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Master Thesis

The political dynamics of bureaucratic turnover: Evidence from Norwegian municipalities

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Contents

Abstract

An emerging literature shows that bureaucrats in countries with strong meritocratic traditions are exceedingly influenced by political factors. Agent-principal theories predicts that if bureaucrats have policy preferences they should optimally self-select to work under councils with aligned preferences. Following elections, the council composition changes and the bureaucrat and council relationships become less congruent. Bureaucrats value their employment less and are more likely to resign or be replaced by the newly elected council. This hypothesis is tested on the turnover of the top bureaucrat in municipal Norway using yearly panel data of 414 municipalities in the period 1991-2016. The models of choice are linear probability models allowing for both fixed effects and extensive controls. Within the first year after municipal elections there are significantly higher turnover rates. Using changes of which party elect mayor as the regressor yield even stronger effects. Additional analyses uncover threshold effect, and bureaucrats in larger municipalities have much higher risk of replacement. The general conclusion is that although there is significant evidence of increased turnover following changes of mayor, there is uncertainty how much can attributed to policy differences.

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1 Introduction

The Norwegian municipalities have a huge influence on the Norwegian economy and welfare. They are responsible for most of the welfare services, such as education, health- and elderly care. In addition to providing their inhabitants with the structural framework to promote economic growth, including key infrastructure services and regulating real estate development. The municipality expenditures accounts for roughly one-fifth of mainland GDP and employs one-fifth of the working population (Regjeringen, 2015). With a rapidly aging population, municipal efficiency is of utmost importance and the current government has started reforming the local governments to facilitate for bigger and stronger municipalities that will be tasked with even more duties (Regjeringen 2014; 2016:49; 2018-a). This is not the first reform and will most likely not be the last. Ever since the rise of New Public Management, Norwegian municipalities have increasingly been granted autonomy while being subjugated to performance management and benchmarking (Stigen & Hovig, 2008; Blåkla, Tjerbo & Zeiner, 2012).

Scholars argue that reforms in line with the New Public Management principles often have adverse effects. Christensen & Lægreid discusses emergence of post-NPM reforms that largely focuses on integration, coordination and regaining political control lost from the structural devolution that NPM reforms brought (Christensen & Lægreid, 2001, p 80; 2007; Christensen, 2012, p 4). Peters & Pierre (2004a, p 8-9) on the other hand, claim this can lead to politicization of the civil service, i.e. political criteria replacing that of merit. A process they argue will ultimately have negative consequences as it reduces the competence, efficiency and legitimacy of the public administration. Empirical studies show that bureaucracies where recruitment is mainly done on merit have higher economic growth (Evans and Rauch 1999) and efficiency (Lewis, 2007) and less corruption (Dahlström, Lapuente & Teorell, 2012).

However, elected politicians do have a legitimate claim in controlling the activities of the public administration, as it is politicians and not bureaucrats who are held accountable by the public (Peters and Pierre, 2004-a, p 7). Moreover, democratic governance relies not only on an efficient administration but also on

the administration's ability to implement the adopted policies of the elected bodies. Thus, there exists a tradeoff between neutral expertise and political responsiveness, and some degree of politicization might be justified.

Husted & Salomonsen (2014, p 749) refers to formal politicization as legitimizing elected bodies discretion in the recruitment of staff to that of other than meritocratic criteria. Often conceived of as party-political appointments in top executive positions or advisory positions. Moreover, formal politicization might be more successful and tolerable than more covert forms. USA and Germany are examples of countries with successful and extensive use formal politicization (Peters & Pierre, 2004, p 288). Although top officials in Germany are politically appointed, this does not mean they are lacking professional competence as they usually have a civil service background (Bach & Veit, 2018). As such, allowing discretionary appointments in form of formal politicization does not necessary crowd out criteria of merit. Furthermore, Bach, Hammerschmid & Löffler (2018) investigates the nature of political appointed executives in 18 European countries and finds the Anglo-Saxon and Scandinavian countries exhibit the least politicized senior officials.

On the other hand, functional politicization is often used in the literature adapting a merit civil service to strengthen the political responsiveness (Christensen, Klemmensen & Ostrup, 2014; Hustedt & Salomonsen, 2014; Bach et al; 2018). By integrating political aspects in the bureaucracy's daily functions, bureaucrats are not only required to have neutral competence but also understanding of how politics work. (Hustedt & Salomonsen, 2014, p 750). Christiansen, Niklasson & Öhberg (2016) finds that extensive use of formal functionalization decreases the functional politicization of the civil service. Evidently, some degree politicization might not only be justified, but also inevitable.

This paper contributes to the literature by providing an empirical analysis of the political dynamics of turnover regarding the top bureaucrat in Norwegian municipalities. The Chief Municipal Officer, CMO for short, is assumed to be politically neutral, yet has a strong power to influence elected bodies policy decisions (KS, 2016, p 7; 2017, p 25). This study investigates the political

changes and its effects on CMO turnover in the period 1991-2016 in 414 municipalities.

There are three main findings of this paper. The first result is significant evidence that the first year following municipal elections has a 12 percent relative increase in turnover rates. This supports the notion of CMO self-selection to councils, and that the average CMO-council relationship is less congruent following municipal elections. CMOs value their employment less and are more likely to voluntary resign under the newly elected council. Correspondingly, this makes newly elected councils more inclined to employ strategies to force a resignation.

Secondly, more comprehensive analyses are done using a dummy variable indicating a change of which party elect mayor. The mayor is the leader of the municipal council, and a large share municipality management depends on CMO-mayor collaboration. Results from eight different specifications of data and control variables provide strong evidence of increased turnover within the first year after a change has occurred. Specifically, this effect ranges between 3 percent to 5,5 percent and is significant on the five percent in all models. This translates to that the CMOs' risk of replacement has a relative increase between 25 to 40 percent within the first year after a change of the mayor's political party.

The third result is that the dynamics between turnover and a change of mayor differs depending on municipality sizes. In municipalities that have 10 000 or more inhabitants, this effect is found to be three to four times greater compared to that of smaller municipalities. I argue that this is due to two mechanisms that affect turnover in different ways: 1) Larger municipalities generally have more available employment options with higher expected wages (Wheeler, 2001; Yankow, 2006). With more bountiful options CMOs are more sensitive to a change of mayor. And 2) larger municipalities have more influential and accountable politicians exerting stronger control over the administration (Karlsson, 2013; Saglie, Winswold & Blåka, 2016, p 63). Thus, the elected bodies' ability and incentive to force turnover is increasing in municipal sizes.

Clearly, a crucial identification concern is the alignment of political identities between bureaucrat and council. This study relies on self-selection effects and does not quantify the level of policy conflicts. It is therefore unknown if the results can be simply attributed to increased politicization. This can be the result of self-selection on other group identities, that newly elected mayors and reelected incumbents differs, or that CMOs performance affect the incumbent mayors' probability of reelection. Robustness checks reveal indication of positive bias, and that changes within aggregate political identity of the council has little effect on turnover. As such there is uncertainty how much can be attributed to increased politicization and further research on this topic is needed. Nevertheless, the general conclusion is that the bureaucratic turnover in Norwegian municipality is affected by changes in the elected bodies. This mirrors research in comparable countries with a civil service with meritocratic traditions.

In the UK, local governments hold high regards of a politically neutral chief executive. In extension of this, they are granted statutory protection from dismissal (Boyne at el, 2010, p 142). However, empirical evidence shows that chief executives face higher risk of replacement if there is a change of ruling majority in combination of poor performance results. Although, chief executives are somewhat more sheltered from political control than other senior managers. As the other parts of the management team face increased risk of replacement following changes to political control regardless of poor performance (Boyne at el, 2010). Christensen et al (2014) investigate the nature of politicization in Danish governments and finds that the Danish city managers, the top bureaucrat, are more likely to be replaced following changes of mayor. They argue this is strong evidence of functioning politicization, where political executives have rigged the incentives to allow for discretionary dismissals of top civil servants (Christensen et al, 2014, p 216).

More recently, Doherty, Lewis & Limbocker (2017) show that permanently employed career civil servants have higher turnover following party changes in the White House. Similarly, Swedish agency heads have significant higher turnover rates following changes of government's policy objectives (Dahlström & Holmgren ,2017). Whereas Doherty et al (2017) attributes this to the appointed

executives' abilities and incentives to marginalize and subvert bureaucrats in key policy positions to replace them with political allies. The Swedish agency heads are far more insulated from the political leaders' control through strict civil service regulations (Dahlström & Holmgren, 2017).

These findings are in line with agency theory predictions where agents may be intrinsically motivated and require less compensation to perform tasks than others (Prendergast 2003,2007). The intrinsic motivation can rest on alignment between group identities with the principal (Besley & Ghatak, 2005; Akerlof & Kranton, 2005). As the public sector has more tasks that are connected to social welfare the presence of motivated agents is assumed stronger. The decision whether to stay or resign can very much depend on this additional intrinsic motivation, as private sector generally offer higher wage compensation (for Norwegian evidence of this see Fevang, Strøm & Sæter 2008). Although political executives face legal restrictions in dismissing civil servants, they generally have more discretion in civil servant's influence on policy decisions. For bureaucrats who value their ability to influence policy decisions, a decrease in this ability might have the same function as a cut in their wages (Gailmard & Patty, 2007). Effectively granting political executives a means to induce turnover.

The rest of this paper is organized as follows: section two discusses the institutional background and section three presents the theoretical background for the study. The theoretical framework is applied on the institutional setting to motivate hypothesis in section four. Data is presented in section five, whereas the empirical identification strategy is discussed in section six. section seven presents the results from the analysis and some additional robust checks. section eight discusses the findings. The main findings of the paper are summarized in section nine.

2 Institutional setting

The Norwegian government is represented on multiple tiers: national level, county and municipal level. Election periods are for four years, and elections are every two years alternating between years with national elections and years with both municipal and county elections. The Norwegian parliament on the national level

holds supreme power and delegates tasks through acts and resolutions implemented. Most important is the Local Government Act implemented in 1993, hereby referred to simply as the LGA (In Norwegian it is called kommuneloven). This sets the legal framework in how counties and municipalities can organize their activities and delegate decision making within political and administrative bodies.

The municipalities are responsible for providing a wide variety of services for their inhabitants. Most notably are the welfare services, which constitutes around 70 percent of the municipality gross expenditures. This includes services within primary health care, elderly care, both primary and secondary education and child care services. In addition to this they provide several social services, such as social housing. The municipalities have regulatory duties within development of properties, and in providing infrastructure, such as local roads, harbors, water supply and sewer services. Although the municipalities vary between large cities to sparsely populated rural areas, the municipalities are given most of the same rights and the same responsibilities in providing the same quality services (Regjeringen, 2015).

While municipalities have much freedom in deciding their expenditures, their income is somewhat restricted. The main source of income, income tax, is set by the Norwegian parliament every year (Regjeringen, 2018). Similarly, the user charges are restricted by law to only cover the municipalities expenditures (Regjeringen 2016). Municipalities have the option of implementing different forms of property taxation. The number of municipalities using any form of property taxation have increased from 270 in 2007 to 370 in 2018, this accounts for three percent of the municipalities gross income (SSB, 2018). Some municipalities have a significant share of their income related to hydropower (Regjeringen, 2018-b). This is estimated to have a positive effect on the municipal economy, and some scholars even refer to this as a natural resource blessing (Andersen & Sørensen, forthcoming). Due to differences in both income and expenditures, the national level government provide several handouts intended to have a redistributive effect (Regjeringen 2015). Nonetheless, there are large differences in municipalities and their economies.

2.1 Municipal structure

In the preparatory works it is stated that the intention from the lawmakers was to clearly distinguish the responsibilities between the political- and administration leadership. The popularly elected council are to decide what to do, while the administration of the municipality decides how to do it (NOU 1990:13 p 137). The default, the alderman model, includes such a divide between the popularly elected and the administration. Important for this research question is that it requires each municipality to employ a Chief Municipal Officer, CMO for short. The CMO not only acts as the administrative leader of the municipality but also as the agent of the municipal council in implementing policy decisions, and is by law the only municipal employee to be held accountable by the council (LGA section 23).

There are exceptions to the alderman model. Oslo municipality was granted the ability to form a parliamentary system of governance in 1986 through a special act and has since implemented parliamentary. Following the implementation of the LGA in 1993, other municipalities and counties have also been given this option (LGA section 18). The main difference between these two forms of governing is that the position of a CMO is removed and the executive council is replaced by an appointed executive board that assumes direct leadership over the administration. In addition to Oslo, several counties have decided to implement parliamentary system over the classical alderman model and two municipalities, Bergen and Tromsø. Studies comparing the alderman model with parliamentary rule suggests that the alderman model provides a stronger administration and more consensus-based democracy (Bukve & Saxi, 2013).

2.2 Political leadership - Municipal Council

The supreme body of the municipality is represented by the popularly elected municipal council. The size of the council is regulated by law to have a minimum of representatives according to different population intervals in the municipality (LGA section 7). The minimum requirement is 11 council members in municipalities with less than 5 000 inhabitants, while a population size of more than 100 000 requires 43 representatives. As more than half of the Norwegian municipalities have less than 5 000 inhabitants, the average council member

represents more citizens in larger municipalities. Saxi (2015, p 9-10) states that larger municipalities have less councilmembers per inhabitants, councilmembers in larger municipalities use twice as much time on politics than in smaller municipalities. Similarly, Karlsson (2013) finds that in Swedish municipalities, bigger municipalities generally have stronger party-polarization and politicians that exert stronger control over the administration.

