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What to do here? What to do there?

The effect of change in organization size on public management

Abstract

Researchers have for a long time been interested in the consequences of creating larger public organizations. So far the outcomes of changes in the size of public organizations have been relatively widely studied, however, much less is known about the internal processes through which these outcomes are actually achieved. This paper explores whether changes in organizational size affect public management. As endogeneity is an inherent problem when studying outcomes of organizational size, we apply a quasi-experimental design in order to establish the causal linkage between size and different elements of public management. We use unique survey data collected before and after a large reform that changed the size of most Danish municipalities. Results suggest that public management related to daily operations is generic and not affected by size, whereas public management related to overall tasks such as creating a vision, servicing the mayor, and maintaining external relations is positively affected by size changes.

A common trend in recent years' efforts to develop the public sector is changing the size of public organizations. In many countries public sector organizational entities are becoming bigger either by design or as the result of amalgamations (Denters et al. 2014). Compared to smaller entities, large public organizations are thought to be more efficient and able to deliver qualitatively better outputs. The first objective is accomplished based on scale economies when similar services are grouped together and carried out by the same organization. The second is made possible due to the increased specialization and professional development in larger organizations (Leland and Thurmaier 2005). It should be noted that political scientists for a long time have argued that these advantages are made possible at potential democratic costs (Lassen and Serritzlew 2011).

Researchers have naturally been interested in the outcomes of creating larger public organizations whether as a result of amalgamations (Denters et al. 2014) or city-county consolidations (Leland and Thurmaier 2005; Feiock and Carr 1997). Most interest has concentrated on the question of whether larger organizations are more efficient and unit costs consequently lower than in smaller organizations. As recently pointed out by Blom-Hansen, Houlberg, and Serritzlew (2014), empirical results have generally been mixed. Using quasi-experimental evidence, however, these authors find substantial positive effects of organizational size on administrative costs. Another stream of research has focused on how organizational consolidation is achieved through political struggles where actors have different agendas (Leland and Thurmaier 2005; Gibbs Springer et al. 2006). Yet, while our knowledge of reforms and specifically the relation between size and organizational outcomes is increasing, we still know very little about how increasing organizational size affects internal organizational dynamics, i.e. how the potential benefits of larger size are accomplished by the people in organizations. In this paper we focus on managers as important agents in facilitating how organizations operate.

Scholars of public administration have demonstrated that public management matters for organizational performance (O'Toole and Meier 2011; Favero, Meier, and O'Toole 2014). Consequently, researchers have investigated antecedents of public management efforts and pointed to the role that structural contingencies may play in the behavior and actions engaged in by managers (see Rainey 2009). One such structural contingency is organizational size, which is likely to affect the ways in which public management is exercised in organizations. How organization size affects public management is not clear. On one hand, management may be rather generic and the roles of managers and the activities they engage in have been shown to be remarkably similar across different types of organizations (Kurke and Aldrich 1983; Mintzberg 1973). On the other hand, small and large organizations are likely to put quite different requirements on the work of their managers. This is true for internal management and leadership, strategic deliberations, as well as external networking efforts. Larger organizations are more complex and engage in more interactions with their environments; smaller organizations are less professionalized and may require more hands-on management.

While organization size figures in many studies, often as a “control variable”, we have very little robust knowledge about the relation between size and public management. This is a considerable gap in our knowledge as the importance of management is well established and the sizes of organizations remain diverse. Further, the relation between size and management is likely to be multi-faceted. Some elements of management may be generic and important in large and small organizations alike, others may be more important in smaller or larger organizations. Clarifying this question is important to understand how work is performed in organizations. Practically, it is important for recruiters that seek to find candidates who match organizational requirements.

There may be good reasons why so few studies have tried to estimate the relation between size and public management. As most existing studies of determinants of management and leadership rely on

observational data (Hansen and Villadsen 2010; Wright and Pandey 2009; Andrews et al. 2011), often cross-sectional in nature, endogeneity is likely to pose severe problems when addressing this question. As we shall return to later, multiple sources of endogeneity may be present. The most serious problem may be endogeneity caused by omitted variable bias. Because organizational size is a variable that affects multiple aspects of organizational life, it is difficult to isolate its effect and avoid spuriousness. In this paper we propose a research design based on a quasi-experiment to estimate the causal effect of increased organization size on the public management practice of top executives.

In 2007 a radical reform changed the municipal structure in Denmark as the number of municipalities was reduced from 271 to 98. This happened through a large number of amalgamations which to a large degree were mandated by the central government. We follow recent studies to use this reform as a quasi-experimental setting for our study (Lassen and Serritzlew 2011; Blom-Hansen, Houlberg, and Serritzlew 2014). We rely on surveys sent to municipal top managers before and (two years) after the reform to assess public management practices. As the reform was imposed for reasons unrelated to the management in specific municipalities, it constitutes a (largely) exogenous shock which can be used to assess any changes in management between smaller units (before the reform) and larger units (after the reform). Because 32 municipalities were not amalgamated, we have a feasible control group to compare any changes against.

With this research design we are able to address question about how public management is affected by a reform that increases organizational size. As stated, such reforms are quite common across different countries. In the design and by using conditioning variables we seek to focus on the effect of increased size as separate from an effect of the reform itself. We propose that public management in these kinds of reforms may change as the results of structural changes, increased complexity, and demands from the environment.

In the analysis we rely on aggregated management data from each municipality. This means that focus is not on how and whether individual managers change when organizations increase in size (see supplementary analyses though); rather we focus on how the aggregated management at the organization level is affected by the size reform. That is, we focus on the overall public management exercised within the organization. Results of difference-in-difference estimates reveal a complex picture of the relation between increased size and public management. Some elements related to leadership and external networking are positively affected by the change in organizational size while others related to day to day operations are not indicated to be affected by changes in size.

The study holds two important contributions to existing research. First, this is one of the very few studies that rigorously seek to estimate a causal effect of antecedents to public management. With the importance of management well established, it is important to illuminate some of the structural constraints that affect how it is performed. This paper focuses specifically on organizational consolidation which has been widespread and remain an active reform element in many countries (Denters et al. 2014; Martin and Schiff 2011). Second, outcomes of changes in the size of public organizations have been relatively widely studied. Much less is known about how these outcomes are achieved. Using unique data collected around a reform we are able to provide new knowledge to this line of study and explore how internal dynamics are affected by changes in size.

Organization size and public management

Researchers have for a long time argued that managers have different roles in organizations (Mintzberg 1973). Research on manager roles, often relying on longitudinal observations of managers at work, has challenged the traditional view that managers mainly are engaged in coordination, planning, and control activities (Mintzberg 1975). Mintzberg (1973) suggested that managerial work

can be divided into three overall role categories. The first role a manager has to occupy is an interpersonal role as a leader and a liaison both internally and externally. The second role is an informational role as a knowledge broker in the organization. The third role is as a decision maker. These roles take up varying amounts of the managers' time and involve overlapping activities. Interestingly, managerial roles have been suggested to be quite generic and applicable across sectors (Lau, Newman, and Broedling 1980). While the research observing managerial work is somewhat dated (for an exception see Mintzberg's reexamination of his old findings (Mintzberg 2009)), public management research has explored multiple aspects of managerial work within recent decades (see Rainey 2009 for a comprehensive review).

