. Thus a priori it is hard to predict what effect the size of municipality has on efficiency. Also change in population (both directions) is tested assuming that stable conditions enhance efficiency.

In a dense settlement structure it is easier for municipalities to organize and utilize the service network, due to short distances. Thus, we expect that efficiency is positively related to the proportion of inhabitants living in dense urban communities.

Municipalities in a region or in a functional urban area can be divided into core and surrounding municipalities. The core may be so big that it covers most of the functional region or it may form a centre surrounded by competing municipalities. Competition may lead to efficiency. Alternatively, if there are economies of scale at network level and bureaucracy problems can be avoided, then big municipalities covering the whole area may be efficient. We test these competing hypotheses with no a priori expectation by a variable measuring the population share of the core municipality in the region, interacted with a dummy variable indicating whether the observation is a core or surrounding municipality.

Location of the municipality may matter for various reasons (varying transport costs, possibilities to get best human resources and local input prices), but it is hard to say which effects dominate. A weighted average of road distances between the economic region of the municipality and all other domestic regions measures the peripherality of location. In this measure pair-wise distances between regional centres are weighted with the Gross Regional Product of the destination region.

Although all municipalities are legally bound to provide basic services, the structure and shares of these services may vary from one municipality to another. We constructed an indicator of variety of service provision, based on 32 expenditure classes of the service sectors considered. It measures the deviation of municipalities' service structure from an even distribution (sum of distances from 1/32). Higher values indicate lack of variety and we expect that this is associated with high efficiency, because with fewer outputs it may be easier to achieve efficient outcomes.

Weak socioeconomic situation of a municipality may have a negative effect on efficiency if it leads to time consuming customer relations and need for special services, which may increase unit costs of measured outputs. Unemployment rate was chosen as the socioeconomic indicator. Also the share of foreign born residents was tested.

The structure of service provision may affect efficiency. We tested whether the share of basic welfare services purchased from outside producers has an effect on cost efficiency. The purchased services were divided into two groups: purchases from joint municipal authorities (JMA) and other municipalities, and purchases from private producers (either firms or non-profit organizations). On the basis of economies of scale, JMAs can be more efficient than municipalities themselves, but they may also suffer from bureaucracy. Private producers are typically expected to be more efficient than own production of municipalities if there is enough competition.

Several studies both in Finland and in the international literature indicate that state grants to municipalities as well as local politics affect allocation of resources at local government level. They may

affect both the size and internal structure of local government spending. Here, we are interested in whether they affect efficiency. The matching grant system, which gave the more grant money the more you spent, ended in Finland in 1993. Its detrimental effects on efficiency may still be present during the first years of our study period 1994-2002. Later, and especially after the 1997 reform leading to even more clear system with non-earmarked lump-sum grants, we expect grants be more neutral with respect to efficiency.

As for politics, we test whether right/left, right/center/left etc. shares and dispersion of political power in municipal councils are related to efficiency, although we do not have any a priori hypotheses how these variables might affect. Also, turnover in municipal elections will be used as a covariate assuming that political activeness may enhance efficiency.

The OLS results of this stage will be reported in section 7.1, while detailed regressions are in Appendix 1.

6.2 Characteristics of city managers and their work environment

We shall also test the effects of some personal characteristics of city managers, their work environment and attitudes. The new variables for this stage were constructed from the Finnish city managers' answers to the survey of U.DI.T.E Leadership Study which covered 15 European countries (Klausen ed. 1998). The Finnish survey results are summarized by Sandberg (1998), published in Finnish Local Government Studies (3/1999). This special issue includes 19 articles in English ans bears the title "Finnish Local Government Approaching the Millenium".

The Finnish U.Di.T.E data was collected in the spring 1996 through a survey to all city managers (called local government CEOs by Sandberg) in Finland, excluding the Åland islands. The response rate was 74 %. The aim of the U.Di.T.E study was to compare local leadership in different countries, the way it looks reflected through the lenses of the highest administrative officers in the municipalities. The project addressed issues like the relationship between politics and administration, the importance of ideas like the New Public Management for local leadership, as well as the relationship between national culture and styles of leadership. An extensive account of the U.Di.T.E data is given in Klausen and Magnier (ed. 1998) and Dahler-Larsen (2002).