Following municipal elections, the newly elected council is constituted in a meeting that is arranged by the mayor of the last period. By law this meeting must take place before the end of October election year (LGA section 17)

Executive council - the aldermen

As a default, municipality use the alderman model where the municipal council elects within themselves a group of aldermen. If contested by any member of the municipal council, the group needs to be in proportion to political parties within the council. The share of municipalities having a proportionally elected executive council has dropped from 88,5 percent in 2000 to 65,9 percent in 2012 (Blåka et al, 2012, p 32) This group functions as an executive council that has additional tasks in controlling proposals for finance plan, annual budget and the tax resolutions. The executive council is the only group, except from the council itself, which be empowered to make decisions in all matters (LGA section 8). There is heterogeneity between municipalities in which tasks this executive council performs. In some municipalities they are used to relieve the council's duties as they are presented issues first, and then decide if the business at hand requires the council's full attention or simply vote among themselves. Stigen & Hovig (2008, p 47) state that roughly two-thirds of municipalities in the period 2000-2008, uses the executive council in an extensive number of issues

Mayor

Within the group of aldermen, a mayor is elected. Formally, the role of the mayor is to lead the meetings of the municipal council, and acts as the legal representative as the council (LGA section 9). This includes preparing the agenda for each meeting, ensuring that all business is handled as according to Norwegian legislation, and the summoning of council members (LGA Section 32). As the legal representation of the council this includes tasks as being the official

spokesperson for the council, ceremonial duties and relations with the municipalities inhabitants in serving as a local public advocate (KS, 2018, p 13).

The mayor is not provided any formal political power beyond that of being part of the executive and municipal council. The mayor is most often a senior politician, and with his/her role as link between the elected bodies and administration has a strong influence on the council's decisions. Following the implementation of the LGA, the role of mayor has been increasingly "professionalized" as more municipalities compensate the mayor to operate in a full-time position (St.meld. nr. 33. 2007-2008, p 102-103). Specifically, in the period 2000-2012, the percentage of full-time mayors has increased from 83,3 percent to 95,3 percent. Similarly, municipalities having either deputy mayors or other council members in full time positions has risen from 3 percent in 2000 to 6,2 percent in 2012 (Blåka et al, 2012, p 57). Mayors can be empowered with additional tasks, including the preparations of drafts for the council and the right to make proposals. Blåka et al (2012, p 42) reports this share to be roughly 18,6 percent and 23,3 percent, in 2008 and 2012, respectively. Suggesting a trend of municipalities strengthening the role of the mayor over the relevant period.

2.3 Administrative leadership - Chief Municipal Officer

The most interesting part of municipal Norway is perhaps the top position of the administration. All municipalities are required by law to employ a CMO to act as the link between administration and the popularly elected leaders. The CMO is therefore not only the top bureaucrat responsible for the strategic management of the large number of different services the municipality provides for its inhabitants. But the only employee of the administration that is accountable to the council and all interactions between the council and administration is to go through the CMO (St.meld. nr. 33, 2008, p 95). The premise of this arrangement rests on the CMOs ability to be both loyal to the council and independent in terms of political affiliations (KS, 2016, p 7). Although there is no uncertainty that the municipal council is the supreme body and decides what to do, CMOs are largely given freedom in how to do it (NOU, 1990:13 p 137).

By law, the CMO is responsible for elucidating the issues which are presented to the elected bodies so that they can make an informed voting about the matter (LGA section 23). This includes preparatory work where the CMO act as a technical advisory that investigates options in how to best implement the council wishes and presenting these options formally in a council meeting. The CMO is to implement the policy as according to the plan chosen by the council, this implementation is subject to a later evaluation by (KS, 2018, p 25). In accordance with these tasks the CMO is by law granted the right to be present and speak at all council meetings, except for meetings of the control committee (LGA section 22-23). Although not formally possessing the right by law, municipalities often grant CMOs the ability to make proposals and give recommendations to the council (St.meld. nr. 33, 2008, p 14).

The actual tasks of CMOs varies between time and municipalities. The Ministry of Local Government and Regional Development have conducted surveys capturing the development within municipalities and counties since 1995. Stigen & Hovik (2008, p 24) states that in the period between 1993 and 2004, there was a steady reduction of council members, meetings and the matters dealt with by these bodies. Responsibilities and tasks were largely delegated from political leaders to the CMO and administration with introduction of management by objectives (Stigen & Hovik, 2008, p 22). Roughly 60 percent of the CMOs were empowered to make proposals to the council in the period 2008 - 2016 (Monkerud et al, 2016, p 41). In budgetary matters CMOs are typically given more influential roles at the expense of the council. By 2016, a "centralized administrative" budget process dominates among municipalities (Monkerud, et al, 2016, p 18). The CMO is free to delegate tasks to members of his executive group and other parts of municipal administration.

Employment of a CMO is formally done with a motion from the municipal council following a hiring process (LGA section 22). The process for such positions is regulated by law, and requires the position to be publicly announced with a set of required qualifications and the creation of a public list of all applicants. This is done to allow transparency and show the public that employment is done on merit. CMOs can be employed permanently or on a fixed-

year contract that lasts for a minimum of six years (LGA section 24). Hovik & Stigen (2004, p 162) find that the use of such fixed-year contracts are more common in larger municipalities. It is estimated that roughly 20 percent of CMOs are hired on fixed-term contracts (Hovik & Stigen 2008, p 118; Blåka et al, 2012, p 110)

Geys, Heggedal & Sørensen (2017) show that CMOs compensation depends on relative performance and is low-powered in line with agency theories predictions. Willumsen, Aarsæther, Bjørnå & Buck (2014) surveys show that half of the CMOs had a political party membership prior to employment, a much higher share than the general population. However, the majority of CMOs cancelled their membership to be perceived as neutral (Willumsen et al,2014, p 32). Although these findings suggest self-selection of CMOs with political preferences, it offers little information regarding if and how this affects their behavior. In fact, despite the CMOs influential position on policy little research on if this has affected their behavior has been done.

CMOs are subject to annual or biannual evaluations by a committee appointed by the council.   (2017) has studied the public available leadership contracts of CMOs and the relevant criteria for assessing the CMOs' performance. They find that all contracts specify economic results as a major evaluation measure, less frequently performance in other areas such as exercise of leadership, implementation of government goals, development of the municipal organization, user and employee satisfaction. Although it is up to the council to evaluate the compensation of CMOs, it is regulated both by the employment contract and partly by the centralized collective wage agreement (Kommuneforlaget, 2016, p 42).

CMOs can voluntary resign from position at any point by simply handing in a letter of resignation, and would then be free to leave after the notice period is up. On the other hand, the council's options in forcefully removing a CMOs is more limited. For CMOs with a permanent contract, weak performance can in principle not lead to a dismissal. CMOs are protected by Norwegian employment laws and firing a CMO is not a real threat as it normally requires evidence of gross

misconduct of the CMO. If the council cannot provide such evidence, the CMO is entitled to a compensation claim which includes severance pay of lost wages until the CMO finds new suitable employment. To remove CMOs without fear, councils often offer CMOs lucrative compensation packages to willingly resign from post. Media coverage suggests numerous conflicts between CMO and council that leads to less than voluntary resignations, often including wage compensation or alternative employment within the municipality (see e.g. VG, 2010).

2.4 The CMO-mayor relationship

The Norwegian Association of Local and Regional Authorities state in their manual for mayors (2018, p 28), that the mayors and CMOs often have regular meetings. This can be of practical reasons where it is natural for either the CMO to ask the mayor for advice, or the mayor wants information from the CMO regarding municipal technicalities. In many municipalities the CMO and mayor regularly meet for preparatory reviews for upcoming meetings. In addition to leading the council and executive council meetings, the mayor often leads several of the committees, whereas the CMO investigates and elucidates the business for council. Clearly, efficient council meetings depend on a cooperative relationship between CMO and mayor.

The ideal is that the superior, strategic and issues of principle are decided by the political leaders while the CMO is empowered to take care of the daily management as according to the will of the council. The extent of the delegation is often specified in publicly available formal contracts between the council and CMO (KS 2017, p 26, LGA section 39). Whereas CMOs are explicitly prohibited from being elected into the municipal council and is regarded to be politically neutral (LGA section 14; KS, 2008). Mayors on the other hand have been elected as political candidates, and are often one of the most senior and strongest influencers in the municipal council (St.meld. nr. 33. 2007-2008, p 102-103). Yet despite these differences in expectations and roles, there is a grey area where both the CMO and mayor can fulfill the same tasks (KS, 2017, p 26). The Norwegian Association of Local and Regional Authorities explain this as it is beneficial with CMOs initiating policy resolutions, and mayors with experience regarding the municipal organization and structure to clearer understand the administrative

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boundaries (KS, 2017, p 26). Evidently, municipal freedom in organizing tasks between administration and elected bodies provides multiple sources that can easily lead to conflicts between the administration and political leaders.

3. Theoretic foundation

This section consists of a small literature review of the theoretical framework to motivate hypotheses regarding the CMO behavior. The main part of this is economic literature regarding agency theories, supplemented to some extent by explicit politician-bureaucrat theories.

3.1 Principal-agent models

Standard principal-agent models, made famous by Hart and Holmström, presents two parties, an agent and principal which can contract for an arrangement of the agent doing tasks for the principal. A general assumption is that both are rational utility maximizers, i.e., when presented a set of choices, both the agent and principal will make the choice that will be most beneficial to themselves. Given that the expected net surplus of this arrangement is positive, an optimal solution is when the principal can offer the agent a wage conditional on effort expended by the agent, and that this solution maximizes the joint utility. A first best solution, in the eyes of the principal, is when the agreement maximizes joint surplus and effectively removes the agent's ability to seek rent. The agent is marginally better off accepting the offer from the principal. The model assumes that the agent's decision to accept the offer given by the principal is whether the utility of the contract with the principal is greater than the utility of the outside option. Equivalently, it can be stated that the agent will accept the offer if he prefers the terms of working for the principal, over the outside option. In other words, this is simply a mathematical way of stating the agent's preferences of a set of actions. If for example, the principal offers a wage contingent on an effort level by the agent, and which gives the agent less utility than the outside option, the agent will, according to the theory, choose to decline the offer and pursue his outside option.

The revelation of agency theories is the presence of agency costs when it is not possible to contract on effort, but only through an imprecise signal. A realistic assumption is that agents are risk averse and requires increasingly more

compensation to take on additional risk. With a risk neutral principal, it would be optimal for the principal to bear the risk of the agent's effort and transfer a fixed fee regardless of the observed signal. However, as effort is costly for the agent and increases the payout of the principal, the two parties have divergent goals. By agreeing on a fixed transfer not contingent on agent performance, the agent has no longer any incentive to exert effort. Thus, the optimal solution depends on the tradeoff between incentivizing additional effort through the variable payment and a fixed fee so that the agent will not decline the offer. I.e., fulfilling both the incentive compatibility constraint and the participation constraint.

Motivated agents

The standard model has been developed further by Prendergast (2003, 2007) to account for an agent's intrinsic motivation. Prendergast argues that some individuals may require less extrinsic motivation for certain tasks, i.e. some tasks give the agent an intrinsic motivation that increases their effort they normally would require to be compensated. In economic literature such agents are often referred to as motivated agents, as they will expend effort without the need of a payment. Prendergast (2007) argues this intrinsic motivation is stronger in bureaucratic employment, especially in areas where the agent has influence over another person's utility. She refers to altruistic agents and proposes that because of this, individuals that receive intrinsic motivation from such work will self-select to apply for these jobs. Motivated agents rationally self-select to such employment. As there are generally more tasks connected to others welfare in the public sector, it is commonly believed that a larger share of the agent in the public sector are motivated agents that value the wellbeing of others. The presence of such agents is further increased by the fact that is in the principal's best interest to employ the agent with highest intrinsic motivation, all else equal. According to Prendergast's model there is both a self-selection of motivated agents, and that rational principals should employ such agents as this reduces the problem related to information asymmetry.

Agent's identity

Akerlof & Kranton (2005) develop a more advanced principal-agent model that includes the notion of agent's identity. The concept of identity is motivated by a large literature of empirical research within other social sciences and can help

create more realistic models that may better explain the agent's behavior. Agents can identify with the firm and consider themselves as part of their social identity, that is, an insider. This affects their norms and ideals, and such agents not only measures the cost of their effort, but how this relates to the effort that they expect other insiders would exert. In comparison with the standard principal-agent model, an outsider, it is straightforward to show that agents with identity aligned with the principal will require less payments to induce the same amount of effort. This is an interesting contribution to agency theories as it allows for organizations and firms a possibility to increase productivity of agents by other means than having to increase the payment to the agent.

Mission preferences

Theories of alignment of identities between agent and principal is examined more closely by Besley & Ghatak (2005). They propose that there are positive effects when principals and agents have similar group identities, that is, it reduces the agent's cost of effort in working towards a shared goal and thereby increases productivity of the agent all else equal. However, they further define group identity as not only preferences from working towards a certain outcome but also from mission preferences, i.e., the preferences in which working methods to employ. The principal's problem becomes more complex, as selecting the optimal agent to employ requires both information about preferences over outcome, and mission preferences.