According to O'Toole and Meier (1999), management refers to "the set of conscious efforts to concert actors and resources needed to carry out established collective purpose" (p. 510). Other scholars add the process of influencing these collective purposes (Yukl 2013). Management involves both internally oriented efforts targeted at improving the way inputs are transformed to outputs, as well as externally oriented efforts to garner support or affect environmental conditions. Further, management can be directed at preserving organizational stability or promoting change efforts. The role of management in affecting organizational outcomes has been documented in a number of studies (Meier and O'Toole 2003; Meier, O'Toole, and Goerdel 2006; Meier et al. 2007; Walker 2013) as well as their importance in organizational change and innovation (Hansen 2011; Villadsen 2012).

In this paper we consider a number of different managerial tasks and how they are prioritized among public managers. As we are in need of rigorous knowledge of how changes in organizational size affect public management we take an exploratory approach in this study and investigate multiple dimensions of public management. This approach draws inspiration from O'Toole and Meier (1999) who, in developing their formal theory of public management, describes how public management consists of multiple different elements. While some aspects of management are generic and needed

in large and small organizations alike, other aspects may be more context specific and required to different extents by organizations of different sizes. An aggregated measure of management, therefore, may conflate the separate effects of underlying elements. As we will explain later we draw on surveys sent out before and after a comprehensive structural reform of Danish municipalities.

Research has explored multiple dimensions of a public manager's job. Studies have for instance focused on distinctive tasks including leadership (Fernandez 2005), analyzing the political environment (Pandey and Wright 2006), and external networking (Meier and O'Toole 2001) which are all critical tasks for public managers navigating complex and unstable settings. On top of these activities, the managers must, of course, be effective in managing internal operations including planning, coordination and human resource management (Favero, Meier, and O'Toole 2014). Following previous research we chose to focus on managerial activities within these four broad management areas; leadership, internal operations, political support and external network. Table 1 presents the different managerial tasks that were part of both surveys and that form the basis for our empirical analysis. The different items are all connected to different managerial functions and aspects of public management. As we have little knowledge about how size effects public management we have chosen to look at individual items within different areas of management in the analysis.

Insert table 1 around here

The different task listed in table 1 can likewise be placed within different functions of the daily work among public managers. Some tasks such as supervising subordinates concerns the internal operations. Other tasks involve servicing the elected politicians in the political system. Finally, some tasks are more externally oriented towards representing the organization towards the environment.

How changing organization size affects public management

Structural contingencies affect public managers. In O'Toole and Meier's (1999) formal treatment the relative hierarchical stability is included as a factor, among other, that affects the impact of management. However, relatively little research has directly explored the impact of stability including organizational size changes on managerial work. This may largely be because of the methodological challenges associated with endogeneity. Because size is such an omnipresent variable related to multiple parts of organizational life, it is difficult to distinguish the effects of size from the effects of other variables. This, however, does not make the question less interesting. Especially at a time where the size of public sector entities is often debated, it is important to explore how reforms that introduce changes in organizational size affect public management inside organizations.

Research has long been interested in understanding the role that organizational size play in shaping performance (Walker and Andrews 2013; Jung 2013). In his classical article on determinants of organizational performance, Boyne (2003) finds that research has measured organizational size using a variety of indicators. Some studies measure size by the number of employees or the size of budgets (Jung 2014), others look at the population in a local authority's area. Studies on schools have used the number of students. These and other measures (budgets) all have face validity. In the present paper we refrain from talking about organizational size as indicated by a specific measure. Conceptually, we argue, organizational size is likely a reflection of multiple elements pertaining to the organization's work as well as a cognition among employees. When investigating size with respect to amalgamations or consolidations we are likely to observe increases on in multiple indicators of size simultaneously. The organizations grow in terms of budgets and employees but are also covering a larger group of citizens.

It is an empirical question whether public management is a function of organizational size. Research has illuminated how there are generic elements to management which can be expected to be constant and stable across organizational settings. The roles of managers and the activities they engage in have been shown to be remarkably similar across different types of organizations (Kurke and Aldrich 1983; Mintzberg 1973). This line of research suggests that important aspects of managerial work would be present in all managerial contexts despite variations in organizational size and other contingencies. On the other hand, larger organizations differ from smaller organizations in both internal and external respects. Recent research indicates that larger organizations are likely to have more professionalized workforces (Bhatti, Olsen, and Pedersen 2011; Jung 2014), tend to be more innovative (Camisón-Zornoza et al. 2004), are more change oriented (Haveman 1993), and are engaged in more boundary spanning activities (Andrews et al. 2011). Each of these activities could impact the public management needed and how different managerial tasks are prioritized in the organization. We do have empirical evidence hinting that management is different in organizations of different sizes. On an operational level, Kurke and Aldrich's (1983) results indicate that in larger organizations managers spend more time in meetings, while managers in smaller organizations are engaged in more activities of shorter duration.

It is not clear how a change in organizational size is likely to affect different elements of the management task. However, overall we expect that management becomes increasingly important as organizations increase in size. Still, some managerial tasks and functions are likely to be less affected by organizational size while others may be awarded higher priority in larger organizations.

Considering *leadership tasks* Wright and Pandey (2009) find that organizational size, indicated by the number of employees, is not related to the use of transformational leadership in a study of senior managers in US local governments. On the other hand, setting clear visions and goals may be needed to a larger degree in larger organizations as the managerial level is further away from the front lines.

It is often argued that larger organizations have more ambiguous goals, which can be harmful for organizational effectiveness (Jung 2014). This could increase the priority for setting clear visions among managers. Turning to *internal tasks*, many of these such as controlling budgets, making sure rules are followed and supervising subordinates may become more complex as size increases. Previous research suggest that organizations become increasingly complex as they become larger which can lead to more conflicts, coordination and bigger need for communication (Jung 2014). On the other hand such core management tasks are needed in all organizations and the priority given to them may be equal across organizational sizes. Hansen and Villadsen (2010) compare the leadership styles of a large number of public and private managers and generally find limited relation between organizational size and leadership, perhaps indicating the opposing forces cancel each other out.

Turning to the *political level*, the priorities among managerial task supporting the political level might be different in larger organizations compared to smaller ones. For instance larger municipalities will have a much higher number of voters and is likely to attract greater interest from the media as well as the public in general. Rainey (2009) argues that higher level officials in larger cities often pay greater attention towards the media and more carefully chose strategies for dealing with the media. This suggests providing counseling to the political level to be a greater priority among managers in larger organizations as the need for avoiding unfavorable press coverage increases.

Finally, we consider the important of *external representation* of the organization. Andrews and colleagues (2011) argue that there are varieties of different reasons for managers to engage in external networking. The need for support from various stakeholders, different demands and requests from clients, political dynamics and other favorable opportunities for acquiring needed resources make public managers engage in networks from outside their organization (Andrews and Boyne 2011). However, the importance of external representation could likewise be expected to differ with size as smaller organizations might not have the same needs or the same expectations from its environment

to engage in networking activities. Andrews and colleagues (2011) report a positive effect of organizational size on external networking behavior of managers. On the other hand managers in smaller organizations might have a higher interest in prioritizing external networking as they might need this to promote their organizations that could be easily overlooked in the political environment. Overall, we find theories and findings predicting opposing directions for the relation between size and managerial behavior. This reflects the need for more robust studies of this question that can begin to establish a more rigorous body of evidence about how changes in size affect the internal operations of organizations. We refrain from stating explicit hypotheses but proceed with reporting an empirical study that can help cast light on this issue.

Importantly, our aim is to investigate whether the managerial behaviors exhibited in the organization are affected by organizational size; not how this happens. Organizations can change their management approach by developing existing managers or by replacing them. Our data is not well suited to resolve this question. We do, however, perform limited analysis to assess which of these paths may be more likely.

In the following we will present the Danish structural reform as a quasi-experimental setting which offers a feasible solution to inherent endogeneity concerns of studies involving organizational size.

