

Organizing municipal audit: Contracting out and audit costs in Norway

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Abstract

Purpose – This paper analyses the deregulation of the municipal audit market in Norway, in particular how organization of the service affected audit costs.

Design/methodology/approach – The paper uses multiple regression analysis of administrative as well as survey data of organizational structure and audit costs from 312 municipalities in Norway in 2012.

Findings – The introduction of contracting out in the municipal audit market in Norway in 2004 contributed to a reduction in audit fees eight years after the deregulation, compared to the situation four years before the deregulation. The type of audit, mixing inter-municipal co-operation and contracting private auditors, was related to lower costs.

Originality – This paper contributes by filling some of the gaps in the public sector accounting and public management reform literature by studying the organization and costs of the municipal audit, specifically by including transaction costs, addressing plural governance forms in addition to pure inhouse production, inter-organizational co-operation and market contracting, and by studying long-term effects.

Research limitations/implications – The data does not include audit quality and are restricted to one country.

Practical implications – The municipalities that combined inter-municipal co-operation and contracting a private auditor, achieved the lowest costs. Hence, neither pure inhouse production ('make') nor outsourcing ('buy') but mixing several governance forms (hybrid organization) was related to low costs.

Social implications – Contracting out is a core element of NPM but has often been a contested tool in public policy. This paper provides empirical evidence on the effects of a reform of a professional service, which is relevant for many services in the public sector.

Keywords – Auditing, contracting out, cost-efficiency, local government, public sector reform, transaction cost

Paper type – Research paper

Introduction

The purpose of this paper is to analyse how the organization of the service affected costs in the municipal audit in Norway after the municipal audit market was deregulated in 2004. Using market competition and contracting out have been a core administrative doctrine in new public management (NPM) since the late 1970s (Hood, 1995). Despite the subsequent widespread use of contracting out in public policy, contracting out is a contested public policy tool and there is still a need for more empirical evidence on the effects of contracting out, for example for policy makers and practitioners responsible for regulating and organizing public sector services.

The reform deregulating the Norwegian audit market is an interesting case for the study of 'happy endings' and 'successful stories' in public sector financial management. Norway, being a small state with a big public sector, has a strong motive for financial management reforms for keeping its public sector effective and legitimate. Being a unitary state with a consensual political culture also gives good opportunity for implementing such reforms (Hood 1995). Reforms in small, consensual, unitary states are not always destined for success, though. Having had a strong social democratic tradition, at least until the 1980s, public services have often been provided by local governments and reforms involving market liberalisation or contracting often face opposition from the political left. Local governments are important for the provision of many public sector services, but local governments also have autonomy. If, for example, a centre-right government would pursue market liberalisation reforms of traditionally public sector provided services such policies may, on the one hand, not be adopted locally unless made mandatory. Radical or mandatory reforms may, on the other hand, be ineffective in addition to unpopular. Many local governments are rural and small. They often have limited economic and administrative capacity and cannot utilise economy of scale in inhouse production or rely on vibrant local markets, even if they had wanted to, in order to contract service instead of providing the services 'in-house'. Being a small municipal contractor in a market maybe dominated by a few, big and powerful international accounting firms, may have posed severe risks were the reform designed as compulsory tendering. The case of the municipal audit market reform is interesting because it illustrates how municipalities adapted to a financial accounting reform that was designed in such a way that the deregulation gave the municipalities more options than before while preserving the municipalities autonomy to adapt to local political as well as economic circumstances.

Contracting out has been defined as 'the private provision of publicly funded services, whereby the public sector takes on the role of the buyer, but retains the overall responsibility for financing the service' (Petersen *et al.*, 2018, p. 135). This definition describes just some of the potential outcome of contracting out processes because the result of the tender may be a decision to take the production inhouse again, contract with one or more private or other public sector owned organizations or use combinations of these outcomes in plural forms and hybrid governance. This paper therefore studies the organization of the municipal audit as a process where the organizational decision includes inhouse production, contracting with external private as well as public sector organizations, inter-organizational co-operation, and mixes of these (Brown and Potoski, 2003).

The overall research question this paper addresses is: Which contextual drivers facilitate the adoption of financial management solutions that lead to success? This paper

analyses how the widening options in choosing organizational forms after the reform affected organization and costs in the municipal audit. This paper contributes to the literature on public sector financial management by studying reforms in municipal audit and by filling some of the gaps in the transaction cost economics literature, specifically by including important elements of the transaction costs, addressing plural and hybrid forms in addition to inhouse production, such as inter-municipal co-operation and market contracting, and by studying long-term market effects of contracting out.