As discussed in section 3.2, the impact of many personal characteristics of city managers depends on whether they are best described as self interested bureaucrats who aim at maximizing the size of their organization and create slack in their own interest. Alternatively, they can be viewed as career oriented civil servants who, especially at early stages of their careers, try to enhance efficiency in service provision and build reputation of being a good manager in order to get a new job with better salary in a bigger municipality. In the first case, the city manager's education, effort and other abilities are used to maximize budget and create inefficiency. In the latter case the abilities of city managers are used to enhance efficiency. Thus we expect young city managers to be more efficient than old ones. Furthermore, higher education level should increase efficiency of young city managers and have the opposite effect for mayors close to retirement age. As we shall se below, we have information on age and education and quite a few other variables which allow us to present some preliminary results how they affect cost efficiency in service provision.

We now briefly introduce contents of U.Di.T.E survey data on the basis of the summary by Sandberg (1999) and introduce variables that can be used in our regression models. In section 8, we shall present our results on how city manager and other variables affect efficiency of service provision in annual OLS regressions with 192 observations during 1994-1996.

On the basis of U.Di.T.E survey's results, the typical Finnish city manager is male, 49 years old, holds a university degree in social sciences and has made a career in municipal administration. Only 6 % of city managers are women, while 40 % come from farm households. The previous position of city manager was for 78 % also a municipality, which was mostly (61 % of all) different from the current one. Almost half of the latter group (29 %) had been city managers in other municipalities, but only for 5 % the previous job was in the private sector. Most city managers (66 %) were at the time of the survey members of some political party. Compared to Finnish electorate whose party membership rate was 13 % in 1992, city managers are very politically oriented. This is remarkable as unlike in most European countries, city managers in Finland are civil servants and not elected political mayors.

Fifty percent of city managers agree that it is an advantage if he/she holds the same political opinion as the majority in the municipal council, and in fact there is a clear match between the largest party in the municipal council and the party of the city manager. If the largest party is Social Democrats, 53 % of city managers are from SDP. For Center Party the figure is 58 %. It is worth reminding that city managers can be nominated permanently or they can have 5-7 year nominations, and they can be dismissed by council decision in both cases. Unfortunately, the survey has no information on these two contract types, any more than on city managers' salaries and fringe benefits.[1]

A large part of the questions concern the roles and values of city managers with scales typically with 5 choice alternatives. On the basis of the answers, Sandberg (1999) draws the conclusion that Finnish city managers (local government CEOs) are political bureaucrats, who formulate ideas and visions, promote new projects and influence decision making, rather than classical rule and procedure oriented bureaucrats using Putnam's (1975) distinction. A distinctive feature of Finnish city managers is their high preference for managing economic affairs, which doesn't quite fit in Putnam's description of a political bureaucrat. This also reflects the challenges of providing and financing an extensive list of services at municipal level in Finland. The survey also maps the networks and contacts of city managers, and studies conflict between city managers and the actors within and around municipalities. In addition to city managers characteristics, we test some conflict indicators based on answers to these questions. The results are presented in section 7.2.

7. Results of regression analyses

Regression models explaining variation of efficiency scores among municipalities were estimated with ordinary least squares method (OLS). Because the DEA scores are in the (0,1] interval, the use of Tobit models would seem preferable. However, our DEA scores to be explained are averages of several models, and in addition to annual averages, we also average over periods. Thus, in many cases the maximal average scores are to varying degree below one, and the basic structure of Tobit model disappears. Furthermore, even when the maximum score(s) are equal to one, in our application there is no natural interpretation relying on latent variables, which cause jumps of scores from one to lower values. Finally, when Tobit models were experimented, the results were not very different from those reported in this paper.