The structural reform

The structural reform of Danish municipalities took place the 1st of January 2007 with the main consequence of amalgamating the existing 271 municipalities into 98. As a result of the amalgamation the average size of the municipalities increased from 19,900 inhabitants in 2005 to 55,200 in 2007 (Denters et al. 2014). Before the reform, the Danish government structure contained three electives levels, the state, 13 counties and 271 municipalities. In the transformational process the 13 counties

were turned into 5 regions, and 239 former municipalities were amalgamated into 66 while 32 municipalities were left untouched.

The key changes within the structural reform were built on the recommendations from the structural committee that was first organized in the summer of 2002. One of the main outcomes of their recommendations was to increase the size of municipalities to insure greater professionalism and economies of scale at the local government level (Bhatti and Hansen 2011; Strukturkommissionen 2004; Indenrigsministeriet 2005). The new guidelines for the optimal size of municipalities were set at around 30,000 inhabitants with 20,000 as an absolute minimum. Due to geographic circumstances such as small islands, a few exceptions were made. A second requirement for amalgamation was making sure that amalgamating municipalities would end up being contiguous. As a result, the smaller municipalities were forced to amalgamate; however, they were given a choice of whom to amalgamate with.

Besides changes in jurisdiction size, the structural reform brought about changes in the division of task that formerly existed between the municipal and county levels. A number of tasks formerly within the counties were reorganized to be provided and carried out by the municipalities. Importantly for this study, in reallocating tasks that formerly belonged to the counties, no systematic difference have been reported between allocation to the amalgamated municipalities and the municipalities left untouched.

One concern about using the reform as a quasi-experiment would be that municipalities sought out partners with compatible public management approaches. Technically, a specific challenge of this study is whether assignment to treatment is unrelated to the outcome of interest. While the question of whether to amalgamate or not was mainly a question of size and achieving scale advantages, one could speculate that management approach played a role in partner selection. Poorly managed

municipalities may have tried to find better managed ones, or because municipalities looked for partners with compatible management approaches. While the case studies of the reform as well as more formal studies (Bhatti & Hansen, 2011) did not suggest this to be the case, we conducted a test to ensure that this was not a problem. We followed Bhatti and Hansen and constructed a dyad-level dataset with all municipality neighboring dyads. We then constructed a variable indicating whether a neighbor dyad ended up amalgamated into a new municipality or not. We then ran a series of logistic regressions predicting amalgamation of neighborhood dyads. As independent variables we included control variables like size and tax base. We then entered each of the management variables to see whether it predicted amalgamation. We did this in three steps. First, we included management of the focal municipality as independent variables. In the second step we used management of the neighbor municipality as independent variables. Finally, we included a measure of the difference in management between a focal and neighboring municipality as independent variable. In total 33 logistic regressions were conducted (11 management variables times three) showing no results of a pattern among the amalgamated municipalities. This clearly indicates that management approach did not drive assignment to treatment and supports the use of this quasi-experimental setting.

Our analyses above are in line with previous research. In a systematic treatment Bhatti et al. (Bhatti and Hansen 2011) examine the possible underlying reasons and behaviors for who amalgamated with whom. They find social connectedness of citizens, jurisdiction size and geography to be significant in explaining whom the municipalities chose to amalgamate with. However, they found no support for either political or economic explanations. If rich municipalities had chosen to amalgamate with other rich municipalities or amalgamation was driven by political coherence this could result in differences in how public management is carried out within the new municipalities other than that which is caused by size. This does not appear to be the case. Finally, it should be noted that the reform

has been used as a quasi-experiment in other studies (Blom-Hansen, Houlberg, and Serritzlew 2014; Bhatti, Gørtz, and Pedersen 2015; Lassen and Serritzlew 2011).

The municipal amalgamation as a quasi-experiment

Quasi-experiments differ from true experiments and natural experiments as assignment to treatment or control is neither random nor “as-if” random (Dunning 2012; Rubin 1974). The amalgamation of the Danish municipalities in 2007 provided an exogenous shock in terms of size that was unrelated to existing or future management practices. Of the existing 271 municipalities, 239 were amalgamated into 66 new municipalities, and 32 were left untouched. This means that we can compare public management in smaller municipalities before the reform with public management in the same municipalities after the reform when they are now part of a larger municipality. The 66 amalgamated municipalities form the treatment group with the 32 municipalities that were not amalgamated as a control group.

The use of experimental approaches has several advantages for dealing with problems with endogeneity often related to cross-sectional studies using observational data. Due to the randomization of assignment to treatment and control, experimental methods are able to deal with the most common problems with endogeneity; namely the problem of omitted variables, simultaneity and self-selection. The problem of omitted variables is solved by randomization as randomly assigned treatments are statistically independent of all observed and unobserved variables (Gerber and Green 2012). The problems with simultaneity and self-selection are equally resolved, as the experiment provides order in the timing of causality and the randomization solves potential problems with self-selection into treatment. However, the amalgamation of the Danish municipalities did not occur perfectly randomly as one of the main arguments driving the reform was the requirement for larger municipalities (Bhatti and Hansen 2011). Despite the fact that assignment to treatment and control

did not occur perfectly randomly, the use of the municipal amalgamation as a quasi-experiment addresses some of the major problems with endogeneity. The following section deals with some of these issues in turn.

By using the reform as a quasi-experiment we are able to deal with the issue of simultaneity as we can treat size as exogenously given, and consequently size is not likely to be an outcome of public administration. In order to address the problem of self-selection into treatment, we need to consider the question of why municipalities chose to amalgamate. As the reform of the Danish municipalities in 2007 was decided upon at the national level, it left the smaller municipalities with no choice whether or not to amalgamate. In the process, the smaller municipalities had the choice of which to amalgamate with, but not whether or not they wanted to. Even though there is no substantial problem with self-section into treatment among the municipalities, there is still a potential problem related to possible differences unrelated to jurisdiction size that could cause problems with compatibility of small and large municipalities. Lassen and Serritzlew (2011) argue that potential problems relating to different institutional constraints and tasks are limited as the Danish municipalities are organized and responsible for carrying out the same task, which makes them very comparable. This means that the managers of the municipalities by and large are responsible for carrying out the same task despite the size of their municipality and organization. The issues of how these tasks are solved and how public management is carried out within the organization may differ between small and large municipalities, but not due to the task and institutional constraints as they are regulated at national level and the same for all municipalities.

In a true experiment where randomization occurred perfectly, the difference in the outcome between treatment and control group would be an unbiased estimate of the average causal effect (Rubin 1974). The quasi-experimental approach reduces the potential bias from omitted variables; however as the randomization was not perfect, we will include a number of covariates as robustness test in order to

eliminate possible observable differences between the treatment and the control group (Gerber and Green 2012; Wooldridge 2010).

A specific challenge with this case relates to the fact that changes in public management may be caused by the changes following the reform itself which are unrelated to the change in size. In order to disentangle the effect of size from the effect of the reform we considered two things. Firstly, the surveys were carried out almost one year before and almost two years after the amalgamation. With the second survey almost two years after the amalgamation, the effect of the reform itself is expected to be limited. Secondly, in order to disentangle the effect of size from the possible effect of the reform itself, we have been selective in the items used to measure public management. This means that we have stayed clear of questions related to change, adaption, and development of new practices. A valid concern is the timing of the pre-reform survey. When to do a pre-treatment survey is always a dilemma in quasi-experimental settings. Doing it too early runs the risk of the treatment effect being conflated by other events. However, if done too late the treatment assignment may already be in effect (at least informally). With a pre-reform survey in 2006 some managers may already have started to prepare for their new jobs. On the other hand, the advantage of this timing is that measurement is close to the reform and can potentially provide a valid picture of its effects. While the timing of the survey can be discussed, we are confident that any biases that may arise because of this are conservative and likely to decrease any effects. If managers were already starting to adjust to a new job, the difference in management between surveys should be smaller.