The remainder of the paper is structured as follows. Section 2 is a brief review of literature on contracting out. Section 3 presents the Norwegian audit market context. Section 4 presents transaction cost theory and formulates hypotheses on contracting out and municipal audit costs. Section 5 documents the research design and data. Section 6 documents the analysis. Section 7 discusses the results. The final section concludes.

Brief literature review on contracting out

Contracting out is a common tool for improving cost efficiency provision when a public-sector organization is too small to gain economy of scale in the service production as well as for improving service quality when the organization responsible for the service provision lacks the capacity or competence to provide or innovate the service inhouse (Leiren, *et al.*, 2016). Geys and Sørensen (2016) studied how revenue scarcity as an indicator of fiscal stress induced government outsourcing of infrastructure and support services in Norwegian local governments during the period 1995–2012. They found a positive relationship between fiscal stress and increased outsourcing. Often the political debate revolves around the ‘make’ or ‘buy’ decisions, but in practice the option of relational contracting or mixing several governance forms are used in practice (Bradach and Eccles, 1989). Such plural and hybrid governance forms need more research (Hansen *et al.*, 2011).

Public policies for contracting out, for example the compulsory competitive tendering (CCT) in the UK in the early phases of NPM in the 1990s, have not always been backed up by solid empirical evidence (Boyne, 1998). The effects of contracting out seems nevertheless at large to be positive. Hodge (2000) conducted a meta-analysis of 28 empirical studies from 1976–1994. He concluded that contracting out public sector services on average resulted in cost savings of 6–12 per cent including transaction costs, and without impairing the quality of the services. These studies came predominantly from USA and the UK, prior to and in the early phases of NPM. The effects of contracting out municipal audit has also been found to be positive (Sanders *et al.*, 1995).

Petersen *et al.* (2018) in their review of empirical studies of contracting out in the period 2000–2014 found that many studies did not measure transaction costs and quality and were static investigations without considering the dynamic long-term effects. In particular, they argued, there is a need for long time period studies beyond first generation contracting. It may be the case that contracting out many public services was effective policy in the early phases of NPM, but that after many services eventually have been deregulated introducing more competitive and organizational learning mechanisms than before, the marginal utility of ever more contracting out may be diminishing. They also recommended more context-oriented approaches in future research taking into account different market conditions in urban and rural settings, and measuring direct costs, transaction costs and service quality. Bel and Warner (2015) called for studies on contracting out on more diverse sectors than solid waste and more

studies from Europe.

Moreover, Petersen *et al.* (2018) found that there were different cost effects between technical and social services possibly due to different asset specificity and measurability in the services. Furthermore, there might be higher cost effects in liberal market economies such as in Anglo-American countries compared to countries with more regulated labour markets and stronger labour unions as often found in Europe. Hood and Dixon (2013), nevertheless, did not find any positive impacts of NPM reforms on cost efficiency in the UK central government. In a recent article, however, Hammerschmid *et al.* (2019) found that top public officials in 20 European countries perceived contracting out to be related to improved efficiency. Summing up: There are still diverse evidence regarding the effects of public financial management reforms on cost efficiency.

The Norwegian municipal audit context

In Norway the municipal act of 1992 §77 required all municipalities to have a control committee appointed by the municipal council. The control committee is responsible for audit and oversight, including financial and performance audit, and reports to the municipal council. At least one of its members should also be a member of the municipal council, and the leader of the control committee is often from the opposition, ca. 74 % in 2012 (Blåka *et al.*, 2012). In 2005 the municipalities were also required to have a secretariat for the control committee, giving administrative support to its function. The secretariat is independent of the municipal administration and its role is assisting the control committee and assuring that the control committee's decisions are executed.

Like many European countries, many municipalities in Norway are small. More than half of the municipalities had less than 5,000 inhabitants in 2012. Many of the municipalities are too small for gaining economy of scale in the production of the audit or lack the required accounting competence in order to achieve the desired level of audit quality, in particular in performance audit. Municipal audit may therefore be subject to inter-municipal co-operation or contracting out. Moreover, tendering and contracting audit require both competence and capacity in managing this process, which may require inhouse competence in the service to be contracted out as well as co-operation with other tendering organizations (Bovaird, 2016). The process of contracting out therefore becomes complex and the outcome may be risky.