Multitask problem

Holmström and Milgrom (1991) have further investigated the nature of the agency problem when there exist multiple tasks that the agent can perform. Under certain, realistic, assumptions, they find that the agent might allocate effort to tasks that is not aligned with the principal's interest. Their model shows that when the agent's effort in tasks that benefit the principal is to a lesser degree observable, or costly to verify for the principal, the agent will prefer to expend effort into tasks that are easier observable or provide higher intrinsic motivation. Holmström and Milgrom contributes to agency theories by providing information regarding rational agents behaviour in situations where this a menu of tasks that differ in effort cost (read: intrinsic motivation) and the observability of the principal. Holmström and

Milgrom proposes that in such cases the most efficient solution involves paying a fixed fee and reducing the agent's ability to participate in "outside" tasks.

Policy discretion and bureaucratic expertise

Gailmard & Patty (2007) have developed a bureaucrat specific model with endogenous policy expertise and heterogeneous agents. Agents may take costly investments in policy expertise, which can be rewarded with policy discretion by their principals. As the wage structure is flatter than the outside option, the decision to stay or go in the second period is contingent on the outside option and the investment done in the first period. Introducing heterogeneous agents with private information regarding policy preferences, both the retention and investments in policy expertise favors the one with policy preferences. The principal's decisions in to offer bureaucratic discretion can ultimately lead to two different equilibria: If the principal does not offer bureaucratic discretion, no agent will take costly investments in policy expertise, resulting in a variant of the familiar "hold up" problem. On the other hand, if bureaucrats are offered such discretion, only bureaucrats with policy preferences will make investments in the first period, at the cost of bureaucratic discretion.

Multiple principals

Gailmards (2009) theory provides additional insight in situations with multiple principals. His theories suggest that for some values of audit costs in monitoring the agent, there is a collective action problem. As the multiplicity of the rises, so does the externalities of the single principal in monitoring the agent. Although all principals benefit from monitoring the agent, only one bears the cost, resulting in less than efficient levels of auditing. Most notably, is that his models do not require conflicting interests about their agent's behavior.

4. Hypotheses

4.1 Reasons of turnover

The mechanisms regarding turnover can be roughly divided in three parts. There can be changes in the outside options of CMOs such that they resign to pursue a better outside option. Secondly, there might be internal changes, either within the

CMO, or general working conditions that causes CMOs to value their current employment less than. And last, they might be pressured into resigning or forcefully removed.

First, there can be changes in the outside options of CMOs, which causes a CMO to resign from position. This can be because of good economic performance which affects the available outside options of the CMO in two distinct ways. Being recognized as better performing and attractive leader can provide the CMO with more employment options. And secondly, provide them with a stronger bargaining position when negotiating future wages of these positions. As stated in the Agenda & PWC (2010, p 11-12) survey, a large part of turnover is attributed to recruitment into other positions. As such, high performing CMOs might be presented with more employment offers with higher wages, and resign because of changes due to their outside options. However, it can be unrelated to performance, and a CMO might resign having been offered a more preferred form of employment. This can include the eligibility of retirement, or other forms of social benefits. Nevertheless, the nature of turnover is that they resign in response to being pulled to by their outside options.

Conversely, there might be factors that causes CMOs to value their employment less over other outside options, causing CMOs to resign from position. A large part of CMOs report a high degree of intrinsic motivation for their employment. Such as, a will to develop the municipality or work in the intersection between administration and politics to enhance the elected bodies (Agenda & PWC, 2010, p 10). Changes to this intrinsic motivation, or simply the working conditions, might cause them to value their employment less than the available outside options. The nature of turnover is that there are changes within the CMO or their working conditions that make the CMOs value their current employment less than previously, and this pushes them to resign.

Lastly, the elected bodies might force a resignation. This might happen as elected bodies might blame towards the CMO, and actively force a resignation to be perceived as more accountable politicians. As such, the CMO is forced to resign, unrelated to changes to the outside options or own preferences.

4.2 Applying theories

The CMO operates as the agent in a multi-task setting where the tasks differ in observability, with dynamics analogous to the model by Holmström and Milgrom (1991). Whereas a large part of the effort in the tasks are observable through budgetary results, and other forms of measurement, effort in other tasks such as preparing drafts and business for the council is less observable. The principal is in its entirety the municipal council and constitutes a multi-principal framework like Gailmard's model (2007). Due to the nature of multi-task and multi-principal setting, this provides CMOs with a distinct information advantage over the council, i.e. potential for agency costs.

Findings from Agenda & PWC (2010, p 11-12) and Willumsen et al (2014) reveals evidence of motivated agents in terms of administrative- and political tasks. The intrinsic motivation from the political tasks may be affected by dynamics regarding group identities (Besley & Ghatak, 2005; Akerlof & Kranton, 2005). Therefore, policy oriented CMOs should optimally self-select to municipal councils with similar policy preferences. Everything else equal, CMOs with preferences in policy value their employment more under councils with similar interests and are less likely to resign to pursue outside options. Likewise, alignment in group identities reduces agency costs related to the information advantage of CMOs, and councils are less likely to force a resignation.

The municipal election provides for interesting natural experiments, as parts of the council is subject to replacement every four years. In the presence of policy motivated CMOs, the same preferences that reduced the agency costs under the former municipal council, might have adverse effects following municipal elections. If there is self-selection of CMOs to municipal councils with similar policy preferences, the average CMO should be less aligned with the municipal council after election years. Less congruent relationship causes lower intrinsic motivation, and as CMOs value their employment less are more likely to voluntary resign from position to pursue elsewhere employment options or retire. Similarly, new councils might be more inclined to forcefully remove a CMO than the former, as less congruent relationship attributes to higher agency costs.

Proposition 1:

Following election years there will be higher turnover rates of CMOs.

As the municipal council is the supreme body of the municipality they have great freedom in how they delegate task between the administration and elected leaders. Following municipal elections, a newly elected council has no obligations in continuing the former councils' practices (LGA, section 39). Given the cooperative relationship between CMO and mayor. CMOs with preferences aligned with the mayor will, everything else equal, constitute more efficient municipality management. The mayor with his role as link between the elected bodies and administration has a strong influence on the council's decisions (St.meld. nr. 33. 2007-2008, p 102-103). Councils have incentive to reward productive CMOs by delegating more tasks, and increasing their influence on policy decisions (Gailmard & Patty, 2007). Consequently, the self-selection effect of policy motivated agents in employments as CMOs is enhanced as policy motivated agents are more likely to work harder and to stay in employment when there is alignment in policy preferences with the mayor.

Proposition 2:

A change of the political identity of the mayor, should induce the turnover rates of CMO.

As the size of the municipalities differ, so does the organization and the role of the CMO. Whereas CMOs in smaller municipalities have more direct relations with the leaders in charge of providing the services, larger municipalities have more complex organization structures and requires additional executives in charge of coordinating (Blåka et al, 2012, p 84). Secondly, bigger municipalities generally have more party polarization and influential politicians in terms of exerting control over the administration (Karlsson,2013). Increasing municipality size generally leads to more delegation from the CMO in administrative tasks and a greater deal of interactions with more demanding council members. If CMOs have political preferences, alignment with the mayor matters more in larger municipalities

Proposition 3:

The effect of a change in the political identity of the mayor should increase with the size of municipality.

5 Data and descriptive statistics

To answer the hypotheses, this requires indicators connecting the empirical evidence to agency theories. This requires data on both a CMO level and municipal level to construct our main variables.

5.1 Data

The data on CMO level is gathered from the PAI-registry, which is organized by the Norwegian Association of Local and Regional Authorities (KS). The data is registered by the municipalities themselves, and contains information of who was employed as CMO in each municipality as of the date of registration each year in the period 1991-2016. The date of registration has been set as December 1st of each year ever since 2005, and October 1st prior to this date. The registry contains information regarding the CMOs education level, seniority within the municipality, the average monthly wage for that year, gender, birthyear, and municipal and year identifiers.

The Local Government Dataset from Fiva, Halse & Natvig (2017) is used to provide data on a municipal level. This dataset includes information of public spending, local tax policy, elections, and demographics on a municipal level in the period between 1972-2016. Most relevant for the research question is the information regarding municipal elections, as this includes information on municipal elections outcomes, and most importantly the party affiliation of mayor in each municipality. The local government dataset contains statistics from Kommune Databasen(NSD) and Statistikkbanken(SSB).

Additional control variables such as municipalities' net operating surplus and the municipalities freely disposable income per capita has been collected from SSB in the publicly available KOSTRA (Municipality-State-Reporting) dataset. Information regarding municipalities listed in the ROBEK register, have been collected from the central government. The ROBEK register was established in

2001 as part of a reform on municipality's financial regulation (Regjeringen, 2018), and KOSTRA has only been mandatory for municipalities' participation since 2001 (SSB, 2018). Additional sensitivity analyses using these data are only possible for the period 2001-2016.

This study will use data from municipalities that have not been affected by municipal mergers in the period between 1991-2016 and have not elected municipal parliamentary as the position of CMO is replaced. This accounts for 414 municipalities, where data from Tromsø municipality is used prior to their implementation of municipal parliamentary as of 2011.

5.2 Creating variables

CMO Turnover

The PAI-registry has data regarding who was employed as CMO in each municipality in the period between 1991-2016, at the registration date each year. This information can be exploited in creating a valid instrument, which will be henceforth referred to as CMO Turnover (*Turnover*). However, there are some technical issues that must be resolved.

If the CMO was on unpaid leave on the date of collection, which has lasted or will last longer than six months, the registry should be updated with information regarding the temporary substitute. Similarly, in absence of a permanent CMO, a temporary acting substitute might be submitted to the PAI-registry. These facts raise two important questions: The first question is whether substitutes leaving position as CMO should generate turnover in the dummy variable, and the second questions is if temporary leave should be coded as turnover. As the research question is motivated from agency theories the dependent variable should be created in accordance with this. A valid instrument will therefore have to fulfill two conditions: a) an indication that the CMO has been offered and accepted employment as CMO, as this implies both that the council has offered a contract and that the participation constraint holds. And b) that the CMO has resigned from position later, in which case either the CMO or the municipal council rejects the contract. Regarding the question whether substitutes should generate turnover, they do not fulfill the constraints of a), as it is unclear whether they would have

accepted long-term employment if offered, and it is also uncertain if the council would offer such a contract. Regarding the question whether temporary leave should be coded as turnover: This implies that the participation constraint of the CMO has been temporary broken, but from a legal perspective the contract is still binding and the CMO is free to return to employment. The answers to the previously stated questions are that neither temporary leave nor a temporary acting CMO should be coded to yield turnover in the indicator variable. CMOs are eligible for retirement at the age of 65, however they are not forced, and another concern is turnover caused by retirement of CMOs should be included. Their decision to retire is subject to their intrinsic motivation, similarly to the decisions to resign to pursue other employment offers. CMOs over the age of retirement are therefore included in the regressions, although creating a dummy variable indicating if they are eligible for retirement as this will most likely be a significant influence in their decision to resign.

After having properly cleaned the data and marked which entries are of temporary acting substitutes, periods of temporary leave and questionable entries (See Appendix for a thorough documentation of this process). The indicator variable *Turnover*, is created such that it takes the value of "0" if the same CMO is registered as the year before and the value of "1" if a new CMO is registered. This variable is then modified according to a set of rules regarding evidence of temporary leave, acting CMOs and questionable entries. If there is information that the former CMO was on unpaid leave, the variable is recoded to take the value of "0". Similarly, evidence of a temporary acting substitute the year before and questionable entries, both year of and the year before, are omitted from the regressions.

Change of Mayor

There is a need for a variable displaying the changes in municipal council's identity. In most municipalities the mayor is the only council member who operates fulltime and interacts with the CMO daily. Changes in which party has a member appointed as the mayor, serves as the main instrument reflecting change in political identity. As changes of mayors happen before October of election year, this variable is coded to reflect a change in the first year following election. This henceforth referred to as change of mayor (*ChangeMayor).*

5.3 Descriptive statistics

The descriptive statistics in Table 1 shows that roughly 13 percent of CMO are replaced each year. The average CMO is 50 years old and has a monthly income that is equivalent to roughly 51 000 NOK deflated to the 2011 price level. The sample contains 1 448 unique CMO identities with a mean tenure of 7,3 years, whereas nine of them has served as CMOs in the whole period. The size of the municipalities has a mean population of 8 549 inhabitants although skewed with a few large cities. The majority of Norwegian municipalities have less than 5 000 inhabitants. The smallest year- municipality observation in the sample had a population of 200 while the largest one has a population size of 187 353.

Table 1 Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Turnover	9.903	0,119	0,323513	0	1
Tenure	1.478	7,2	5,674788	1	26
Tenure per municipality	1.789	5,875	4,88155	1	26
Wage (deflated to 2011 numbers)	10.323	50824	14920,79	16004	124013
Wage (original)	10.323	45796	19631,92	17771	135188
Age	10.500	50,8	7,47612	26	78
Share of CMOs with a higher education	10.511	0,143	0,350179	0	1
Share of female CMOs	10.758	0,141	0,348241	0	1
Share of CMO past the legal age of retirement	10.511	0,008	0,08745	0	1
Change Mayor	10.511	0,153	0,359804	0	1
Changes of mayors party	414.	3,981	1,482624	1	7
Share of female mayors	10.511	0,292	0,454608	0	1
Size of council	10.758	26,83	10,83923	11	85
Share of female council members	10.511	0,338	0,089981	0	0,6842
Number of inhabitants	10.511	8550	14218,95	200	187353
Share of population between the age 0 and 5	10.511	0,086	0,014467	0,033	0,1477
Share of population between the age 6 and 15	10.511	0,119	0,01431	0,066	0,1891
Share of population aged over 65	10.511	0,167	0,03657	0,066	0,2977
Unemployment rate	10.105	0,024	0,012536	0	0,1294
Number of municipalities	414.				