The dependent variable in all regressions is the average annual efficiency score from four models, which is used as such in annual models, and averaged over years in case of longer time spans. The latter models cover three year periods, and also 1994-2002 as a cross-section. In section 7.1. we present our old results with 353 municipalities from models where the city manager variables are not yet included.

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[1] We have later obtained data on city managers' salaries by municipality. There is also information on whether the job is permanent or temporary. This information will be used in later studies..

All these results are from cross-section models. Because of changes in municipal bookkeeping and statistics, we did not estimate panel regressions. In section 7.2 we present models where also the city manager variables are included.

7.1. Regression results with 353 municipalities without city manager variables

In the following, we present estimated models in which systematically insignificant variables are excluded. It turned out that taxable income per person and variables related to the political power structure of municipalities did not explain efficiency differences. Neither did left or right side dominance of political parties in municipal councils or the centralization or dispersion of party structure (measured by the Herfindahl index) have an effect on efficiency. Also, voting activity in local elections (and its change) was tested, but the coefficients were insignificant. The same was true for the variables measuring the population share of the core municipality in each region. Neither did population change (either direction) have a statistically significant effect.

Regression results for the whole period of research 1994-2002, its three sub-periods (1994-96, 1997-99 and 2000-2002) as well as the sub-period 1997-2002 are presented in Appendix 1. Most regression coefficients of included variables are statistically significant in case of the whole research period 1994-2002. The results of the three sub-periods give them good support, even though all explanatory variables are not significant in all sub-periods. Changes in signs of coefficient do not occur, and R^2 values lie between 0.35 and 0.46.

According to regression model results in Appendix 1, big population of municipality is detrimental to cost efficiency in the provision of basic welfare services. Despite various efforts to find nonlinearities in this relation, a basic linear formulation of the population variable seemed to work best. However, as most municipalities in Finland are small (median size in the data is only 6000 people), the population variable is in practice important only for the large cities, and especially for Helsinki, the capital of Finland. Whether this is a pure size effect or represents size related unmeasured outputs and quality differences in service provision, or bureaucracy and inefficiently utilized network of service units, is an open question.

High income of the inhabitants was used as a proxy for wage level as suitable regional input price indices were not available. As expected, high income level is related with low cost efficiency. High education level of population (also proxy for education level of municipal workers) is related to high cost efficiency, also as expected. A narrow range of services makes higher efficiency possible; this is a factor detrimental to large municipalities, as they typically provide a wider range of alternatives than small ones.

Our location variable measuring the domestic GRP weighted distance of municipalities (squared) proved to be the most significant explanatory variable in our estimation results, getting also high t-values in all sub-periods. The distance factor accounts for the weak performance of municipalities in northern Finland (Lapland), but in itself it gives no information about how the distance mechanism works. Dense physical structure (high share of people living in urban centres) makes higher efficiency possible in service provision, as could be expected. Big share of services produced by other municipalities or joint municipal organizations tends to reduce efficiency, while a big share of privately produced services enhances efficiency.

Employees of 35 to 49 years of age seem to be most beneficial to cost efficiency, compared with younger or older age groups. Difficult local socioeconomic situation, measured by the unemployment rate, decreases efficiency (using the share of population receiving municipal income support gave a similar result).

As for the grant system, a high level of state grants per capita is connected with cost inefficiency in the first years of the study. However, after 1997 such an effect cannot be found any more. This supports the hypothesis that in the years following the 1993 the grant reform, the detrimental effects of matching grant system were still present, but with the new lump-sum system, they faded away. Also estimations with annual data (available upon request) give some support for this result.

7.2. Regression results with city manager variables

Here, we present results from two types of annual models during 1994-1996. In model A we include similar external variables as in 7.1 and city manager variables. In model B, the objective variables describing the municipality are dropped, and instead we include both city managers' views on e.g. the degree of problems (economy, unemployment)[4], and managers personal characteristics to the model. In the annual OLS estimations for 1994-1996, we have those 192 municipalities, whose city managers had been in charge for at least three years. Restricting the data in this way enabled us to have three successive years in the estimation. However, for comparison, we also made separate regressions for 1996 only. Here the data consisted of all the 241 municipalities, which were included both in our earlier DEA estimation and in the U.Di.T.E Leadership Study. The results are presented in Table 1.