Data and methods

To exploit the analytical opportunities related to a reform it is necessary to have data before and after the reform. In this study we rely on survey data collected from municipal top managers in early 2006

and late 2008. This means that our baseline measurement was taken around a year before the reform, while our measurement of effect was taken a little less than two years after the reform took action on January 1st 2007. That the second round was not until almost two years after the reform should ensure that our public management measurement reflects normal operations in the new entities rather than change management related to the reform. Data was collected in collaboration with different associations of municipal managers to achieve a high response rate. The response rate in 2006 was 58.5 % and in 2008 81.1 %. In both rounds we have responses from all municipalities¹. As stated, the response rate for the first survey was somewhat lower than the second. The primary reason for the lower response rate in the first round provided by the municipal managers was that they were busy preparing for the new tasks and functions after the reform. This possibly indicates that responses to the survey have been from the most obliging managers within the organization. At the time of the first study the municipalities had already been notified about whom they were to amalgamate with. If we consider the managerial responses from the first survey, many of the managers had already resolved their future position in the new municipalities. Figure 1 shows the distribution of the future positions among the managers from the municipalities to become amalgamated. However, as all municipalities were busy preparing for the takeover of new functions and tasks from the former counties after the amalgamation, we do not expect any systematic differences in the responses from managers in the amalgamated and non-amalgamated municipalities.

Insert figure 1 around here

¹ The statistical analysis was run on 95 municipalities out of the total sample of 98 due to missing answers on some of the included items.

While some lower level managers were also included in the survey, in this study we only focus on top management defined as the CEO and the directors directly below (typically 2-4 per municipality). To establish municipality-level measures of public management, we average the responses from each individual municipality. A separate challenge is that the amalgamated municipalities naturally did not exist before the reform). To obtain a baseline measurement for these, we had to aggregate observations for the soon-to-be amalgamated municipalities (see Blom-Hansen, Houlberg and Serritzlew (2014) for a similar approach). From the 2006 survey, the average measures for the control group we calculated from between 1-4 responses to the survey with an average of 2.35 responses per municipality. For the municipalities to be amalgamated, the average number of responses was higher at 6.15 and included from 1 (in one case only) to 18 respondents. This is because the averages are calculated for the new municipalities and therefore include a higher number of managers.

Measures

In order to test how size influences public management, we have considered a number of items measuring different parts of public management (see table 1). As we expect some overlap among the different roles, we made individual tests of the causal relationship between size and items measuring how managers prioritize different aspects of public management. Consequently, the purpose of the paper is not to test specific underlying factors or dimensions of leadership, but more broadly to try to incorporate different elements relevant for managers of public organizations.

The stated items were asked in the two surveys rounds in 2006 and 2008 using identical questions. The items are measured on a 5 point scale from 1 to 5 representing various degrees of priority given to the different tasks in daily jobs among the municipal leaders. The scale includes: no priority, little priority, some priority, great priority, very great priority. We calculate the average score on the given

items within each municipality and use that as the measure of public management across the different items within each municipality. These items constitute the dependent variables in our analyses.

We note that this is a measure of stated priority given to different elements of management by managers. As such, the measure contains both a behavioral dimension of management as well as a cognitive dimension. A higher priority to a certain task may indicate that more time is spent on the task but could also indicate that more resources are devoted or that it is performed before other tasks. It is beyond the scope of the paper to explore the link between priorities and behavior in detail. As priority is an indication of importance placed in a task we consider the measure well suited for this paper. Besides, as we have taken a more exploratory approach to the effect of size on public management we chose to test the effect on single items. This means that assessing the validity of the underlying dimensions is more difficult. However, we provide a basis for understanding how size affects public management and leave it to future studies to further specify theoretical dimensions.

Control variables are only relevant to the extent that they are related to both the independent and dependent variables of interest. As the dependent variable, structural reform, was initiated largely for reasons beyond the control of individual managers we expect few control variables to be relevant. However, in order to control for potential bias resulting from differences among the demographical distributions and possible systematic differences in the changes across the treated and the control group, we have developed a number of control variables to be run in a secondary analysis as a robustness test. As the analyses were run at municipal level, we have calculated aggregated measures for each municipality. As the composition of the top management team may matter for public management practices (Opstrup & Villadsen, forthcoming), we included two controls for this. The measure for educational diversity is calculated as $1 - \sum p_i^2$ where p equals the proportion of each group

of interest (i.e. elementary school, skilled, highly skilled) and i represent the number of different groups (in this case three). The proportion with education in public administration indicates the number of managers within each municipality who have an education in public administration. We included this measure as this type of education may be related to the leadership exercised by managers and perhaps to amalgamation patterns. The proportion of females is calculated as the number of females within the management group who participated in the survey and takes on values from 0 to 1, where the former indicates no females and the latter indicates only females. Further, at the organizational level we include spending per capita to account for possible differences in public management due to wealth as well as a dummy for a small island which was unlikely to be amalgamated, having no direct borders with other municipalities. Population size is measured as the number of inhabitants living in the municipality. The measure is included in order to test for possible differences between small and large municipalities, especially when it comes to serving the political level, that might be more pronounced in larger municipalities. As the analysis was run on the new municipalities the 2006 measure of population size was calculated by summing the sizes of the former municipalities. The measure of population size is almost identical across the two time periods as population size increased slowly.

The difference-in-difference estimator

In order to estimate the effect of municipal size on management before and after the municipal amalgamation, we make use of the difference-in-difference approach by comparing the difference in means in treated and untreated municipalities in 2006 and 2008. We estimate the effect of size on public management by calculating the difference in means of our focal variables between a treatment group that experienced an increase in size and a control group that did not. The model is estimated by use of repeated cross-sectional data at municipal level before and after the reform. This approach

is similar to other studies that use the reform as a quasi-experiment (Blom-Hansen, Houlberg, and Serritzlew 2014; Lassen and Serritzlew 2011).

Let the average public management style in municipality i be denoted Y_i^1 in the treated case and Y_i^0 in the untreated case. As we are interested in estimating the causal effect of municipal size on the average public management style within a given municipality, we are interested in the difference $\Delta i = Y_i^1 - Y_i^0$. However, as we can never observe the counterfactual, the fact that we will either experience Y_i^0 or Y_i^1 and never both for the same municipality, we will have to estimate the missing outcome from an appropriate group of means. So, we estimate the typical causal effect as the average causal effect (Rubin 1974). Let $tr = 1$ denote treated and $tr = 0$ denote untreated and $t = 0$ denote time before the amalgamation and $t = 1$ denote after amalgamation. In order to estimate the difference in means between the treated and the untreated groups before and after the amalgamation we estimate the difference in means for the treated ($Y_i^{tr=1,t=1} - Y_i^{tr=1,t=0}$) and the difference in means for the untreated, the control group ($Y_i^{tr=0,t=1} - Y_i^{tr=0,t=0}$). Following the equations, the difference in means for the treated represents the combined effect of treatment and time whereas the difference in means for the control group represents the effect of time. Hence, the difference between those two differences is the difference-in-difference estimator which indicates the combined effect of treatment and time minus the effect of time (i.e. the treatment effect of the treated). The difference-in-difference is estimated by the following regression (Blom-Hansen, Houlberg, and Serritzlew 2014):

$$Public\ management_i = \beta_0 + \beta_1 Amalgamation_i + \beta_2 Post_i + \beta_3 (Amalgamation * POST)_i + \varepsilon$$