Figure 1 displays the yearly turnover rates of CMOs in the period 1992-2016. The average rates are ranging between 10-18 percent in the whole period. Although the period 1993-2004 municipalities had large changes in both political and administrative organization prompted by the implementation of the LGA (Hovik & Stigen, 2008; Blåka et al, 2012), this is not reflected clearly in the data. The only visible outlier is 2001 when another municipal reform brought in additional changes such as mandatory financial reporting through KOSTRA and the use of the ROBEK (Regjeringen, 2001;2007). Apart from these years, the turnover rates are quite low ranging between 10 and 13 percent. Years following municipal elections do not have strikingly higher turnover rates than the rest. Apart from 1992 when the LGA was voted in parliament, the most prominent being that of 1996, 2008 and 2016 that is roughly 2-3 percentage points higher than the year before. Following the municipal election year of 2007, the turnover rates increases and range between 15 to 18 percent. See A1 for similar representation of the average change of mayor's political party over years.

Figure 1. CMO turnover rate over years

Figure 2. Distribution of changes of mayors' party and CMO turnover

The left bin displays the distribution of the changes of mayor's party per municipality in the period 1992-2016. The right bin displays the distribution of CMO turnover per municipality in the same period. The green lines indicates the estimated normal distributions.
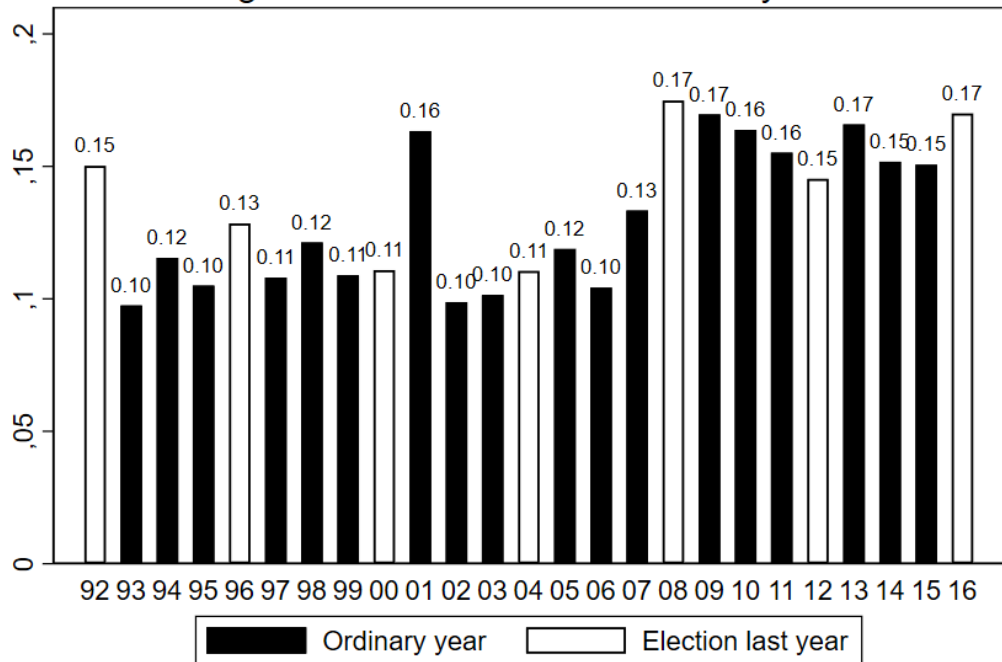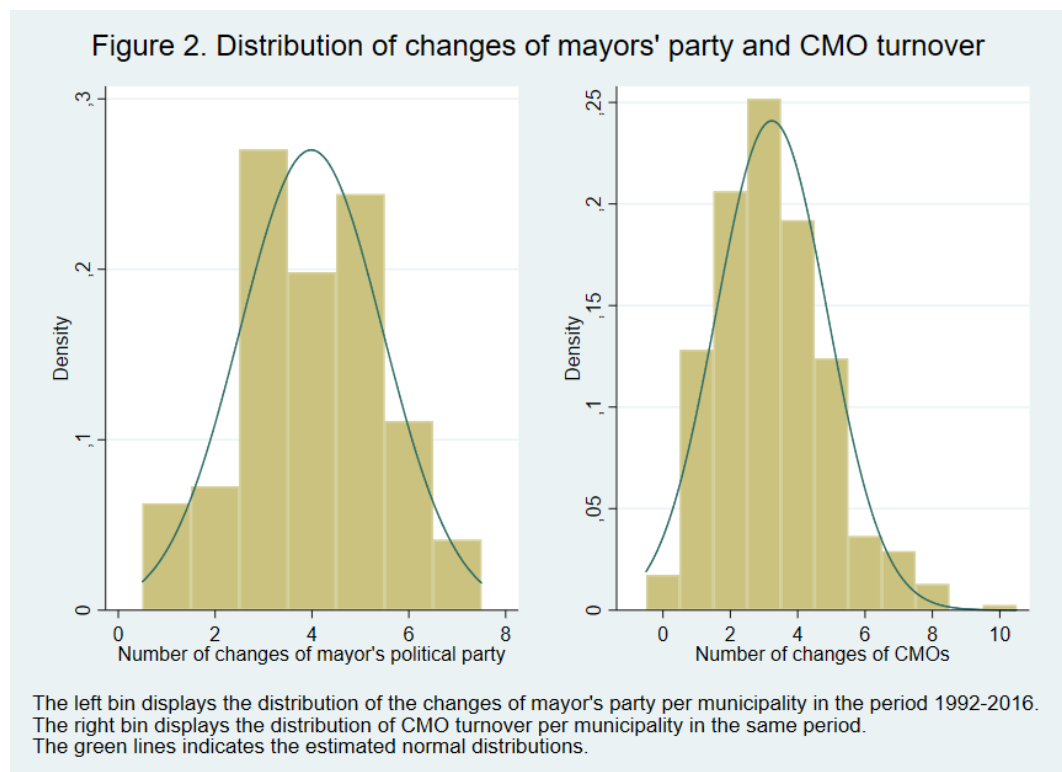
Figure 2 displays the distribution of changes of mayor's political party and the CMO turnover per municipality. Roughly 70 percent of municipalities have three to five changes of parties elects the mayor over the period 1992-2016. Similarly, 60 percent of municipalities, have somewhere between two to four recorded turnovers of CMOs. However, this distribution has a slightly fatter tail on the right side, reflecting that roughly 10 percent of municipalities have a much higher turnover rate.

The complexity of the municipal organization structure and the dynamic of the interaction between CMO and elected bodies depends on the population size of municipality (Saxi, 2015; 2018, p 8; Karlstad, 2013). Consequently, the role and tasks of CMOs differ in terms of municipal size and analyzes has been done where municipalities have been grouped in terms of their average population size. This has been done in the intervals where *Small* municipalities have less than 5 000 inhabitants, *Medium* municipalities are ranging from 5 000 to 9 999 inhabitants and *Big* includes all municipalities with 10 000 or more inhabitants. The lower limit of the 10 000 in the latter is motivated by a Swedish study documenting a threshold effect, where municipalities with fewer than 10 000 inhabitants the political strength in relation to local administrators is seriously weakened (Karlsson, 2013, p 24).

Figure 3 displays the most relevant yearly CMO characteristics for each of the subgroups of municipalities. From the figure we can clearly see that municipalities with more inhabitants generally have CMOs with higher wages, which is reasonably as bigger municipalities involve more responsibilities. The yearly increase in adjusted wages are quite similar within the subgroups of municipalities, when using a logarithmic scale, they show near identical trends. The average age has increased over time in all subgroups the biggest increase is in small municipalities. Whereas there was an age difference between Big and Small municipalities of roughly 6 years in 1991, this gap has decreased to be less than two years in 2016. Perhaps most interesting is the development in education, as the trend is different between the subgroups. The graph displays the share of CMOs with a higher-level education consisting of more than five years of university, or equivalent, schooling. Whereas this share has development small and medium municipality, there has been a decrease in big municipalities. The share of female CMOs has been increasing over the years within all subgroups and is roughly around 25-30 percent depending on municipality size in 2016. Evidently, although there are large differences between municipalities this is not reflected in the observable characteristics of their executive leaders. See A2 for similar summary statistics on municipality size subgroup levels.

Figure 3. CMO characteristics over years

The above graphs lists yearly average CMO characteristic grouped by size of the municipality.
Small denotes municipalities where the average population size has been less than 5 000.
Medium denotes municipalities where the average population size has been between 5000 and 9999
Big denotes municipalities with average population size of 10 000 or more in the relevant period.
Higher education is defined as obtaining a degree that requires 5 or more years of schooling in a university level or equivalent.

6 Empirical identification strategy

The models of choice are linear probability models (LPM) with a binary dependent variable indicating Turnover of CMOs, *Turnover*. Although, LPMs have shortcomings in that they are not restrained within the unit interval which may cause nonsensical predictors, and OLS estimation imposes heteroscedastic error terms. The alternatives, nonlinear models such as the probit and tobit, are not much better in regressions with panel data and regressors that might be endogenous. Moreover, the problem of heteroscedastic error terms is easily dealt by using heteroskedasticity-consistent robust standard error estimates. For a rich discussion on this topic between seasoned econometricians such as Jörn-Steffen Pischke and Dave Giles, see e.g. Giles' blog entry (2012) or Jeff Friedmans summary of this discussion (Worldbank, 2012).

When using binary regressors that indicate group identities, there are advantages of using LPM over that of a probit or logit model (Caudill, 1988). The coefficients in LPMs has the nice interpretation as that variable's average treatment effect on the dependent binary variable. In regressions with *Turnover* as the regressant the estimated coefficient is the average treatment effect on the yearly turnover rates of CMOs. Put a different way, the estimated coefficient in front of the treatment variable is simply the difference in yearly turnover rates between the group that has received the treatment and the control group. As such, it has the nice interpretation as being the additional probability that a CMO will be replaced, given the treatment effect.

6.1 Regression models

Election year

$$Turnover_{i,t} = \gamma + \alpha_1 Electionyear_{\ t} + \alpha_2 Electionlastyear_t +$$
$$\alpha_3 Twoyearsafter_t + u_{i,t} \qquad \qquad \text{(a)}$$

Where the subscript i denotes municipality, and t denotes time. *Electionyear*, *Electionlastyear* and *Twoyearsafter*, are dummy variables indicating the years since last election. As the municipal elections are held every fourth year, independent on CMO and municipal characteristics, the interpretation of the

coefficients, α_1, α_2 and α_3, is the average increase in turnover rates of CMO compared to that being the year before a municipal election, denoted by γ.

Change of Mayor

$$Turnover_{i,t} = \varphi_i + \delta_t + \beta_1 F.ChangeMayor_{i,t} + \beta_2 ChangeMayor_{i,t} +$$
$$\beta_3 L.ChangeMayor_{i,t} + Controls_{i,t} + u_{i,t} \qquad\qquad (b)$$

Equation (b) estimates the effect of a change in mayor and the how this affects CMOs risk of replacement in the year of election, β_1, and the two following years, β_2 and β_3. Unlike municipal elections, election results might be affected by parameters that also affects *Turnover*. The independent variable, *ChangeMayor*, is clearly not exogenous, and there is the possibility of omitted variable bias. The important question is how to correct this bias.

Turnover is affected by both CMOs willingness to resign and the council's decision in forcing a resignation. As formerly mentioned in section four, voluntary resignation depends both on being pulled to other form of employment, and internal changes pushing them to resign. CMOs with policy preferences might stay longer in employment, as they are more likely to pass up employment offers and hold off retirement, when working under an aligned council. When there is a change of mayor, CMOs might value their employment less and be more likely to resign from position. Similarly, a council under a newly elected mayor might be more inclined to force a resignation because of less congruent relationships. A perfect identification strategy captures only the additional probability of voluntary and forced turnovers that are causally attributed to a change of mayor's party. A central concern is therefore conditional independence assumption (Angrist & Pischke, 2009, p 52-59). The argument is that if the change of mayor is quasi-random given controls, the omitted variable bias vanishes.

As shown in figure 2, municipalities vary between zero to 12 registered replacement of CMOs and between one to seven changes of mayor's party. The rich panel data allows for inference of municipality fixed effects. The municipality fixed effects, φ_i, is the average effect of all omitted parameters within each municipality throughout the period. This helps control for structural

factors within municipalities that promotes different turnover rates between municipalities. Similarly, time fixed effects, δ_t, infers the average effect of omitted parameters for each year on all municipalities. It is a vector of effects, one effect for each year, that is shared between all municipalities. E.g. policy changes on a national level that may affect the working conditions of CMOs, or a turn of the economy which affects the outside options, both in availability and relative attractiveness.