In these models the effects of municipal characteristics worked like in section 7.1 with larger data. Peripheral location, large population and high unemployment (and alternatively a lot of economic and social problems named by city manager) tend to reduce efficiency of municipal service provision. Dense urban structure and high education level of inhabitants tend to increase efficiency. Interestingly and unlike our first stage results, in Table 1 large representation of left parties in municipal councils causes a reduction in efficiency. Another new variable here is political concentration of municipal councils, calculated from party shares. There was some indication in model A that efficiency is reduced if decision making is concentrated to few parties only.

The new variables in Table 1 are connected with the city manager, and they can be grouped into 1) general characteristics of the city manager (gender, education), 2) his attitudes towards worker participation, public sector efficiency and co-operation with other actors, and 3) his assessment of eventual negative factors' adversely affecting his work.

Several studies have been made on the effect of CEOs gender on firm performance. In Kotiranta et al (2007) study on profitability of Finnish business firms female CEOs had positive and significant impact relative to male CEOs. In our study the gender of city manager did not become significant as most t-values are close to zero. The number or female city managers was also small in our data. On the other hand, city manager's education level had a positive impact in most regressions. City managers positive attitudes towards the participation of workers in organizational change got always a positive coefficient, and it was sometimes significant. Positive attitude concerning the efficiency advantage of private sector relative to public sector was associated with higher efficiency in the municipality. Also, city managers with a positive view on co-operation with partners (local politicians, municipal executives and workers, state and intermediate level public sector, firms, trade unions and the press) tend to raise efficiency. On the contrary, efficiency was usually lower in municipalities where political contradictions were found

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[4] The U.Di.T.E Leadership Study included the following question: "To what extent have the following factors impeded your working possibilities as city manager?" The question had 12 sub-questions on various topics, three of which (concerning population, social, unemployment and economic factors) were chosen to replace the objective municipality variables in model B

either between parties or inside the municipal government, or where state bureaucracy or problems in organising work existed. But even though all coefficient signs of these variables were stable and as expected (with the exception of gender), only half of them were significant at 5 per cent level.

Also other city manager variables were tested in the regressions, but they turned out to be statistically insignificant. On the basis of career concerns' theory of managers, we expected that city manager's age would have a negative effect of efficiency, but it turned out that the signs of the age coefficient were positive in some and negative in some other model variants, and they all were clearly insignificant. Also, the number of years the city manager had been in his/her job had no effect on efficiency. Similarly, membership in political parties, trade unions or other local organizations, were insignificant. Living in the municipality either now or as a child or an intention to change workplace had no effect. As for other municipal decision makers, the number of years the chair of municipal board had been in his/her post had no effect, neither did his/her membership in the municipal council.

When the city manager variables were included in models together with the structural municipality variables, some of the latter turned out to be insignificant, although they were significant with larger data (see Appendix 1). These variables are not included in the model of table1 (income of inhabitants, producer type of services as well as range of services provided, age of employees and state grants).

Finally, the R^2 values in models of table 1 lie between 0.25 and 0.41, which is reasonable, and the other ordinary test statistics are generally acceptable. The results for the somewhat larger data of 241 municipalities for the year 1996 were well in line with the other results with only 192 municipalities.

Table 1: Explaining basic service provision efficiency (DEA) of Finnish municipalities with city manager characteristics and other factors. Two models with annual OLS 1994-1996[5].