Where *amalgamation* is a dummy variable denoting whether a municipality has been treated or not and *post* is a dummy variable indicating the time period pre/post reform. The interaction between the two takes on the value 1 for the treated group post reform and 0 otherwise. This means that we can estimate the difference-in-difference, the effect of the increase in size due to the amalgamation as:

$$\begin{aligned}
& (Y_i^{tr=1,t=1} - Y_i^{tr=1,t=0}) - (Y_i^{tr=0,t=1} - Y_i^{tr=0,t=0}) \\
& = (\beta_0 + \beta_1 + \beta_2 + \beta_3 - (\beta_0 + \beta_1)) - ((\beta_0 + \beta_2) - \beta_0) = \beta_3
\end{aligned}$$

Using a difference-in-difference design implies that the treatment and control groups would have followed the same development over time. As we can never observe the counterfactual, using the control group to establish an appropriate group of means requires a parallel development between the two time periods for the analysis to be unbiased. In order to justify the assumption of parallel trends between the control group and the treatment, being able to show parallel paths on the scores of managerial priorities over time would have been ideal. However, as we only have one measure before the reform, we are not able to show a parallel time trend across the two groups. Considering economic development, the study by Blom-Hansen et al. (2014) shows a clear parallel path for the municipalities before the reform. As the Danish municipalities are highly regulated and are required to carry out the same functions and tasks, there is no reason to suspect that they would have evolved differently. As the model provides a test at two different points in time, we include a number of controls in a robustness test of the analysis in order to capture potential changes evolving differently between the treatment and the control group. This is done by expanding the model by including time-varying control variables in order to minimize possible bias subsequent to systematic differences in changes over time in the treatment and the control group (Blom-Hansen, Houlberg, and Serritzlew 2014).

As the demographic features of the samples before and after are not completely alike across the treatment and control groups, as described above, we have included controls for demographic differences at an aggregated level in the analysis. Table 2 shows the demographic distributions for the leaders before and after and for the groups that were treated and not treated.

Insert table 2 around here

Besides this we include controls for small islands which were not amalgamated because they do not directly border other municipalities. This means that some of the smaller islands are still independent municipalities despite being of relatively small size. However, when including these new controls as robustness tests, a caution should be made. As we are studying how an increase in organizational size affects the managerial behaviors exhibited in the organization and not whether managers differ or the same manager acts differently in small or large organizations, including managerial characteristics in the analysis may introduce a potential bias. Since any changes in manager characteristics should be associated with the treatment and reflecting a selection process by which organizations of various sizes produce different managerial priorities, including demographics could serve as mediating variables and impose bias on the estimated treatment effect. This implies that in order to control for possible violations of the assumption of parallel paths, we might impose a new bias. We will consequently use the added controls as robustness tests of the main analysis. All main models are estimated with fixed effects in order to control for possible unobserved heterogeneity due to time invariant variables. The robustness models are run with random effects as they include a number of time invariant variables that would otherwise be dropped from the analysis. We have calculated the variance-inflation-factors (VIF) for the models including controls. With the highest VIF being 3.17 results show no potential threats of multicollinearity biasing the analysis.

All models are estimated by use of STATA and regression analysis on panel data with robust standard errors (*xtreg*).

Results

In total we ran 11 models, one for each of the public management items displayed in table 1 as dependent variable. Four models out of the 11 provided an insignificant omnibus test of the overall model as well as insignificant difference-in-difference estimates both in the primary analysis and the robustness test. The insignificant Chi-square of the overall models suggests that taken together, the coefficients in the model are statistically insignificant. This implies that these variables are either not affected by the increase in organization size caused by the reform or the effect is too small to detect (table 5 in the following section provides an overview of the tested items). Table 3 presents the results of regression analyses.

 Insert table 3 around here

In table 3 the remaining 7 models are presented. All the presented models have been tested with the same control variables for robustness (see table 4), however, the models show substantially similar results indicating that there is little confounding effect of the controls on the results.

 Insert table 4 around here

The coefficient of primary interest is the difference-in-difference estimate. Out of the seven models, four found significant differences between the treatment and control group (see table 5 which sums up the outcome of the 11 tests). Model 1 in table 3 shows the results of “formulate goals and visions” as the dependent variable. The positive coefficient of the difference-in-difference estimator indicates that the increase in size has a positive effect on the priority given to “formulate goals and visions” among managers in municipalities that amalgamated. In order to get a clearer picture, figure 2 graphically displays the results of the difference-in-difference estimates by use of STATA’s *margins*

command. For each combination of the interaction (treatment and time) it calculates the mean predicted value of the dependent variable with all other variables kept at their mean.

Insert figure 2 around here

In relation to “formulate ideas and visions”, the graph reveals a negative change over time in the average mean for the control group, whereas the result for the treatment group remained the same. Combined this provides a positive effect of size (treatment) on the priority given to “formulating goals and visions”.

Model 4 showing the results with the dependent variable “providing political counseling to the Mayor” revealed a positive difference-in-difference estimate meaning that an increase in size leads to increased priority for “providing political counseling to the mayor”. Examining the results more closely, the graphical display shows the change in mean for the control group, meaning the effect of time is negative, whereas the change for the treatment group is less negative indicating a positive treatment effect.

Model 6 in table 3 reveals a positive effect of size on the item “stay informed about political matters”, however, the F-test of the overall model is only significant at a 0.1 level. Besides, when assessing the robustness test in table 4, the relationship becomes insignificant. That the effect becomes insignificant could be because of a spurious relationship, but could also be caused by the potential bias introduced when the managerial variable is introduced in the model. We can therefore not conclude that size has an effect on the managerial priorities of “staying informed about political signals”. Model 7 shows the result of the test with the priority given to “representing the administration on external matters”. Here the picture is similar with a positive interaction term indicating that an increase in size on the

priority given to representation of the administration on external matters is positive. In figure 2, the graphical display shows that the priority given to this item drops for the control groups whereas it has a small increase for the treatment group.

Assessing the magnitude of the effects, the R^2 in table 3 indicates the amount of explained variance in the dependent variables. The R^2 of the significant models lies between .08 and .11 which means that we can explain between 8 and 11 percent of the variation in the dependent variables.

Table 3 shows that the results of the difference-in-difference estimates for model 2, 3 and 5 are insignificant. This means that an increase in size has no significant effect on public management in relation to “making sure that rules and routines are followed”, “provide counseling within law, finance and technical issues to the mayor”, and “ensuring effective use of resources”. This tendency is equally illustrated in figure 2 which shows that the means for the different groups are either close to being equal before and after, which means following the same trend, or are different both before and after the reform indicating that size has little or no effect on these aspects of public management.

The results of the test are summarized in table 5 indicating a complex picture where not all elements of public management are affected by organizational size.

Insert table 5 around here

The results suggest that as size increases so does public management in terms of the need for “formulating goals and visions”, providing political counseling to the mayor, and representing the administration on external matters. On the other hand, public management along with other

dimensions is not found to have significant coefficients. This means that they are either unaffected by increases in size or the potential effect is so small that it is substantially negligible.

Supplementary analysis: Do individual managers change when their organization increases in size?

We have explored how aggregated management practices at the municipality level are affected by organizational size. One could wonder whether individual managers change when becoming part of a larger organization or whether the changes found above are likely to come from different hiring patterns. We cannot provide conclusive answers to this question due to data limitation. We are, however, able to identify a group of managers that have remained in a reformed or un-reformed municipality across the reform and have answered both surveys. In total we identified 119 such individuals in the two datasets and did a new difference-in-difference estimation on the same items with these as units of analysis.