Moreover, the PAI-registry contains several CMO-specific control variables. It allows controlling for the eligibility to retire, education level, and gender, which can influence voluntary resignations through affecting their available outside options. From the data set provided by Fiva et al (2017) there are demographic characteristics of the municipality, i.e. percentage of population being young (0–5 years), children (6–15 years) and elderly (above 67 years) which are all measured at January 1st each year. As well as the unemployment rates, the yearly average of unemployed persons as the share of the total inhabitants aged 16-66 at the end of the year. A dummy variable indicates whether the municipality has imposed property taxation, as this affects the municipal income. Information regarding the municipal council, including share of female council members, gender of mayor, size of council and electoral dominance, i.e. indicating whether a party bloc having more than 60 percent of the votes the last election. All of these are subject to change over the period and may influence turnover of CMOs.

Geys et al (2017, p 51-52) finds that negative budgetary results are more likely to result in a forced turnover by the council, and that this also affects the reelection of the incumbent mayor (Geys et al, 2017, p 48). This suggests that both changes in the mayor's political party and CMO turnover might be causally related to municipal performance. The estimated treatment effect might have a positive omitted variable bias. Similarly, more constrained municipalities should generally lead to more conflict in budgetary matters, and motivates controlling for the free income per capita and reduced financial autonomy indicated by being listed in the ROBEK register. However, controls regarding municipal economy are not available before 2001, when municipalities were subjugated to an increased

financial reporting benchmarking through KOSTRA and the use of the ROBEK (SSB, 2018; Regjeringen, 2007).

This produces a trade-off between sample size and using more extensive controls. Therefore, the main analyses will be done throughout the whole period, 1992-2016, with supplementary analyses in the period 2002-2016 using the same model that have added more extensive controls. These added controls include the lagged budgetary surplus divided into positive and negative surplus, as Geys et al (2017, 51-52) finds the negative surplus has a more pronounced effect on turnover. Additionally, the lagged free income per capita in thousands of NOK, and a dummy variable taking the value 1 if the municipality was under fiscal supervision by the county governor.

If the conditional independence assumption holds, the estimated treatment effect is unbiased and has a causal interpretation. The coefficients of interest capture the additional probability that a CMO resigns to pursue his outside option, whether that be an employment offer in the public or private sector or retirement, because he prefers his employment less working under the new mayor. In addition to the probability that the council will force a resignation attributed to a change of mayor's political party. As changes of a mayor are coded the following year of election and turnover of CMOs are recorded in December each year. β_1 captures the effect on turnover within December the same year of municipal election, β_2 the first year after, β_3 within the second year after election. However, an important question is if this assumption holds, and additional robust checks are added to evaluate this.

A central problem with the identification strategy is that newly elected mayors may differ from reelected incumbent mayor's simply because of experience as mayor. The dummy variable *ChangeMayor* only captures changes of mayor between parties, but does not distinguish between changes of mayor within party. As such the treatment effect is partly biased, as it captures not only the effect of a change of mayor from one party to another, but also partly the effect of changing from an experienced mayor to a newly elected.

7 Results

7.1 Main models

The results for equation (a) are that the effect on *Electionyear* is roughly equal zero with an effect of -0,0008. *Electionlastyear* has an effect of 1,53 percent and is significant on the 10 percent level. Similarly, *Twoyearsafter* is at 1,13 percent, however fails to reach significance at any relevant levels (See appendix A3).

In Table 2, different specifications of equation (b) are presented. Column (1) is an OLS regression. Column (2) includes municipal fixed effects to help control for omitted variables within each municipality that may affect the turnover rates. Similarly, column (3) also includes time fixed effects to help control for omitted variables that are constant for all municipalities each year. Finally, column (4) has included the available controls as listed in section 6.1.

The results show that the treatment effect of a change of mayor is positive in all models. This includes both effect on turnover rates between 1,3 and 2,4 percent the year of municipal election, and an effect between 2,5 and 3,65 percent the following year. The strongest effect on turnover is in the first year after a change has occurred and is significant on at least five percent level in all models.

The same model in period 2002-2016 with added economic controls show positive coefficients for all model specifications. The coefficient the year of municipal election is quite similar ranging between 1,5 and 2 percent. The first year after municipal election, ranges between and 5,2 percent, and shows an increased effect. The largest difference is in the second year after election, which ranges between 2,0 percent and 3,4 percent depending on model specifications (See appendix A4).

Table 2. Marginal effect on CMO turnover rate

VARIABLES	(1) OLS	(2) Mun FE	(3) Mun Time FE	(4) Controls
F.ChangeMayor	0.0147	0.0132	0.0208	0.0243*
	(0.011)	(0.012)	(0.015)	(0.015)
ChangeMayor	0.0321***	0.0300**	0.0365**	0.0336**
	(0.012)	(0.013)	(0.016)	(0.016)
L.ChangeMayor	0.0144	0.0130	0.0004	0.0010
	(0.010)	(0.010)	(0.014)	(0.014)
Constant	0.1246***			
	(0.004)			
Observations	9,684	9,684	9,684	9,661
R-squared	0.001	0.045	0.051	0.067
Municipality FE	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Controls	NO	NO	NO	YES
Municipalities	414	414	414	414

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Notes. The dependent variable is an indicator variable for CMO turnover with added leads and lags. The models are linear probability models and the estimates displayed are the marginal effects on turnover rate. The standard errors are robust standard errors clustered at the municipality level. The controls used includes CMO specific variables such as education level gender and eligibility for retirement. Municipality controls which includes demographic controls and information regarding the municipal council.

7.2 Municipality size analyses

Municipality size is assumed to have important implications on the complexity in municipal organization, the behavior of the elected bodies and the dynamics between CMO and political leadership (Karlsson, 2013; Saxi 2015, p 9-10). This might influence the dynamics of turnover, and a natural extension of this topic is subgroup analyses on municipal sizes.

Table 3 shows the results of equation (b) on different subgroups on municipality size. *All* is the regression on the relevant sample in the period 1992-2016, and corresponds with model (4) in Table 2. *Small* is the same model regressed on a subgroup of the sample where only municipalities with a mean population size of less than 5 000 are included. Similarly, *Medium*, and *Big* are regression analyses on subgroups reflecting municipalities with a population size ranging from 5 000 to 9 999 and upwards of 10 000, respectively.

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The model *Small,* N=5422, shows a weak effect on turnover rates in the years closest to municipal elections. The effect is near identical the year of election and following municipal election with an effect of 2,3 percent and a standard error of roughly 0,2. In the model *Medium,* N=2075, the results show a positive effect the first year following municipal election, although not significant on any levels. And lastly *Big,* N=2187, show the strongest effect on turnover rates. In the year of election, the effect is at 4,1 percent, and the year after a change of mayor has an effect of 8 percent, the latter being significant on the five percent level. The most interesting control variable is the eligibility to retire which has an effect ranging between 33 to 41 percent, and is significant on the one percent level in all models. An education level comparable to a high school level, has a negative effect between 2,1 to 4,1 percent. (See appendix A5 for the regression including all control variables).

Table 3. Marginal effect on CMO turnover rate. Municipality size

VARIABLES	(1) All	(2) Small	(3) Medium	(4) Big
F.ChangeMayor	0.024	0.022	0.008	0.041
	(0.015)	(0.020)	(0.032)	(0.030)
ChangeMayor	0.035**	0.020	0.028	0.080**
	(0.016)	(0.021)	(0.032)	(0.036)
L.ChangeMayor	0.004	0.011	-0.011	0.001
	(0.014)	(0.019)	(0.030)	(0.030)
Observations	9,671	5,410	2,074	2,187
R-squared	0.062	0.072	0.070	0.067
Municipality FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Population Size	ALL	Small	Medium	Big
Municipalities	414	233	88	93

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Notes. The dependent variable is an indicator variable for CMO turnover. Themodels are linear probability models and the estimates displayed are effects on turnover rate. The standard errors are robust standard errors clustered at the municipality level. Grouping of municipalities is done on population interval of the mean of each municipality in the period between 1992-2016. Small municipalities have a mean population size of less than 5 000. Medium municipalities have a population size ranging from 5000 to 9999. While Big municipalities are all municipalities with a mean population of 10 000 or more in the relevant period.

Appendix A6 shows the results of municipality size analysis with extended controls in the period 2002-2016. *Small* municipalities have similar although
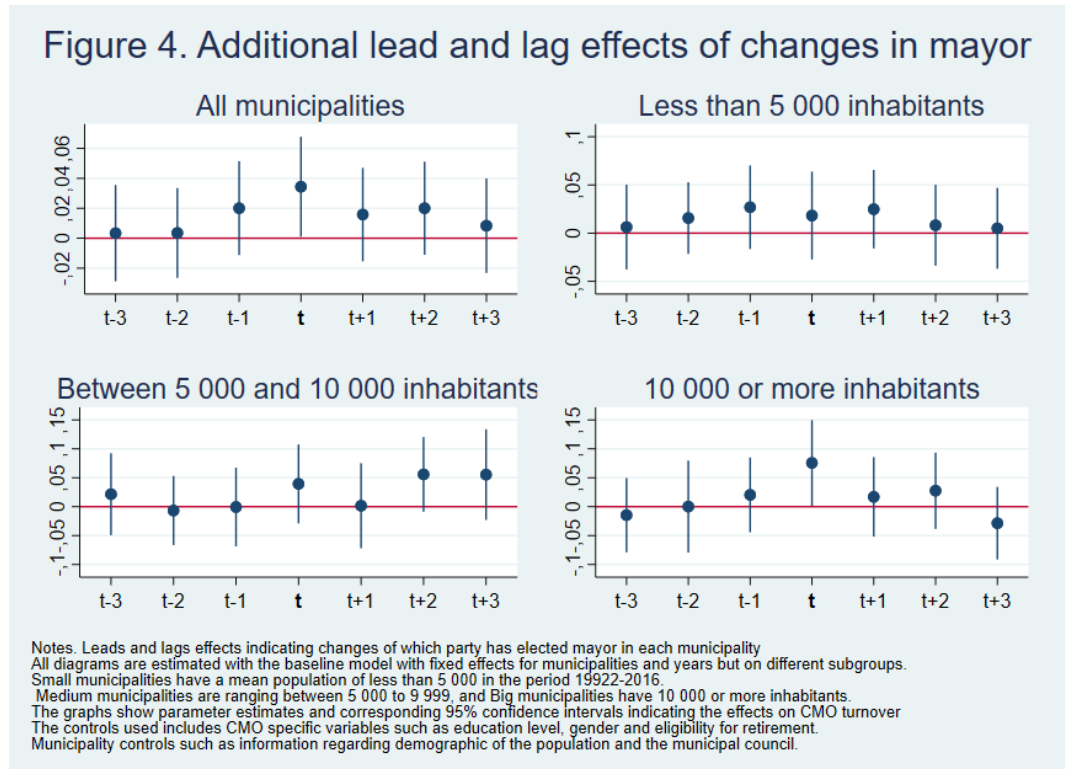
weaker effects than in Table 2. The effect from a change of mayor in the first year following municipal election in *Medium* municipalities has increased from 2,5 percent to 5,7 percent, however this effect has a higher standard error and is not significant on any relevant levels. Most notably is the increase in *Big* municipalities that has almost doubled in size to yield an effect of 15,3 percent and is significant on the one percent level. Whereas the eligibility of retirement shows a similar albeit slightly weaker effect, the effect of not having education beyond the high school level is much stronger. Whereas this constitutes a weak negative effect of 1,8 percent in *Small* municipalities, the effect in *Medium* and *Big* municipalities has increased to a negative effect of 12,7 percent and 11,7 percent respectively, the last two being significant on the one percent level. A positive budgetary surplus shows a weak negative effect in most models, the only exception being in *Medium* sized municipalities, however none reaches any relevant significance levels. Negative budgetary surplus on the other hand, has a strong negative relationship, that is, it induces turnover. This effect is weakest in *Small* municipalities where a budgetary deficit increase of one percentage point, in terms of the net municipality income, has an effect of 0,8 percent. In the other groups this has an effect of 1,9 and 2,3 percent, in *Medium* and *Big* respectively. Being subjugated to financial supervision, i.e. being listed in the ROBEK, induces turnover of 0,7 percent to 5,2 percent.

7.3 Robust checks

Additional leads and lags

Figure 3 displays a robust test in the form of including additional lags and leads of *ChangeMayor* in the period 1992-2016 with both municipal and time fixed effects and control variables. The period "t" reflects the first year after municipal elections. Most of the additional lead and lag variables show weak and insignificant effects, suggesting that the effect of a change of mayor has an effect that persists over some years but inevitably dies out over time. However, some of the latter lags have a strong effect, which suggest there is correlation with an omitted variable, most likely the oncoming municipal election. This bias is most visible in *Medium* municipalities, and to a lesser degree in *Big* municipalities.

Figure 4. Additional lead and lag effects of changes in mayor

Notes. Leads and lags effects indicating changes of which party has elected mayor in each municipality
All diagrams are estimated with the baseline model with fixed effects for municipalities and years but on different subgroups.
Small municipalities have a mean population of less than 5 000 in the period 19922-2016.
 Medium municipalities are ranging between 5 000 to 9 999, and Big municipalities have 10 000 or more inhabitants.
The graphs show parameter estimates and corresponding 95% confidence intervals indicating the effects on CMO turnover
The controls used includes CMO specific variables such as education level, gender and eligibility for retirement.
Municipality controls such as information regarding demographic of the population and the municipal council.