	Model A			larger data	Model B			larger data
	1994	1995	1996	1996	1994	1995	1996	1996
Constant	75.9	79.4	82.8	81.8	79.5	75.5	78.0	77.5
	(9.43***)	(10.20***)	(10.70***)	(11.25***)	(14.54***)	(13.76***)	(12.59***)	(15.40***)
Structural factors of municipality:								
population, 1000 inh.	-0.030	-0.033	-0.027	-0.030				
	(-3.92***)	(-7.14***)	(-4.38***)	(-2.70***)				
unemployment rate, %	-0.278	-0.294	-0.314	-0.227				
	(-1.84*)	(-2.11**)	(-2.59**)	(-1.92*)				
education level of population, index	0.070	0.046	0.049	0.047				
	(4.28***)	(3.15***)	(3.35***)	(3.42***)				
City manager's assessment of structural factors[6]					-0.425	-0.476	-0.539	-0.486
					(-2.07**)	(-2.23**)	(-2.99***)	(-3.10***)
Location and physical structure of municipality:								
economic distance (squared)	-0.024	-0.020	-0.017	-0.028	-0.028	-0.027	-0.025	-0.031
	(-3.21***)	(-3.22***)	(-3.33***)	(-6.21***)	(-4.52***)	(-4.91***)	(-6.36***)	(-9.13***)
urbanization rate, %					0.131	0.110	0.132	0.134
					(4.50***)	(4.43***)	(5.17***)	(5.67***)

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[5] In this table the DEA efficiency scores are given as percentage points, the score of 100 indicating an efficient unit. *=significant at 0.1, **=0.05 and ***=0.01 level, respectively. Heteroscedasticity corrected (White) t-values in parentheses.

[6] Negative effects of population, social (including unemployment) and economic factors on city manager's work. Negative coefficients indicate that larger perceived problems bring a reduction in DEA efficiency.

Local political structure:

left parties in municipal council, %	-0.133 (-3.01***)	-0.162 (-4.14***)	-0.114 (-2.89***)	-0.0827 (-2.32**)	-0.155 (-3.69***)	-0.181 (-4.96***)	-0.149 (-4.00***)	-0.139 (-3.88***)
concentration of party structure in municipal council, index[7]	-0.046 (-0.60)	-0.137 (-2.03**)	-0.129 (-1.85*)	-0.085 (-1.35)				

Characteristics of city manager:

gender (male=0, female=1)	-3.43 (-1.55)	0.489 (0.17)	-0.65 (-0.28)	1.24 (0.69)	-3.67 (-1.56)	1.09 (0.37)	0.095 (0.04)	1.56 (0.86)
education level, years	0.166 (1.16)	0.407 (3.07***)	0.297 (2.16**)	0.236 (1.81*)	0.143 (0.97)	0.375 (2.91***)	0.272 (1.99**)	0.234 (1.82*)

Attitudes of city manager towards:

participation of workers in organizational change[8]	1.28 (1.41)	1.34 (1.83*)	1.28 (1.67*)	1.51 (2.53**)	1.60 (1.95*)	1.74 (2.49**)	1.63 (2.28**)	1.76 (3.01***)
relative efficiency of public sector[9]	-0.293 (-0.75)	-0.649 (-1.81*)	-0.780 (-2.23**)	-0.882 (-2.67***)	-0.439 (-1.14)	-0.675 (-1.95*)	-0.795 (-2.27**)	-0.712 (-2.15**)
co-operation with other actors[10]	0.119 (1.97*)	0.179 (3.18***)	0.149 (2.66***)	0.115 (2.09**)	0.086 (1.46)	0.160 (2.77***)	0.133 (2.25**)	0.118 (2.19**)

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[7] Herfindal index calculated from the shares of political parties in the municipal council.

[8] City manager's response to question: "Importance of comprehensive worker participation in developing the organization". Positive coefficient indicates that positive attitude towards participation increases efficiency.

[9] Response to argument: "Private sector is generally more efficient than public sector". Negative coefficient indicates that positive attitude towards private sector efficiency increases efficiency.

[10] Response to question "To what extent are relations with the following actors important in your work as city manager?" Sum index of various actors and groups. Positive coefficient indicates that positive attitude towards co-operation (large value of index) increases efficiency.