The Nordic countries are unitary states with big public sectors and were therefore expected to adopt NPM actively (Hood, 1995). The Nordic countries have also introduced decentralisation, contracting out and market reforms extensively (Baldersheim and Ståhlberg, 1994; Lapsley and Knutsson, 2017). Finland harmonised its municipal accounting to accrual accounting and introduced contracting out in the municipal audit in 1997. Norway has kept an idiosyncratic municipal accounting system but introduced contracting out in 2004. A study of municipal audit fee determinants in Finland and Norway in 2000 (Johnsen *et al.*, 2004) provided three tentative conclusions. First, there were widespread use of co-operation (relational contracting), typically that several municipalities jointly owned and contracted from a district municipal auditor, or what Bovaird (2016) have termed joint commissioning of single providers, both in Finland and Norway, despite that audit fees per capita were high for this organization. Many municipalities that chose joint commissioning were small and the choice of district-type audits may nevertheless have been more cost-efficient than contracting

individually (in Finland) or using inhouse municipal auditors (in Norway).

Second, Finland had the lowest audit fees per capita in 2000 but the audit fees rose annually more in Finland than in Norway in the late 1990s, possibly due to 'low-balling' when Finland deregulated its municipal audit market in 1997.

Third, the audit fees in Norway were substantially higher than in Finland in 2000, which may have been a result from keeping a specific municipal accounting system and keeping a regulated municipal audit market without the incentives for keeping costs and fees down provided from a competitive market. Moreover, both the Finnish and the Norwegian municipal audit fees had a high negative correlation with municipal size-related variables. This could indicate that the auditors were able to extract relatively high audit fees from small municipalities, maybe due to little capacity or low competence in organizing and contracting the services in the smaller municipalities, or that the potential for economy of scale was not fully utilised or difficult to unleash given the municipal structure in these countries.

We first develop some hypotheses and then turn to an empirical analysis.

Transaction costs economics and hypotheses

Transaction cost economics is a common theory for studying the boundaries of the organization. Outsourcing ('buy') could be used when producing inhouse is inefficient, and insourcing ('make') could be used when buying from the market is inefficient (Coase, 1937). In addition to the typical make or buy decisions there is also the option of co-operating with others ('relational contracting') (Williamson, 1985). The 2004-reform introduced the option of buying. Therefore, transaction cost economics is useful for studying the effects of the reform. We formulate the following hypothesis:

H1: Municipalities contracting private auditors have lower audit costs than other municipalities.

The best organizational form minimizes total costs for a given quality and quantity of a service. Economy of scale is important in organizational design. The Norwegian municipalities could choose between inhouse auditor or inter-municipal co-operation (district audit) in order to utilise economy of scale also before the reform. We therefore leave size of the audit as a control variable for the empirical analysis later. Here we utilise transaction cost economics for identifying cost problems in different organizational forms from other issues than economy of scale.

Transaction cost theory identifies several potential problems in contracting out (Boyne, 1998; David and Han, 2004; Marsh, 1998). One problem is replacing one form of monopoly by another if market actors withdraw from the specific local market from the point of tendering to the next period of contracting out-decisions. This is called 'the fundamental problem' in transaction cost economics (Williamson, 1985). Another problem is accepting what seems to be the best bid (lowest price), but which turns out to be unsustainable for the supplier (the 'too good to be true' problem). This is called 'the winner's curse' in transaction cost economics and may call for re-negotiation or termination of the contract, and a new process of contracting out. Therefore, how the municipalities on the demand side and the auditors on the supply side act over time may have substantial effects for costs (and other issues) both before and after governance

forms are decided and contracts are signed.

Moreover, transaction cost economics focus – as its name implies – on costs. In designing the organization of the audit, the benefit and relevance of the information as well as the auditors' independence, are also important elements. There is a large literature on agency, stewardship and auditor independence. One organizational design issue is choosing between a formal or operational independence of the auditor, where many undertake contracting out and choose an external auditor that at least has much formal independence. Tillema and ter Bogt (2016), however, found that such a model may not always fit in a municipal context, and many municipalities in the Netherlands choose a 'mixed model'. In the Dutch mixed model councillors may partake in the performance audits in an intermediary role between external researchers and the councils, in order to increase the responsiveness of the audit to the councils' needs.

The audit in the Norwegian municipalities have a different institutional set-up then the Dutch audit. The control committees in Norway serve an intermediary role between the auditors and the councils. The district auditors were specialized in municipal auditing and may have been more responsive to councils' needs than private auditors or at least private auditors without much prior municipal audit experience. The inter-municipal audit co-operations after the reform were to a large extent a legacy of the former district auditors in Norway. Hence, municipalities may have mixed inter-municipal co-operation and contracting private auditors for both retaining responsiveness to the councils' needs and gaining lower costs from competitive tendering. Hence, we formulate the following hypothesis:

H2: Municipalities mixing inter-municipal co-operation and contracting private auditors have lower audit costs than other municipalities.