Newly elected versus incumbent mayors

As shown by Boyne et al (2010) the English top bureaucrat suffers increased risk
of replacement following changes of majority in combination with poor budgetary
performance. A central question is what causes this additional risk of replacement,
is it changes to unobserved political alignment in preferences or simply that newly
elected bodies punish poor performance harder. A potential source of bias is that
the behavior of newly elected mayors differs from incumbent mayors that have
been reelected.

To assess this, auxiliary regressions have been done where the effect of budgetary
performance have been isolated within two distinct groups of municipalities. One
where the incumbent mayor's party was re-elected, and one where there has been
a change of mayor's party the last election. Apart from the budgetary performance
being split to four variables as opposed to two, the model mirrors the one
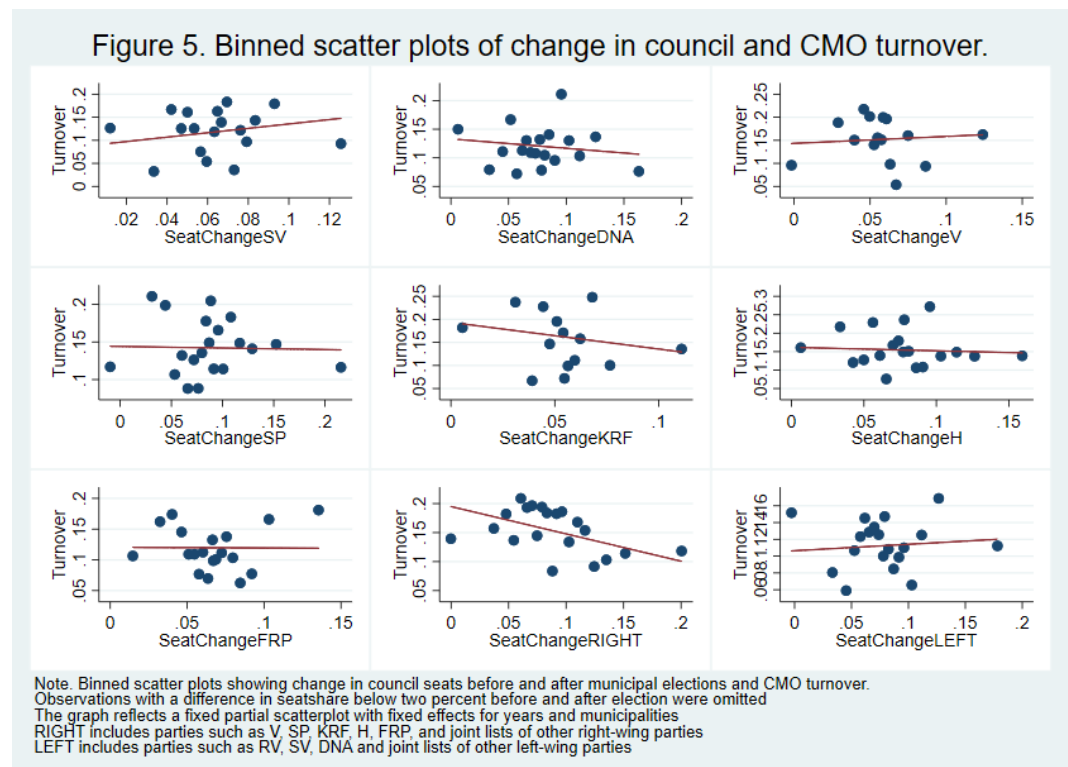presented in A6.

These results show that municipalities that had a change of mayor the last
election, has a stronger effect of poor budgetary performance. Regression on all
municipalities reveals this effect to be twice as strong if there recently has been a

change of which party elect mayor. The subgroup analysis reveals this effect to be increasing in municipal sizes. Specifically, turnover in *Medium* and *Big* municipalities, where a new party elected the mayor last election, increases by 2,9 and 3,7 percent, per percentage point of a negative budgetary surplus. Much higher than in municipalities where the incumbent mayor's party was reelected, where comparable numbers are 0,7 and 1,4 percent in *Medium* and *Big* respectively. The effects of a change of mayor is largely the same, except for *Medium* municipalities, unless accompanied by positive and negative budgetary results. See appendix A7.

Changes to council composition

Additional sensitivity analysis includes binned scatter plots relating *Turnover* to changes of political affiliation within councils, Figure 5. This is done on a political party level, including the seven largest parties in municipal Norway, and on the aggregate left/right wing compositions, which allows for smaller parties and joint lists between parties.

Unlike changes of mayor, the results show very weak effects on turnover. Although there is variation in turnover rates between the calculated bins, there is no clear pattern relating this to aggregate changes within the council.

Figure 5. Binned scatter plots of change in council and CMO turnover.

Note. Binned scatter plots showing change in council seats before and after municipal elections and CMO turnover.
Observations with a difference in seatshare below two percent before and after election were omitted
The graph reflects a fixed partial scatterplot with fixed effects for years and municipalities
RIGHT includes parties such as V, SP, KRF, H, FRP, and joint lists of other right-wing parties
LEFT includes parties such as RV, SV, DNA and joint lists of other left-wing parties

8 Discussion

The results from table A3 shows that CMOs turnover rates increases by roughly 1,53 percent the year after municipal elections and 1,1 percent the following year. The reference group, i.e. average turnover in years before a municipal election, is at 12,6 percent. This implies a relative increase that CMOs are replaced as roughly 12 percent higher the year after election and 9 percent the following year. This is in line with agency theories predicting the average CMO-municipal council relationship to be less congruent following elections.

When using *ChangeMayor* as the main regressor, the results in Table 2 show a stronger effect. Suggesting that almost 3,5 percent of CMOs are replaced within the first year as a change of the political affiliation of the mayor. The analyses in the period 2002-2016 with extensive controls, A4, show the same dynamics. The main difference between the two is that the latter model has stronger effects in the first and second years following municipal elections. This is most likely attributed to structural changes. As there were extensive changes within the structural political and administrative organization until the early 2000s, and CMOs were largely given influence on the cost of the elected bodies (Stigen & Hovig, 2008, p 23).

The positive effect the year of election is somewhat unexpected results. As the election results and constitution of the mayor is in the period September-October and CMOs are normally bound to a three-month notice period (Kommuneforlaget, 2016, p 10). Resignation by the CMO following a change of mayor should normally not be reflected in the data until the first year after election, as the date of registration for the PAI-registry is normally the first of December (KS, 2016). Under the conditional independence assumption (Angrist & Pischke, 2009, p 52-59), the treatment effect should only reflect turnovers that would happen under a new mayor with different party affiliation. Unless this is the result of some transparency in future changes in mayor and that CMOs resign in anticipation of this. The large effect the year of election suggests a violation of this assumption. Either because of omitted variable bias or an endogeneity problem in that CMO turnover affect the election probability of the incumbent mayor. Somewhat puzzling, is that the effect in the year of election, increases when adding time

fixed effects and the use of controls. Even in the extended analyses when economic performance is controlled for, this increases from 1,6 to roughly 2 percent.

In the subgroup analysis that focuses on municipal sizes, Table 3 and A5, the dynamics of turnover is further investigated. All models show a positive relation between changes of mayor and CMO turnover the first year after election. Whereas the effects in *Small* and *Medium* municipalities are weak and not significant on any relevant levels, *Big* municipalities show a significant effect that is between three to four times greater than the smaller municipalities. The same model in the period 2002-2016 with extensive controls, A6, shows similar results. However, whereas the effect in *Small* municipalities is weaker, the effect in *Medium* and *Big* municipalities has almost doubled in size. The latter is particularly interesting as it significant on the one percent level. Suggesting that in the period 2002-2016 in municipalities with 10 000 or more inhabitants, the effect of a change of the mayor's party caused an additional one out of seven CMOs to be replaced within the first year

The control variables affecting voluntary resignation through the outside options show effects in line with predictions. The eligibility for retirement has a strong positive effect in all model specifications, increasing the probability of turnover between 26 to 41 percent. Similarly, having low education should attribute to worse outside options, reducing the likelihood that a CMO voluntary resigns. The most coherent results for this are in the extended analyses in the period 2002-2016, where all models except the subgroup of *Small* municipalities are significant on the one percent level. Having a negative budgetary result of one percent, increases the probability of turnover by 0,8 percent to 2,3 percent, and is increasing in municipality size. A reasonable interpretation is that this effect captures resignations forced by the elected bodies. As it increases in municipal size, this strengthens the hypothesis that the elected bodies exert more control over the administration in larger municipalities. Similarly, financial constraints as being listed in the ROBEK have a positive effect and vary between 0,7 and 5,2

percent. The above-mentioned control variables have effects that are in line with agency theories predictions.

The robust check in figure 4 shows the effect of a change in mayor decreases in time with additional lead and lags. However, it also reveals the presence of bias, and suggests a positive bias in *Medium* municipalities. The auxiliary regressions presented in appendix A7 tries to assess the nature of bias. Apparently, councils led by newly elected mayors punish economic performance harder than if an incumbent party reelects a candidate. If there is other unobserved CMO performance that affect the incumbent party mayor's reelection, this suggests a positive omitted variable bias. Whereas the effect of a change of mayor's party in *Big* municipalities is still strong at 13,3 percent, the effect in *Medium* municipalities becomes much weaker. However, this is most likely attributed to the isolated effect of positive budgetary surplus in combination with a change of mayor, which is quite strong increasing the turnover rate with 2,2 percent for each positive percentage point of budgetary surplus. Which undoubtedly is interesting, but because of the indication of bias *Medium* municipalities, and that this effect is not presence in any other subgroup, suggest this might be spurious findings. The binned scatter plots presented in figure 5 reveal little relationship between aggregate changes to the council and turnover rates. If it was policy differences between CMO and a newly elected mayor that caused the effect on turnover, a clearer relationship between turnover and changes in political identity would be expected. Altogether, the robust checks suggest that the estimated treatment effect captures other effects that is unrelated to policy differences. Consequently, there is strong indication of positive omitted variable bias, and the estimated treatment effect cannot be solely attributed to policy differences.

However, the main finding of this study is evidence that bureaucratic turnover responds to changes of mayor and is more sensitive in larger municipalities. The latter part of this discussion reflects on the underlying mechanisms. Agenda & PWC (2010, p 10-11) find that two-thirds of the CMOs who resign, retirements excluded, find employment as top executives in either public or private sector. Also roughly one-third of the CMOs have former experience in executive positions from the private sector. Suggesting CMOs have bountiful options to

pursuing a career as a civil servant. Geys et al (2017) finds that CMOs gets rewarded for relative performance and that the compensation is low-powered in line with agency theories predictions. However, the compensation scheme might be flat compared to the available outside options of highly educated individuals such as the CMOs in the Norwegian private sector (Fevang et al, 2008).

Moreover, the outside options of CMOs in larger municipalities may very well be better than the comparable ones in more sparsely populated ones. It is well documented that higher populated cities have higher wage levels, more commonly referred to as the urban wage premium (for a review see e.g. Yankow, 2006). This can be explained by extreme skill complementary, i.e. the production of highly skilled workers benefits by providers of low-skilled services as shown by Eeckhout, Pinheiro & Schmidheiny (2014), gains from idea exchanges (Davis & Dingel, 2013). Consequently, smaller municipalities, especially more rural ones, might offer worse and less available outside options. Thus, the decision to resign constitutes a higher cost for the CMO as it more often requires relocation or increased travel time. Consequently, the sorting of CMOs that value their influence on policy increases in the size of municipalities as they are more likely to have better outside options.

On the other hand, municipal size might have a similar effect on the council's decision to force a resignation. The available pool of candidates and more efficient matching might favor larger economies, as shown by Wheeler (2001). Similarly, mayor and CMO constitutes a larger share of the management in smaller municipalities. As such, the cost of firing a CMO following a change of mayor is higher in smaller municipalities, and the benefits of replacing the CMO is lower. Empirical research suggests that bigger municipalities have more influential politicians exerting stronger control over the administration (Karlsson, 2013), whereas smaller municipalities have less party competition and less accountable politicians (Saglie et al, 2016, p 63). The auxiliary regressions reported in appendix A7 provide support for this argument, as negative budgetary results have a much stronger effect on turnover in combination when a new mayor from another party is elected in *Medium* and *Big* municipalities. Conversely, in *Small* municipalities, this effect weaker than if the incumbent party reelects.

9 Conclusion

There is an emerging literature documenting that the behavior of bureaucrats is exceedingly being influenced by policy preferences (Peters & Pierre, 2004; Doherty et al, 2017). As bureaucrats are given increased autonomy in policy decisions following reforms in the public sector, the presence of policy motivated bureaucrats increases. The top bureaucrats in Norwegian municipalities has enjoyed increased delegation from the elected bodies and are in strong position to influence policy decisions since the implementation of the Local Government Act in 1993 (Stigen & Hovig, 2008; Blåka et al, 2012), however little is known about how this has affected their behavior.

Agency theories predict self-selection effects in favor of the off-going council's preferences (Besley & Ghatak, 2005; Akerlof & Kranton, 2005). A change in the council's identity causes less congruent bureaucrat-mayor relationship and increases the probability that the bureaucrat resigns or forced to resign by the council.