City manager´s assessment of negative
factors' effect on her/his work

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Various factors, index[11]	-0.268	-0.110	-0.210	-0.184				
	(-2.93***)	(-1.28)	(-2.48**)	(-2.32**)				
Group contradictions, index[12]					-0.895	-0.072	-0.228	-0.066
					(-3.01***)	(-0.26)	(-0.90)	(-0.25)
R2 (adj)	0.274	0.306	0.320	0.396	0.256	0.284	0.309	0.413
Ramsey	0.102	0.469	0.154	0.086	0.543	0.147	0.190	0.254
Jarque-Bera	0.078	0.133	0.028	0.118	0.082	0.277	0.039	0.067
Max VIF	1.79	1.94	2.11	2.15	1.51	1.51	1.51	1.58
N	192	192	192	241	192	192	192	241

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[11] Sum index of question: "To what extent have the following factors impeded your working possibilities as city manager?" This includes organizational, political and bureaucratic problems, contradictions between actor groups, problems in organising work and lack of clearly defined political goals. It excludes population, social, unemployment and economic factors. Negative coefficient indicates that large experienced problems decrease efficiency.

[12] Response to question: To what extent have contradictions between political parties or contradictions between sector managers and city offices impeded your working possibilities as city manager? Negative coefficient indicates that large experienced problems decrease efficiency.

8. Summary

We study whether Finnish city managers' characteristics and work environment, in addition to external factors, explain differences in cost efficiency of service provision in Finnish municipalities. First, Data Envelopment Analysis (DEA) is employed in calculating efficiency scores for municipalities. In DEA the outputs consist of six to ten volume indicators of services in health, social and education sectors. As the combined input, the cost of providing (either producing or buying) these services is used. Next, the DEA efficiency scores are explained with regression models. As external factors, we use variables which characterize the municipality, its location and its population. Our main interest, however, is in the role of city managers, who as civil servants chosen by city councils are somewhat comparable to CEOs in private firms. Here, we use survey data from an earlier (1996) EU project, namely U.Di.T.E Leadership Study. It allows us to test whether Finnish city managers' characteristics (like age, education level, gender, political membership) and work environments (like cooperative vs. disagreeing, contact intensity etc) explain efficiency differences in addition the external factors.

We have two data sets. The first one consists of 353 Finnish municipalities in 1994-2002 and here we have information on the inputs and outputs which allow us to derive cost (or expenditure) efficiency scores of municipalities and explain them with regression methods. The second data set includes additional survey information on city managers (local government CEOs) and their attitudes etc. As this information concerns 1996, we pick the efficiency scores for 1994-96 from the previous exercise, and test whether city manager characteristics matter for efficiency when the characteristics of municipalities (in previous case) are also included. The main interest of this paper is on the city manager results.

According to our results with 353 municipalities during 1994-2002, the average efficiency score was 87,2 per cent. As the level of scores depends on the number of variables in DEA models, this is not an absolute number. More interestingly, there were considerable differences in cost efficiency between the municipalities and they turned out to remain rather stable over time. Peripheral municipalities scored clearly below the others. The ten municipalities ranking highest in efficiency were rather small and located mostly in southern Finland. Biggest cities showed rather varying performance. Their efficiency scores ranged from 79,4 % to 91,4 % and their ranking in efficiency distribution from 65 to 317.

As the second step, differences in the DEA efficiency scores were explained by using regression models. When the city manager information was not included, models with 353 municipalities during 1994-2002 gave the following results. Peripheral location, large population and high unemployment reduce efficiency of municipal service provision. Dense urban structure, high education level of inhabitants, big share of middle aged municipal workers, narrow range of services and big share of purchases from the private sector or other municipalities increase efficiency. Political variables and turnover in local elections did not explain efficiency differences. The same was true for relative change (both directions) of population and the population share of core municipality within each functional region.

When city manager information was used, we had only 192 (or 241) municipalities as data and we ran annual cross section regressions for 1994-1996. In these models the effects of municipal characteristics worked like with the bigger data. However, here the share of left-wing parties and concentration of power in municipal council got negative and statistically significant effects in most of our model variants.