We have estimated the models both by use of regression analysis as well as an ordered probit model as this is the most suitable for dealing with Likert scale data in the dependent variable. In these tests we did not find support for any differences on the 11 public management items. This indicates that there is no individual level effect of the reform. This suggests that managers do not change and that the significant findings above are caused by reformed municipalities assembling a management group with a different profile. While interesting, these results should be cautiously interpreted as only a subset of the data is used.

Discussion

Recent decades have seen widespread amalgamations and consolidations in local government entities (Leland and Thurmaier 2005; Denters et al. 2014). This paper explores how such changes affect public management. Prior research has been almost silent on this question. Our results suggest that some elements related to leadership and external networking are positively affected by organizational

size while others related to day to day operations are not affected by changes in size. This points to a complex picture of the relation between size and public management: some elements appear to be generic while others are context specific.

The fact that public management in relation to the day to day operations such as following rules and routines and allocation of resources is not affected by size perhaps is not very surprising. Such activities can easily be thought of as being equally important no matter the change in size of the organizational entity as these are core elements in running most organizations on a basic level. However, the strongest effects of size appear to be in areas of public management which are not part of everyday operations. A leadership activity such as “formulating goals and visions” becomes a higher priority as size increases. As the organization grows larger, the top management might move further away from the rest of the organization, which will foster a need for providing a clear focus for the organization by clearly specifying goals and priorities. Similarly, the second item that significantly changes with size is the priority on “providing political counselling to the mayor”. This suggests a change in the degree of political involvement from the managerial side as the organization increases in size. The mayors in larger municipalities are to a larger extent in need of political counselling and consequently draw on their top managers for information and political advice on how to act. As municipalities increase in size, the requirement for professionalism increases, so as to leave less room for political mistakes and foster an increased focus on how to behave. The third item to significantly change with size is the degree of priority given to “representing the organization on external matters”. Previous research has suggested that the degree of external networking is shaped by organizational strategy and perception of the environment (Andrews et al. 2011). With these results we get a clear indication that organizational size affects the need for networking. Boundary spanning appears to be more important for larger organizations.

Studies of public management have mostly been interested in the outcomes of management not its determinants (O'Toole and Meier 1999). By establishing more rigorous knowledge of the determinants of managerial behavior we increase our understanding of the functioning and success of public organizations. With a relatively long research tradition pointing to the importance of management (Boyne 2003) we still know relatively little about the plasticity of public management behavior and where management comes from. Recent research has been interested in how management education shapes managerial work (Seidle, Fernandez, and Perry 2016) as well as organizational and environmental factors (Andrews et al. 2011). This research complements this line of investigation by focusing on size changes as an important organizational determinant of managerial behavior. A key question in this relation is whether managers change behavior as organizations grow or organizations hire a different type of managers. We are not able to provide strong answers to that question with the current data. However, comparing our findings in the main analysis to the supplementary analysis we find that individual managers who participated before and after did not change their priorities. This is a rather interesting finding indicating that what changes is the selection of managers into the top management team. This suggests that municipalities select managers with different managerial priorities as their organization is enlarged.

In many of the difference-in-difference tests run we find a negative effect of time indicating that the aggregated levels of public management, as shown by the importance attached to the measured items, decreases over the 3 years' time span (see figure 1). There seems to be a tendency for managers to score lower on these identically worded questions in 2008 compared to 2006. This is not a problem for the analysis, but an interesting outcome which is worth discussing a little further. There may be various reasons for this decrease in public management. First, besides the amalgamations there were a number of tasks and functions that were transferred from the former counties to the municipalities.

It is likely that restructuring of tasks within the municipalities could have a potential impact on how public managers prioritize in their daily job. Secondly, despite the financial crisis not yet having its full impact on the public sector in late 2008, the increased pressure on budgets and prioritizing a financial focus did potentially influence the priority among managers in public organizations. These possible influences would be equally influential in both control and treatment group and explain this common tendency.

With this study we make two important contributions to the existing literature. Firstly, we contribute by directly estimating a causal effect of a change in organization size on public management and secondly, we illuminate how changes in size affect the internal side of public organizations. With the importance of management well established in the literature, it remains important to illuminate some of the structural constraints that affect how public management is performed.

Limitations

This paper explores the effect of size on public management; however, there are some limitations to the study that should be mentioned. First, it utilizes a difference-in-difference estimation by considering the priority that public managers award a number of different elements of management at two periods in time. As we only have data for two time periods, we cannot establish the trend in relation to the level and the development of public management within the treatment and the control group before the first measure in 2006. This means that we do not know whether two groups followed the same development over time before the structural reform and the amalgamations. We only know how their “states” of public management changed across the reform.

Secondly, we want to note the limitations involved in using self-reported data on public management. There is a real risk that respondents do not report accurate information about their work priorities. All the public management practices in the surveys could be argued to be expected of managers, so they

may have been reluctant to report a low priority. This is also indicated by the right-skewed answers. We do not consider this a major problem for our results as this social desirability bias should be similar in both reformed and un-reformed municipalities. Further, the limitation of using self-reported data also links to a potential problem of self-selection bias and representativeness among the managers who participated in the survey. With response rates of 58.5 % in 2006 and 81.1 % in 2008 there is a risk of self-selection of participation among the respondents. A selection bias could pose a serious problem for the analysis especially if there were systematic differences in the choice of participation across the amalgamated and non-amalgamated groups. This is a limitation on the analysis however; with the relatively high response rates we do not consider this a large problem.

Thirdly, we have treated the effect of a change in size as a discrete event that some municipalities experienced while other did not. We contend that the effect of such a change may depend on the magnitude of the change in size. With our setup we were not able to provide a convincing test of this. It may even be argued that the effect of size is non-linear. We hope that future research will look further into this. Knowledge about how reforms of different sizes have different impacts may be very valuable to reformers.

The study has pointed to a number of important elements of public management which vary with organizational size. We have found some elements to be generic across organizations of different sizes and others to vary. It would be interesting to see future studies that build on this research to further explore why this difference can be observed. It could be because requirements differ or because different managers work in different types of organizations. Studies of executive replacement patterns could illuminate such dynamics further. Besides this, we call on future studies to explore how managers' priorities map to the reality of their behavior. Our results suggest that managers of larger organizations assign higher priority to some tasks but do not seem to assign lower priority to any tasks. In order to get a fuller picture of how size affects management it would be interesting to

understand how managerial priorities actually influence their behavior and whether managers of larger organizations simply perform more tasks and if so, how that is accomplished.

Finally, this study provides an example of how a quasi-experiment can illuminate our understanding of public management. We hope future studies will study antecedents as well as outcomes of public management using experimental techniques in order to improve our understanding of the mechanisms explaining how public organizations work.