Analysis of non-economic, institutional factors influencing contracting out has shown that ideology impacts contracting out decisions for social services but not for technical services (Petersen *et al.*, 2015). This indicates that social services has been the contemporary ideological battlefield of privatization, at least in Denmark, they argued. If audit is regarded as a technical service we should not expect to find that ideology shapes the contracting out decision and hence costs in audit. Whether politicians regard audit as a technical service or not and their ideological preferences for municipal audit is unknown and is therefore interesting to explore. Left-wing parties have traditionally preferred a big public sector. Hence, left-wing parties may use audit in order to probe effectiveness and accountability in order to legitimate a big public sector, more than conservative and liberal parties. We formulate the following hypothesis:

H3: Municipalities with relatively many leftist representatives in the municipal council have higher audit costs than other municipalities.

Summing up: many factors are at play which could influence the outcome of a municipal audit reform. Which structure is best in the organization of the municipal audit, is therefore an open, empirical question.

Methods and data

Contracting out is commonly, but not always, expected to provide cost efficiency. Audit is a professional service, which means that some aspects of its activities, costs and quality

may be difficult to monitor and specify in formal contracts. In addition, public sector audit consists of several services such as financial audit, compliance audit and performance audit, of which performance audit to some extent overlap with consultancy services. For accounting firms on the supply side there may be financial incentives for providing some standard services such as financial audit cheap in a first round of tendering in order to get a foothold in the market ('lowballing'), in order to supply other professional interesting services such as performance audit and consulting on more profitable terms in the longer term (Pong and Whittington, 1994). In this study we therefore analysed the organization and cost of the municipal audit in 2012, eight years after the deregulation in 2004.

We collected administrative data on municipal population, finances and audit cost for the whole population of 429 municipalities. We also utilised data from an earlier survey of audit fees in Norway in 2000 (Johnsen *et al.*, 2004), and we developed a survey for mapping the organization of the audit in 2012 and replicated some of the survey questions from the 2000-survey for measuring comparable audit fees in 2012. The survey was sent to all secretaries for the municipal control committees in November 2013. We conducted three rounds of following up non-response by email and some telephone interviews. This gave responses with cost data for 224 of 429 municipalities, resulting in a response rate of 52.2 per cent. There was relatively more non-response from small municipalities and from municipalities that had chosen co-operation in organizing the audit.

Dependent variable

We used administrative data for municipal audit costs data, which the municipalities report in the municipal-to-central-government reporting system (KOSTRA) to the independent national statistical institution, Statistics Norway, for measuring our dependent variable audit costs. The audit costs included costs for the municipal control committee including its secretariat. The inclusion of the costs for the control committee and its secretariat better reflect administrative and transaction costs than measuring audit production costs only, as the survey data for audit fee did. Moreover, the administrative data had more available data (less non-response and missing values) than the survey data.

The audit costs data gave a mean municipal audit cost of NOK 182 per capita in 2012 (N=417). This was 39.1 per cent higher than the audit fee estimate for 2012 of NOK 131 per capita (N=179), that measured audit fees using the survey data. In order to analyse the resemblance between the two measures for audit costs, we computed the bivariate correlation. This was $r=.92$ (N=178), significant at the $p=.01$ -level.

Independent variables

We measured the organization of the municipal audit as the independent variable with survey data. The municipalities in Norway can organize their municipal audit as inhouse production (=0), in co-operation with other municipalities according to the Municipal Act §27 (=1), in co-operation with other municipalities through joint ownership of a municipal corporation (=2), by contracting a private auditor (=3), or by a combination partly by one of the first three options above and partly by contracting a private auditor (=4). In the analyses, the organization of the audit was modelled in different ways. One approach was using the two inter-municipal co-operation forms as reference point and using dummy variables for the three remaining categories inhouse production (inhouse

production=1, else=0), contracting a private auditor (contracting a private auditor=1, else=0), and combination (combination including contracting a private auditor=1, else=0). Very few municipalities had inhouse production (5 in 2012, down from 9 in 2000) We therefore chose another approach in the final regression analysis. The organization data were recoded into a dichotomous variable with inhouse production or co-operation with other municipalities (=0) and mixing co-operation and contracting a private auditor (=1) as categories. 52 municipalities (12.4 %) had mixing co-operation and contracting a private auditor in 2012.