In this thesis I investigate three hypotheses regarding the turnover of the top bureaucrat in Norwegian municipalities. The first is whether there are increased turnover rates in the years following municipal elections. The second is if this is causally related to changes of mayor, the leader of the elected bodies. And third, if the effect of a change in mayor is affected by municipality sizes.

Regarding the first hypothesis, the result show significant evidence that the first year after municipal elections constitutes a 12 percent relative increase in turnover. I argue this to be an effect some sort of self-selection of bureaucrats to councils with aligned preferences.

The second hypothesis isolates this effect to a change of mayor. A reasonable assumption is that the cooperative relationship between the bureaucrat and mayor, a change of mayor affects both the bureaucrat's decision to resign and the council's decision to force a resignation. This hypothesis is tested on eight different specifications of the data and control variables. All results provide strong evidence of increased turnover the first year after a change has occurred.

Specifically, this effect ranges between 3 percent to 5,5 percent and is significant on the five percent in all models. This translates to that the bureaucrat's risk of replacement has a relative increase of between 25 to 40 percent within the first year after a change of the mayor's political party. This is in line with research on politicization of bureaucracies in countries with comparable institutional setting (Christensen et al, 2013; Boyne et al, 2010)

The third hypothesis investigates if the dynamics of the effect of a change of mayor differs depending on municipality sizes. Municipalities are put in three groups depending on the mean population size in the relevant period, less than 5 000, equal to or larger than 5 000 and less than 10 000, and 10 000 or more. The analyses reveal a threshold effect, where the larger municipalities have an effect that is much larger than that of smaller municipalities. I argue that this is due to two distinct mechanisms: 1) The wage schedule of public sector is flatter than the available outside options (Fevang et al, 2008). Larger municipalities/cities generally have more available employment options with higher wages (Wheeler, 2001; Yankow, 2006). As such, in larger municipalities CMOs decision to voluntary resign is more sensitive to changes of mayor. And 2) Larger municipalities generally have more influential politicians exerting stronger control over the administration (Karlsson, 2013), whereas smaller municipalities have less party competition and less accountable politicians (Saglie et al, 2016, p 63). As such, the degree of turnover forced by the elected bodies is increasing in municipal sizes. This is supported by that the negative surplus of the municipal economy also has a significant positive effect on turnover, and like the effect of a change of mayor's party, this increases with the number of inhabitants.

However, this study cannot distinguish if this is caused by an increased politicization of the civil service, that is, if the recruitment substitutes political criteria for that of merit. The increased turnover can be a result of more efficient matching of CMO-mayor on a broad set of group identities, and not necessarily restricted to policy preferences. Secondly, this study offers no insight in the consequences of politicization. As Peters & Pierre argues, politicization of the most senior executives might be less destructive than if this is more overt practice throughout the civil servants' careers (2004, p 3). As larger municipalities have

more complex administrations where the CMOs shares their responsibilities with executive groups, politicization might not necessary be detrimental if this is restricted to CMOs in larger municipalities. As such, further research is needed to clarify the extent of the politicization in Norwegian municipalities, and the possible consequences.

Appendix

A1. Changes to mayor's party affiliation over years.
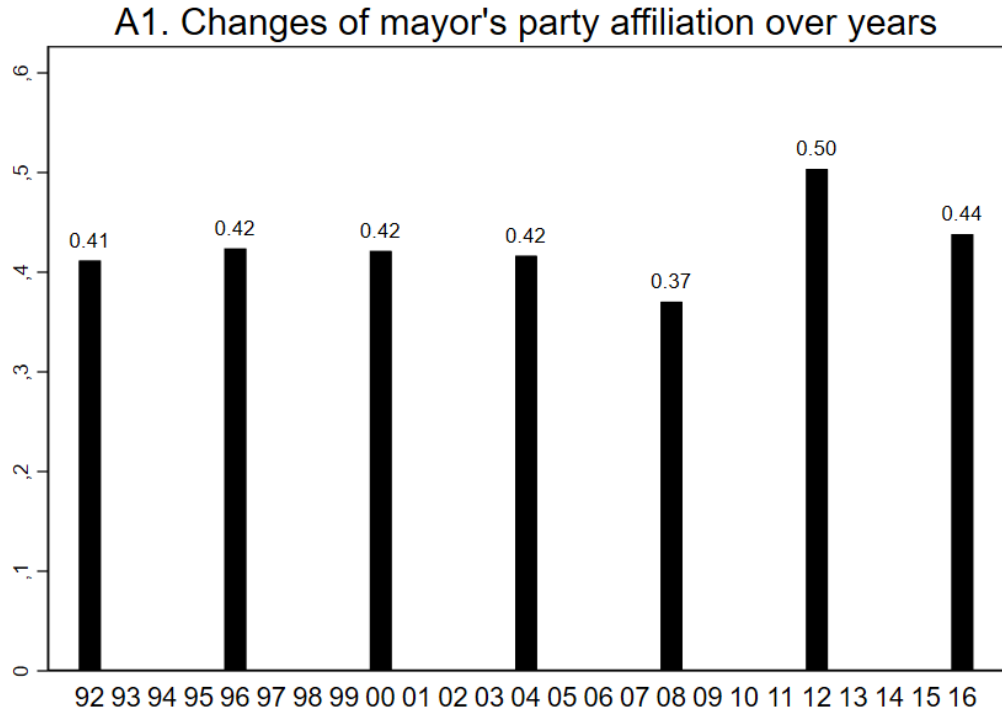
A2. Summary statistics over municipality sizes.

A2 Summary statistics	Mean		
Variable	*Small*	*Medium*	*Big*
CMO statistics			
Turnover	0,125	0,126	0,122
Wage (deflated to 2011 numbers)	46 786	51 692	58 829
Wage (original)	41 870	46 296	52 761
Age	50,227	51,155	52,526
CMOs with a higher education	0,294	0,469	0,536
Female CMOs	0,145	0,128	0,142
CMO past the legal age of retirement	0,009	0,011	0,017
Council Statistics			
Change Mayor	0,114	0,097	0,088
Female mayors	0,292	0,303	0,330
Size of council	20,046	28,917	41,878
Share of female council members	0,329	0,336	0,362
Demographic statistics			
Number of inhabitants	2532,746	7107,214	25001,980
Share of population between the age 0 and 5	0,082	0,088	0,093
Share of population between the age 6 and 15	0,118	0,121	0,121
Share of population aged 65+	0,182	0,157	0,138
Unemployment rate	0,024	0,023	0,024
Number of municipalities			

A3. Regression results with Electionyear.

VARIABLES	(1) OLS
Electionyear	-0.0008
	(0.009)
Electionlastyear	0.0153*
	(0.009)
Twoyearsafter	0.0113
	(0.010)
Constant	0.1264***
	(0.006)
Observations	10,085
R-squared	0.000
Municipality FE	NO
Time FE	NO
Controls	NO
Municipalities	414

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. The dependent variable is an indicator variable for CMO turnover. The models are linear probability models and the estimates displayed are the marginal effects on turnover rate. The standard errors are robust standard errors clustered at the municipality level.

A4. Regression results with ChangeMayor, extended controls.

VARIABLES	(1) OLS	(2) Mun FE	(3) Mun Time FE	(4) Controls
F.ChangeMayor	0.0151	0.0146	0.0158	0.0195
	(0.014)	(0.016)	(0.019)	(0.019)
ChangeMayor	0.0437**	0.0428**	0.0545**	0.0522**
	(0.018)	(0.019)	(0.023)	(0.023)
L.ChangeMayor	0.0341**	0.0331*	0.0207	0.0205
	(0.017)	(0.019)	(0.022)	(0.022)
Constant	0.1300***			
	(0.005)			
Observations	5,654	5,654	5,654	5,636
R-squared	0.002	0.065	0.070	0.088
Municipality FE	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Controls	NO	NO	NO	YES
Municipalities	414	414	414	414

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. The dependent variable is an indicator variable for CMO turnover with added leads and lags. The models are linear probability models and the estimates displayed are the marginal effects on turnover rate. The standard errors are robust standard errors clustered at the municipality level. The controls used includes CMO specific variables such as education level gender and eligibility for retirement. Municipality controls which includes demographic controls and information regarding the municipal council.

A5. Regression results with ChangeMayor, munipality size.

VARIABLES	(1) All	(2) Small	(3) Medium	(4) Big
F.ChangeMayor	0.024	0.022	0.008	0.041
	(0.015)	(0.020)	(0.032)	(0.030)
ChangeMayor	0.035**	0.020	0.028	0.080**
	(0.016)	(0.021)	(0.032)	(0.036)
L.ChangeMayor	0.004	0.011	-0.011	0.001
	(0.014)	(0.019)	(0.030)	(0.030)
CMO is woman	-0.004	0.003	0.004	-0.034
(1 if yes, lagged)	(0.012)	(0.017)	(0.027)	(0.021)
Five-year university degree or	0.013	0.026	0.007	0.001
equivalent (1 if yes, lagged)	(0.011)	(0.016)	(0.020)	(0.023)
Highest education at high school	-0.025**	-0.021	-0.024	-0.041
level (1 if yes, lagged)	(0.012)	(0.016)	(0.027)	(0.027)
CMO retirement age	0.347***	0.331***	0.414***	0.325***
(1 if yes, lagged)	(0.052)	(0.073)	(0.115)	(0.097)
Over 60 percent of council is	-0.011	-0.018	-0.002	0.002
right-wing (1 if yes)	(0.012)	(0.017)	(0.024)	(0.024)
Over 60 percent of council is	0.012	-0.013	0.064*	0.026
left-wing (1 if yes)	(0.018)	(0.024)	(0.035)	(0.043)
Mayor is woman (1 if yes)	-0.005	-0.021	0.001	0.028
	(0.012)	(0.018)	(0.024)	(0.021)
Share children 0-5 years	0.857*	0.752	2.044	0.338
	(0.512)	(0.578)	(1.457)	(1.629)
Share young 6-15 years	0.256	0.135	0.684	0.766
	(0.469)	(0.533)	(1.171)	(1.337)
Share elderly >65 years	-0.415	-0.183	-0.517	-2.497**
	(0.378)	(0.450)	(1.017)	(1.033)
Municipality has income from	0.005	0.004	-0.013	0.027
property taxation. (1 if yes)	(0.014)	(0.019)	(0.029)	(0.025)
Size of council	-0.000	-0.002	0.004	-0.001
	(0.001)	(0.003)	(0.003)	(0.002)
Share of council members being	0.057	0.078	-0.002	-0.040
female.	(0.057)	(0.070)	(0.125)	(0.169)
Unemployment	0.491	0.815	-0.621	0.477
	(0.561)	(0.684)	(1.154)	(1.838)
Observations	9,671	5,410	2,074	2,187
R-squared	0.062	0.072	0.070	0.067
Municipality FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Population Size	ALL	Small	Medium	Big
Municipalities	414	233	88	93

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Notes. The dependent variable is an indicator variable for CMO turnover. Grouping of municipalities is done on population interval of the mean of each municipality in the period between 2002-2016. Small municipalities have a mean population size of less than 5 000. Medium municipalities have a population size ranging from 5000 to 9999. While Big municipalities are all municipalities with a mean population of 10 000 or more in the relevant period.

A6. Regression results with ChangeMayor, size and extended controls.

VARIABLES	(1) All	(2) Small	(3) Medium	(4) Big
F.ChangeMayor	0.020	0.016	-0.017	0.055
	(0.019)	(0.026)	(0.041)	(0.044)
ChangeMayor	0.052**	0.012	0.057	0.153***
	(0.023)	(0.030)	(0.055)	(0.055)
L.ChangeMayor	0.021	0.039	0.024	-0.025
	(0.022)	(0.027)	(0.048)	(0.050)
CMO is woman (1 if yes, lagged)	-0.026	-0.028	0.014	-0.058*
	(0.018)	(0.026)	(0.034)	(0.031)
Five-year university degree or	0.010	0.019	0.009	-0.011
equivalent (1 if yes, lagged)	(0.018)	(0.028)	(0.030)	(0.040)
Highest education at high school level	-0.054***	-0.018	-0.127***	-0.117***
(1 if yes, lagged)	(0.017)	(0.021)	(0.040)	(0.039)
CMO retirement age	0.321***	0.317***	0.374***	0.261
(1 if yes, lagged)	(0.066)	(0.085)	(0.118)	(0.171)
Over 60 percent of council is right-wing	-0.026	-0.026	-0.016	-0.036
(1 if yes)	(0.018)	(0.026)	(0.041)	(0.033)
Over 60 percent of council is left-wing	0.021	-0.020	0.092	0.053
(1 if yes)	(0.030)	(0.037)	(0.056)	(0.086)
Mayor is woman	0.007	-0.012	-0.036	0.077**
(1 if yes)	(0.017)	(0.026)	(0.032)	(0.030)
Positive surplus (lagged)	-0.001	-0.002	0.005	-0.002
	(0.002)	(0.002)	(0.006)	(0.005)
Negative surplus (lagged)	-0.010***	-0.008***	-0.019***	-0.023**
	(0.002)	(0.002)	(0.007)	(0.009)
Free income per capita, in thousands	0.004*	0.004	-0.006	-0.016
of NOK. (lagged)	(0.002)	(0.002)	(0.009)	(0.013)
Listed in the ROBEK (1 if yes, lagged)	0.028*	0.026	0.007	0.052
	(0.015)	(0.019)	(0.032)	(0.033)
Share children 0-5 years	1.355	1.889*	-2.619	3.668
	(0.942)	(1.060)	(2.494)	(3.478)
Share young 6-15 years	0.406	0.437	1.246	4.894*
	(0.824)	(0.919)	(2.638)	(2.577)
Share elderly >65 years	-0.458	-0.437	-0.143	0.149
	(0.699)	(0.801)	(2.202)	(2.277)
Municipality has income from property	-0.003	0.019	-0.048	-0.002
taxation. (1 if yes)	(0.022)	(0.031)	(0.044)	(0.046)
Size of council	-0.000	-0.001	0.009*	-0.004
	(0.002)	(0.005)	(0.005)	(0.003)
Share of council members being female.	-0.018	0.013	-0.149	-0.216
	(0.084)	(0.100)	(0.196)	(0.259)
Unemployment	0.154	0.617	-0.536	-0.899
	(1.057)	(1.316)	(2.399)	(2.759)
Observations	5,636	3,114	1,192	1,330
R-squared	0.088	0.097	0.100	0.122
Municipality FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Population Size	ALL	Small	Medium	Big
Municipalities	414	230	87	97

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

A7. Regression results with ChangeMayor, isolated budgetary effects.