References

- Andrews, R., and G. Boyne. 2011. Corporate capacity and public service performance. *Public Administration* (Journal Article).
- Andrews, R., G. A. Boyne, K. J. Meier, L. J. O'Toole, and R. M. Walker. 2011. Environmental and Organizational Determinants of External Networking. *The American Review of Public Administration* 41 (4):355-374.
- Bhatti, Yosef, Mette Gørtz, and Lene Holm Pedersen. 2015. The Causal Effect of Profound Organizational Change When Job Insecurity Is Low—A Quasi-experiment Analyzing Municipal Mergers. *Journal of Public Administration Research and Theory*.
- Bhatti, Yosef, and Kasper M Hansen. 2011. Who 'marries' whom? The influence of societal connectedness, economic and political homogeneity, and population size on jurisdictional consolidations. *European Journal of Political Research* 50 (2):212-238.
- Bhatti, Yosef, Asmus L Olsen, and Lene Holm Pedersen. 2011. Administrative Professionals and the Diffusion of Innovations: The case of citizen service centres. *Public Administration* 89 (2):577-594.
- Blom-Hansen, Jens, Kurt Houlberg, and Søren Serritzlew. 2014. Size, democracy, and the economic costs of running the political system. *American Journal of Political Science* 58 (4):790-803.
- Boyne, George A. 2003. Sources of public service improvement: A critical review and research agenda. *Journal of Public Administration Research and Theory* 13 (3):367-394.
- Camisón-Zornoza, César, Rafael Lapiedra-Alcamí, Mercedes Segarra-Ciprés, and Montserrat Boronat-Navarro. 2004. A meta-analysis of innovation and organizational size. *Organization Studies* 25 (3):331-361.
- Denters, Bas, Michael Goldsmith, Andreas Ladner, Poul Erik Mouritzen, and Lawrence E Rose. 2014. *Size and local democracy*: Edward Elgar Publishing.
- Dunning, Thad, -. 2012. *Natural experiments in the social sciences : a design-based approach, Strategies for social inquiry*. Cambridge, UK: Cambridge University Press.
- Favero, Nathan, Kenneth J Meier, and Laurence J O'Toole. 2014. Goals, Trust, Participation, and Feedback: Linking Internal Management with Performance Outcomes. *Journal of Public Administration Research and Theory*:muu044.
- Feiock, Richard C, and Jered B Carr. 1997. A reassessment of city/county consolidation: Economic development impacts. *State & Local Government Review*:166-171.
- Fernandez, Sergio. 2005. Developing and testing an integrative framework of public sector leadership: Evidence from the public education arena. *Journal of Public Administration Research and Theory* 15 (2):197-217.
- Gerber, Alan S, and Donald P Green. 2012. *Field experiments: Design, analysis, and interpretation*: WW Norton.

- Gibbs Springer, Christine, Richard C Feiock, Jered B Carr, and Linda S Johnson. 2006. Structuring the debate on consolidation: A response to Leland and Thurmaier. *Public Administration Review* 66 (2):274-278.
- Hansen, Jesper Rosenberg, and Anders R Villadsen. 2010. Comparing public and private managers' leadership styles: Understanding the role of job context. *International Public Management Journal* 13 (3):247-274.
- Hansen, M. B. 2011. Antecedents of Organizational Innovation. The Diffusion of New Public Management into Danish Local Government. *Public Administration* 89:285–306.
- Haveman, Heather A. 1993. Organizational size and change: Diversification in the savings and loan industry after deregulation. *Administrative Science Quarterly*:20-50.
- Indenrigsministeriet. 2005. Kommunalreformen - kort fortalt. edited by Ø. kontor. København: Indenrigs- og Sundhedsministeriet.
- Jung, Chan Su. 2013. Navigating a rough terrain of public management: Examining the relationship between organizational size and effectiveness. *Journal of Public Administration Research and Theory* 23 (3):663-686.
- . 2014. Why are goals important in the public sector? Exploring the benefits of goal clarity for reducing turnover intention. *Journal of Public Administration Research and Theory* 24 (1):209-234.
- Kurke, Lance B, and Howard E Aldrich. 1983. Note—Mintzberg was Right!: A Replication and Extension of The Nature of Managerial Work. *Management Science* 29 (8):975-984.
- Lassen, David Dreyer, and Søren Serritzlew. 2011. Jurisdiction Size and Local Democracy: Evidence on Internal Political Efficacy from Large-scale Municipal Reform. *American Political Science Review* 105 (2):238-258.
- Lau, Alan W, Arthur R Newman, and Laurie A Broedling. 1980. The nature of managerial work in the public sector. *Public Administration Review*:513-520.
- Leland, Suzanne, and Kurt Thurmaier. 2005. When efficiency is unbelievable: Normative lessons from 30 years of city–county consolidations. *Public Administration Review* 65 (4):475-489.
- Martin, Lawrence L, and Jeannie Hock Schiff. 2011. City–County Consolidations: Promise Versus Performance. *State and local government review*:0160323X11403938.
- Meier, K. J., and L. J. O'Toole. 2001. Managerial strategies and behavior in networks: A model with evidence from US public education. *Journal of Public Administration Research and Theory* 11 (3):271.
- . 2003. Public management and educational performance: The impact of managerial networking. *Public Administration Review* 63 (6):689-699.
- Meier, K. J., L. J. O'Toole, G. A. Boyne, and R. M. Walker. 2007. Strategic management and the performance of public organizations: Testing venerable ideas against recent theories. *Journal of Public Administration Research and Theory* 17 (3):357-377.
- Meier, K. J., L. J. O'Toole, and H. T. Goerdel. 2006. Management activity and program performance: Gender as management capital. *Public administration review* 66 (1):24-36.
- Mintzberg, H. 2009. *Managing*. London: Financial Times, Prentice Hall.
- Mintzberg, Henry. 1973. Nature of managerial work.
- . 1975. The Manager's Job: Folklore and Fact. *Harvard business review* 53 (4):49-61.
- O'Toole, L. J., and K. J. Meier. 2011. *Public management: Organizations, governance, and performance*: Cambridge University Press.
- O'Toole, Laurence J, and Kenneth J Meier. 1999. Modeling the impact of public management: Implications of structural context. *Journal of Public Administration Research and Theory* 9 (4):505-526.
- Pandey, Sanjay K, and Bradley E Wright. 2006. Connecting the dots in public management: political environment, organizational goal ambiguity, and the public manager's role ambiguity. *Journal of Public Administration Research and Theory* 16 (4):511-532.
- Rainey, H. G. 2009. *Understanding and managing public organizations*: Jossey-Bass.
- Rainey, Hal G. 2009. *Understanding and managing public organizations*: By Jossey-Bass.
- Rubin, Donald B. 1974. Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology* 66 (5):688-701.

- Seidle, Brett, Sergio Fernandez, and James L Perry. 2016. Do Leadership Training and Development Make a Difference in the Public Sector? A Panel Study. *Public Administration Review*.
- Strukturkommissionen. 2004. Strukturkommisionens betænkning 1. Hovedbetænkningen. edited by Ø. kontor. København: Indenrigs- og sundhedsministeriet.
- Villadsen, A. R. 2012. New Executives from Inside or Outside? The Effect of Executive Replacement on Organizational Change. *Public administration review* 72 (5):731-740.
- Walker, R. M. 2013. Strategic Management and Performance in Public Organizations: Findings from the Miles and Snow Framework. *Public Administration Review* 73 (5):675-685.
- Walker, Richard M, and Rhys Andrews. 2013. Local government management and performance: a review of evidence. *Journal of Public Administration Research and Theory*:mut038.
- Wooldridge, Jeffrey M. 2010. *Econometric analysis of cross section and panel data*. 2. ed. ed. Cambridge, MA: MIT Press.
- Wright, Bradley E, and Sanjay K Pandey. 2009. Transformational leadership in the public sector: does structure matter? *Journal of Public Administration Research and Theory*:mup003.
- Yukl, G. 2013. *Leadership in Organizations*. 8 ed. Upper Saddle River, New Jersey: Pearson Prentice Hall.