But now we also had city manager variables in the model. Unlike with Finnish business firms' CEOs, here gender of city manager did not become significant. City manager's education level (years) had a positive impact on efficiency. City managers positive attitudes towards the participation of workers in

organizational change got always a positive coefficient and it was sometimes significant. Positive attitude concerning the efficiency advantage of private sector relative to public sector, and positive view on cooperation with partners were both associated with higher efficiency in the municipality. As a summary index measuring the extent of contradictions with political parties, city offices and city manager increased, cost efficiency in basic service provision decreased. When quite a few additional variables were tested one at a time, they turned out to be insignificant. They included the age of city manager, which we expected to work according to career models such that young city mangers would be more efficient than old ones in order to build reputation to get better job in a bigger municipality. Because cross section data is not very good for testing the career model, we are going to study the mobility of city managers during their career in the future.

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Appendix 1. Explaining DEA efficiency scores of municipalities with background variables, OLS 1994-2002 and its sub-periods[13]

	1994-2002	1997-2002	1994-1996	1997-1999	2000-2002
Size-related factors:					
population, 1000	-0,0204	-0,0217	-0,0181	-0,0199	-0,0255
	(-2,54**)	(-2,60***)	(-1,71*)	(-2,22**)	(-2,93***)
earned income, 1000 € / person	-1,16	-0,814	-1,87	-0,748	-0,827
	(-3,93***)	(-2,91***)	(-4,18***)	(-2,38**)	(-3,04***)
education level of population, years	4,11	3,56	5,11	3,30	3,87
	(3,13***)	(2,55**)	(3,07***)	(2,22**)	(2,67***)
lack of variety of services, index	0,126	0,112	0,0796	0,115	0,0786
	(2,48**)	(2,34**)	(1,21)	(2,39**)	(1,55)
Location and physical structure:					
distance, $1000 \times km^2$	-0,0251	-0,0248	-0,0252	-0,0247	-0,0259
	(-8,28***)	(-8,08***)	(-6,02***)	(-7,47***)	(-8,12***)
urbanization rate, %	0,0555	0,0473	0,0724	0,0482	0,0416
	(2,65***)	(2,12**)	(2,70***)	(2,00**)	(1,84*)
Producer of services (% of all services):					
other municipalities and joint municipal organizations	-0,0247	-0,0330	-0,00786	-0,0375	-0,0279
	(-3,25***)	(-4,07***)	(-0,83)	(-4,40***)	(-3,29***)
other (private) producers, %	0,164	0,114	0,0974	0,177	0,0950
	(2,27**)	(1,80*)	(0,93)	(2,07**)	(1,88*)
Age of employees, %					
Share of 35-49-years old employees	0,185	0,147	0,223	0,235	0,0167
	(2,04**)	(1,47)	(2,24**)	(2,51**)	(0,16)
share of employees over 50 of age	0,0452	0,0144	0,102	0,0148	0,0255
	(0,57)	(0,17)	(1,09)	(0,17)	(0,29)
Socioeconomic situation of municipality:					
unemployment rate, %	-0,254	-0,226	-0,323	-0,249	-0,210
	(-2,92***)	(-2,51**)	(-3,07***)	(-2,77***)	(-2,19**)
Municipal economy:					
state grants, € / inhabitant	-0,0027	-0,0013	-0,0048	-0,00087	-0,00078
	(-1,95*)	(-1,03)	(-2,53**)	(-0,60)	(-0,66)
constant	76,592	76,535	87,950	71,416	85,273
	(7,97***)	(7,84***)	(7,16***)	(7,47***)	(8,20***)

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[13] The dependent variables are DEA efficiency scores in percentages, t-values below estimated coefficients in parentheses, significance at 90 %, 95 % and 99 % levels are denoted by *, ** and ***, respectively.

R^2 (adj)	0,459	0,387	0,407	0,367	0,354
Heterosced: Br.-Pagan: $P > chi^2$	0,976	0,436	0,326	0,745	0,417
Ramsey RESET: Prob > F	0,443	0,812	0,235	0,987	0,958
Average. VIF	3,13	2,95	3,15	2,95	2,83
Max. VIF	8,82	8,10	9,07	8,19	7,51