VARIABLES	(1) All	(2) Small	(3) Medium	(4) Big
ChangeMayor	0.043*	0.013	0.014	0.133**
	(0.024)	(0.031)	(0.056)	(0.057)
Negative surplus (lagged, if party of mayor did not change last election)	-0.007***	-0.006***	-0.007	-0.014
	(0.002)	(0.002)	(0.010)	(0.011)
Negative surplus (lagged, if party of mayor changed	-0.014***	-0.004	-0.029***	-0.037***
	(0.005)	(0.008)	(0.008)	(0.013)
Positive surplus (lagged, if party of mayor did not change last election)	-0.002	-0.003	-0.001	0.001
	(0.002)	(0.002)	(0.005)	(0.007)
Positive surplus (lagged, if party of mayor changed)	0.001	-0.001	0.022**	-0.005
	(0.002)	(0.003)	(0.009)	(0.005)
Observations	5,636	3,114	1,192	1,330
R-squared	0.087	0.095	0.109	0.125
Municipality FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Population Size	ALL	Small	Medium	Big
Municipalities	414	230	87	97

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Notes. The dependent variable is an indicator variable for CMO turnover. The models are linear probability models and the estimates displayed are effects on turnover rate. The standard errors are robust standard errors clustered at the municipality level. Grouping of municipalities is done on population interval of the mean of each municipality in the period between 2002-2016. Small municipalities have a mean population size of less than 5 000. Medium municipalities have a population size ranging from 5000 to 9999. While Big municipalities are all municipalities with a mean population of 10 000 or more in the relevant period.

A8. Regression results with ChangeMayor, size uncleaned data.

VARIABLES	(1) All	(2) Small	(3) Medium	(4) Big
F.ChangeMayor	0.0147	0.0117	-0.0131	0.0478
	(0.016)	(0.021)	(0.034)	(0.033)
ChangeMayor	0.0192	0.0027	0.0093	0.0594*
	(0.016)	(0.020)	(0.033)	(0.032)
L.ChangeMayor	0.0109	0.0027	0.0158	0.0274
	(0.015)	(0.020)	(0.031)	(0.033)
CMO is woman (1 if yes, lagged)	0.0185	0.0345	0.0147	-0.0154
	(0.015)	(0.022)	(0.029)	(0.026)
Five-year university degree or equivalent (1 if yes, lagged)	-0.0219*	-0.0289	-0.0310	0.0100
	(0.013)	(0.019)	(0.023)	(0.025)
Highest education at high school level (1 if yes, lagged)	-0.0482***	-0.0435**	-0.0742***	-0.0197
	(0.014)	(0.019)	(0.026)	(0.029)
CMO retirement age (1 if yes, lagged)	0.5678***	0.6139***	0.5550***	0.4287***
	(0.055)	(0.068)	(0.127)	(0.091)
Over 60 percent of council is left-wing (1 if yes)	0.0061	-0.0272	0.1160***	-0.0255
	(0.021)	(0.024)	(0.037)	(0.051)
Over 60 percent of council is right-wing (1 if yes)	-0.0149	-0.0227	0.0220	0.0102
	(0.014)	(0.019)	(0.025)	(0.029)
Municipality has income from property taxation. (1 if yes)	0.0058	0.0013	0.0316	0.0060
	(0.015)	(0.020)	(0.033)	(0.030)
Mayor is woman (1 if yes)	-0.0082	-0.0141	-0.0037	0.0060
	(0.014)	(0.020)	(0.025)	(0.027)
Share children 0-5 years	0.6704	1.0090	0.8880	-1.5676
	(0.651)	(0.722)	(1.674)	(1.918)
Share young 6-15 years	-0.0297	0.0403	0.3629	-0.0420
	(0.518)	(0.591)	(1.332)	(1.710)
Share elderly >65 years	-0.3476	-0.0560	0.2737	-2.6528**
	(0.440)	(0.498)	(1.101)	(1.181)
Size of council	-0.0008	-0.0033	0.0007	-0.0008
	(0.001)	(0.003)	(0.003)	(0.002)
Share of council members being female.	0.0128	0.0301	-0.0549	-0.0810
	(0.062)	(0.072)	(0.134)	(0.181)
Observations	9,421	5,493	2,107	2,225
R-squared	0.083	0.092	0.084	0.080
Municipality FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Controls	YES	NO	YES	YES
Population Size	ALL	Small	Medium	Big
Municipalities	414	233	88	93

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Data cleaning

The data on CMO level is gathered from the PAI-registry which is organized by the Norwegian Association of Local and Regional Authorities (KS). This data reflects who was employed as CMO each year and has data in the period 1991-2016. Information regarding which data to submit and the exact protocol to submit to the PAI-registry is updated yearly and is subject to revisions. The manual for the PAI-registry (KS, 2017, p 6) states that the protocol is that each municipality submits data to the PAI-registry with data collected as of the registration date. Since 2005 this registration date has been set to the December the first each year, but prior to this the date was October the first The PAI-registry guidelines states that in cases of sick leave or other forms of paid leave, the registry should be updated to reflect the person on leave and not the acting replacement (KS, 2014, p 8). As of 2015 the PAI-registry was altered to allow both the employee on leave and the substitute to be updated to the registry (KS, 2017, p 6-7). However, substitutes employed for less than six months is not to be submitted. The start date of each individual is according to (KS, 2017, p 15), stated to reflect the date when the individual was first hired in the current municipality. The implications of this will be discussed more thoroughly later in this study.

First, there are entries when a CMO has resigned and a new permanent replacement has not yet been found as of the registration date. In absence of a permanent CMO, the municipality council will appoint one of the leaders of the municipality to temporary act as replacement until a more suitable permanent replacement can be found. Prior to 2015 acting CMOs who has been, or will be, a replacement for more than six months on the registration day should be submitted to the PAI-registry (KS, 2014, p 8). However, such entries are indistinguishable from permanent CMOs, and changes from a permanent CMO to a temporary employed substitute should not be coded to reflect turnover. Conversely, if the duration of the acting CMO is planned to be less than six months PAI-protocols states that no data would be submitted, causing missing data for that time-municipality observation.

A similar problem occurs if the current employed CMO was on unpaid leave lasting longer than six months as of the registration date. In such cases the PAI-protocol states that the temporary acting CMO should be updated to the PAI-registry. Without correcting such entries, this results in that our instrument records two entries of turnover, one entry of turnover when the acting CMO is recorded as and another entry when the original CMO returns from leave, while in reality there has been none.

Third, manual inspections of the PAI-registry reveals listing that can only be categorized as human errors, i.e., bad data problem. Such listings include errors in updating the PAI-registry where either a) the municipality has failed to update the PAI-registry and b) another employee has been updated incorrectly coded with the CMO occupation code.

Fourth, according to KS(2018, p 1) some entries are manually discarded, this can be because of either bad or missing entries such as occupation code.

Types of data problems

1: Missing data, which can be either:

    a) A temporary acting CMO of less than six months (In line with PAI-registry protocols).

    b) Failed to update the PAI-registry with CMO information.

    c) Mistyped employment code of the CMO.

    d) Discarded data.

Type b),c) d) are indistinguishable given the current information from the PAI-registry as there is only information from regarding CMOs. Given missing data of a time-municipality observation we have to uncover whether this is result of either a, or b/c, as missing data type a) should be coded to reflect turnover of the former CMO whilst missing data due to errors in updating the PAI-registry requires additional information.

2: Data problems as in the data should be coded as turnover, which can be because:

    a) Municipal employees has listed temporary acting CMO, in absent of a permanent CMO.

    b) Municipal employees has listed a temporary acting CMO, while

        permanent is on temporary leave.

    c) Mistyped employment code of another employee in the municipality to

        that of the employment code of CMO.

In any case such bad data will lead to excessive turnover of CMO and have to be properly corrected.

Solutions to data problems

1. Indicate observations when the current CMO is on leave and code so these observations to not generate turnover. Using the dummy variable *Leave*.

2. Indicate observations where a CMO has resigned from position, and there was a temporary acting CMO until a new permanent replacement had been hired. In such case this should generate turnover the same year the former CMO resigned, and omit observations when a temporary acting CMO was in position year before. Using the dummy variable *ActingCMO*.

3. Manually replace observations that are due to human errors in updating the PAI-registry. Using the dummy variable *Corrected*.

4. Indicate observations where it is uncertainty on either if to code as turnover or when to code as turnover. All observations where either the current or former is uncertain should be omitted. Using the dummy variable *Unsure*.

Method

I start the process by defining rules in which data should be cleaned. First of all, in cases of missing data, all entries needs to be properly placed in groups indicated as above. Secondly, I must define an algorithm that defines how extensively I search for observations that are likely to be a type 2 error. As a rule, I have decided to filter out observations and investigate these closer when:

a.   Single or double year entries of CMOs. As such entries have higher probability of being human errors or acting CMOs.

b.   If the municipality has a high number of missing observations.

However, as the PAI-registry has information regarding the start date of the CMO, this can be exploited to solve data problems in cases when we have records with the same CMO before and after gaps of missing data or other individuals listed as

CMO. If the CMO has the same start date before and after such periods, the entry can be safely grouped as a CMO on leave. Entries when the CMO has different start dates requires additional information as this can either be bad data regarding start date as it implies that the CMO has resigned and been rehired in the same municipality. By doing this we correct for 203 entries that can be safely indicated as CMO on leave and require no additional information, and uncover 117 entries of observations that will have to be manually inspected.

Some of the type 2 errors can be identified using information regarding the start date. Entries of individuals listed as a CMOs in a municipalities with start date before december the year before, must either be because of a) a long term employee of the municipality being promoted to CMO either temporary or permanent, or b) simply human error. Creating a dummy variable indicating such, that are not earlier indicated, reveals 517 entries.

After indicating observations that require additional investigation I have manually cleaned these, in a two step process. First, I sorted municipalities according to the number of missing observations and have thoroughly investigated each municipality in the period 1991-2016. In cases of missing and bad data I have augmented my information with extensive internet searches. For instance, if it was missing data in municipal i in a time period t+1 with different CMOs in time period t and t+2, it was uncertainty when to properly code turnover. In this case, I would look for relevant trustworthy information using internet searches regarding the CMO's in time period t resignation, the start date of the CMO in time period t+2 or any evidence of a temporary acting CMO in time period t+1. If proper evidence was found, I would either replace the data, or group the observation using the dummy variable *ActingCMO*. If no relevant evidence was found, I would either group the observation using the dummy variable *Unsure*, or make a judgement call depending on the information. For example, if the start date of the oncoming CMO was in the same year as the missing data I could have replaced the data in the former year with that of the oncoming CMO, else group this entry using the dummy variable *Unsure*. Another example is if the start date of the oncoming CMO is at the start of the year, e.g. the first of january, the former CMO must have resigned before december the former year, because of the notice

period. However, there is uncertainty whether an acting CMO or the former CMO was employed as of the registration date. In such cases I have grouped the observation using the variable *ActingCMO* at time period t+1, so that turnover will be generated in time period t+1 and the turnover variable will be omitted for time period t+2.

Secondly, after manually cleaning all missing observations, I have used the above specified algorithm to target observations that are likely to be a type two error and have not yet been cleaned. After doing this, I have systematically inspected and investigated each entry and either replaced data or grouped the observation as according to *ActingCMO* or *Unsure*. After the cleaning process have been completed, I have replicated the search-algorithm adjusting for observations grouped by *ActingCMO* and *Unsure* to ensure that all entries have been sufficiently investigated.

After the data cleaning process has been successfully completed, I have constructed a binary variable *TurnoverCMO* taking the value "0", if a new CMOid is observed at time period t *TurnoverCMO* is coded to take the value of "1". In cases where the observation is part of either *Unsure* or that the observation at time period t-1 is part of the group *Unsure or ActingCMO*, *TurnoverCMO* will be coded as "." and be omitted from the regressions. Lastly, I have corrected for observations where t or t-1 is part of the group *Leave*, so that *TurnoverCMO* is coded as "0".

This cleaning process has resulted in 194 entries being coded to reflect ActingCMO, 215 observations of Leave, 40 observations that have been altered following email correspondence with the municipality, and roughly 200 errors that have been manually replaced. This amounts to a total of 644 entries being altered.

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