Table 1. Dependent variables: items on public management

Question: *Every municipal manager must prioritize among different tasks. Listed below are a number of different tasks. Please state how you would rate each of them in your job?*

Item:

1. Formulate ideas and visions
 2. Supervise subordinates in their daily work processes
 3. Keep informed about employees views
 4. Keeping control of economy, accounting, budgeting
 5. Making sure that rules and routines are followed
 6. Provide counseling within law, finance and technical issues to the mayor
 7. Provide political counselling to the mayor
 8. Ensure effective use of resources
 9. Stay informed about political signals
 10. Keeping subordinates informed about goals and plans
 11. Represent the administration on external matters
-

Table 2. Differences in demographical composition in treatment and control group

	Pre-reform					Post reform				
<i>All</i>	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>
Gender (<i>female = 1, male = 0</i>)	473	0.175	0.381	0	1	442	0.26	0.439	0	1
Age	430	54.13	6.39	34	65	431	52.41	6.767	34	66
Short education (<i>yes = 1, no = 0</i>)	477	0.201	0.407	0	1	453	0.150	0.358	0	1
Skilled (<i>yes = 1, no = 0</i>)	477	0.174	0.38	0	1	453	0.353	0.478	0	1
Higher education (<i>yes = 1, no = 0</i>)	477	0.53	0.5	0	1	453	0.638	0.481	0	1
<i>Treatment group</i>										
	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>
Gender (<i>female = 1, male = 0</i>)	401	0.17	0.376	0	1	309	0.223	0.417	0	1
Age	362	54.17	6.345	34	65	300	52.69	6.56	34	66
Short education (<i>yes = 1, no = 0</i>)	404	0.22	0.415	0	1	316	0.16	0.368	0	1
Skilled (<i>yes = 1, no = 0</i>)	404	0.168	0.375	0	1	316	0.373	0.484	0	1
Higher education (<i>yes = 1, no = 0</i>)	404	0.52	0.50	0	1	316	0.61	0.488	0	1
<i>Control group</i>										
	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>Std.</i>	<i>Min</i>	<i>Max</i>
Gender (<i>female = 1, male = 0</i>)	72	0.208	0.409	0	1	133	0.346	0.477	0	1
Age	68	53.9	6.672	38	65	131	51.76	7.2	35	65
Short education (<i>yes = 1, no = 0</i>)	73	0.15	0.36	0	1	137	0.124	0.331	0	1
Skilled (<i>yes = 1, no = 0</i>)	73	0.205	0.407	0	1	137	0.301	0.463	0	1
Higher education (<i>yes = 1, no = 0</i>)	73	0.589	0.495	0	1	137	0.700	0.46	0	1

Table 3: Results of fixed effects difference-in-difference regression analysis with robust standard errors

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable:	Formulate ideas and visions	Making sure that rules and routines are followed	Provide counseling within law, finance and technical issues to the mayor	Provide political counselling	Ensure effective use of resources	Stay informed about political signals	Represent the administration externally
Constant	4.3 (168.9)***	2.55 (78.87) ***	4.16 (108)***	3.81 (93.76)***	4.38 (166.8)***	4.54 (193.9)***	3.82 (132.3)***
Difference-in-difference	0.31 (2.62)**	-0.08 (-0.53)	-0.02 (-0.12)	0.37 (2.08)*	0.20 (1.67) [†]	0.21 (2.21)*	0.38 (2.93)**
Treatment ¹	-	-	-	-	-	-	-
Time (2008)	-0.22 (-2.14) *	-0.06 (0.48)	-0.19 (-1.24)	-0.45 (-3.11)**	-0.09 (-0.86)	-0.13 (-1.73) [†]	-0.26 (-2.31)*
Model F value	3.50*	0.14	3.95*	5.25**	2.21	2.45 [†]	4.38*
R ²	0.08	0.004	0.07	0.11	0.04	0.05	0.09
N	189	190	190	190	190	190	190

Significance level: [†]p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.

¹ treatment is omitted as main variable as the model is fitted with fixed effects and omits time-invariant variables.

Table 4: Results of random effects difference-in-difference regression analysis with controls and robust standard errors

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable:	Formulate ideas and visions	Marking sure that rules and routines are followed	Provide counseling within law, finance and technical issues to the Mayer	Provide political counselling	Guarantee effective use of resources	Stay informed about political signals	Represent the administration externally
Constant	4.35 (12.51)***	1.01 (1.83) [†]	5.13 (8.67)***	3.73 (4.94)***	4.91 (18.85)***	5.26 (15.76)***	3.18 (5.15)***
Difference-in-difference	0.26 (2.19)*	0.03 (0.18)	-0.03 (-0.14)	0.44 (2.37)*	0.16 (1.35)	0.17 (1.67) [†]	0.44 (3.21)***
Treatment	-0.24 (-2.18)*	0.10 (0.62)	-0.29 (-1.90) [†]	-0.45 (-2.33)*	-0.14 (-1.14)	-0.16 (-1.68) [†]	-0.31 (-1.98)*
Time (2008)	-0.26 (-1.91) [†]	-0.39 (-2.02)*	0.03 (0.13)	-0.62 (-2.49)*	0.02 (0.17)	0.00 (0.02)	-0.45 (-2.42)*
Expenditure pr. capita	0.00 (0.88)	0.00 (3.94)***	-0.00 (-1.28)	0.00 (0.33)	-0.00 (-1.71) [†]	-0.00 (-1.85) [†]	0.00 (1.58)
Proportion of leaders with an education in public administration	0.10 (0.71)	0.02 (0.11)	-0.12 (-0.54)	0.15 (0.64)	0.02 (0.16)	0.11 (0.96)	-0.13 (-0.61)
Proportion of females	-0.10 (-0.74)	0.06 (0.31)	-0.12 (-0.66)	-0.04 (-0.15)	0.15 (1.13)	-0.09 (-0.62)	-0.31 (-1.56)
Small island	-0.25 (-1.13)	-0.2 (-1.44)	-0.00 (-0.00)	-0.22 (-0.63)	0.06 (0.33)	-0.16 (-1.78) [†]	-0.36 (-1.20)
Education diversity	-0.18 (-0.91)	0.19 (0.59)	0.13 (0.50)	0.37 (0.91)	-0.14 (-1.00)	-0.04 (-0.23)	0.16 (0.48)
Population size	0.00 (1.53)	-0.00 (-0.10)	-0.00 (-1.97)*	-0.00 (-0.28)	0.00 (2.50)*	0.00 (0.66)	0.00 (2.33)*
Amalgamation complexity	-0.01 (-0.53)	-0.05 (-1.36)	-0.01 (-0.39)	-0.04 (-0.81)	-0.00 (-0.23)	-0.04(-2.16)*	-0.03 (-0.80)
Wald Chi 2(df)	30.06 (10)***	27.72 (10)**	31.57 (10)***	23.50(10)**	34.85(10)***	58.15(10)***	28.04(10)**
N	189	190	190	190	190	190	190

Significance level: [†]p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.
z values in parentheses.

Table 5. Summary of the statistical results of the items on public management

Item (dependent variable)	Difference-in-difference estimate
1. Formulate ideas and visions	<i>Significant positive effect</i>
2. Supervise subordinates in their daily work processes	<i>Insignificant omnibus test (no results reported)</i>
3. Keep informed about employees views	<i>Insignificant omnibus test (no results reported)</i>
4. Keeping control of economy, accounting, budgeting	<i>Insignificant omnibus test (no results reported)</i>
5. Making sure that rules and routines are followed	<i>No significant effect</i>
6. Provide counseling within law, finance and technical issues to the mayor	<i>No significant effect</i>
7. Provide political counselling to the mayor	<i>Significant positive effect</i>
8. Ensure effective use of resources	<i>No significant effect</i>
9. Stay informed about political signals	<i>No significant effect</i>
10. Keeping subordinates informed about goals and plans	<i>Insignificant omnibus test (no results reported)</i>
11. Represent the administration on external matters	<i>Significant positive effect</i>