We used a traditional measure, the ratio of left-wing representatives in the municipal councils, as an indicator for local political preferences (ideology). Contracting out public services has often been a contested political issue but ideologies and traditional political dimensions such as conservatism, liberalism and socialism may be less pronounced and important in local politics compared to national politics. The leftist representatives were defined as members of the Labour Party, the Socialist Left Party, Red, and the Norwegian Communist Party after the 2011 local elections for the 2011–2015 term.

Control variables

The control variables include measures for contracting out municipal services generally, municipal size, non-centrality of the municipality, party concentration in the municipal council, gross municipal operating income, municipal taxes, financial results, municipal debt, and political and organizational structure. In order to adhere to the assumptions for causality in regression analysis, most of the control variables predated the dependent variable. Auditor characteristics are relevant control variables (Cohen and Leventis, 2013) and the survey asked about such data. These data were nevertheless not included as control variables because very few of the survey respondents, due to confidentiality issues, provided information on the private auditors.

Contracting out successfully may rely on local circumstances and experience (Bovaird, 2016). In order to measure the municipalities' outsourcing experience, we measured the percentage of outsourcing of in total 15 municipal services. Data were obtained from the Municipal Organization Database 2012 (Blåka *et al.*, 2012), question number 15. We expected outsourcing to be negatively related to audit costs.

Municipal size was measured as the municipal population as of 1.1.2013.

Responding to the call for taking the municipal context into account (Petersen *et al.*, 2018) and following earlier research practice (Collin *et al.*, 2017) we categorized the municipalities as central (urban) or non-central (rural) municipalities based on Statistics Norway's centrality classification of 2008. We categorised the municipalities in two groups consisting of level 0 and 1 as non-central municipalities (coded 1), and level 2 and 3 as central municipalities (coded 0). Following Collin *et al.* (2017) we expected that non-central municipalities had less developed audit markets, had fewer tenders, and therefore had less contracting out and higher audit costs, than central municipalities.

Non-central municipalities may seek economy of scale by inter-municipal co-operation. At the same time, a large number of co-operation partners may result in little influence for the individual municipality over activities and costs (Blåka, 2017; Sørensen 2007). We therefor measured the number of co-operating partners in the inter-municipal co-

operations. Municipalities with a contract with a private auditor were counted as having one partner and municipalities with inhouse audit were counted as having zero partners.

We used the common Herfindahl-index (HI) is a measure of party concentration and hence political competition (1-HI). The Herfindahl-index (HI) takes the value 1 when a single party holds all seats in the council, indicating little political competition. The minimum value is $1/P$ when the seats are equally divided among the P parties, indicating much political competition. The political parties in the Norwegian municipal councils are proportionally represented based on the election results every fourth year. The proportionality facilitates compromises and bargaining rather than dominance from the largest party, as the largest party only seldom has majority rule in the municipal council. High political competition has earlier been expected to be associated with high audit costs (Baber, 1983). Therefore, we expected a negative relationship between political concentration and audit costs.

We included a variable with average ordinary municipal tax in 1,000 NOK per capita in 2011, with data from Statistics Norway. In the municipal audit fee determinants literature taxes per capita is often used for explaining the demand for audit in order to make the municipality accountable for using the citizens' and taxpayers' resources (Copley *et al.*, 1995; Ward *et al.*, 1994). In some countries, such as in Sweden, the municipalities may levy local taxes and set tax rates locally. There is little room for varying the municipal tax in Norway. Moreover, in the municipal grant system, there is a national redistribution mechanism for equalizing the income levels between the municipalities such that no municipality is totally dependent on local taxes. Therefore, the local tax base is seemingly unimportant for explaining municipal audit costs in Norway. Empirical studies have, however, found significant positive (Johnsen *et al.*, 2004) and negative (Collin *et al.*, 2017) relationships between local taxes and municipal audit fees in Norway and Sweden, respectively. One could expect that populations that pay much municipal tax would show high interest in how this public money is spent in order to possibly reduce the total burden, for example by reducing other taxes (on property), user charges and audit fees. Municipalities that levy little local taxes may demand much audit in order to legitimize that they still warrant the other resources or grants. We expected municipal taxes to be negatively related to audit costs.

We measured municipal financial surplus/deficit as average net operating results after interests and mortgages as a percentage of total operating incomes (net operating results margin) 2008–2010. Municipal financial surplus/deficit may determine the need for monitoring and audit. Little slack resources may increase the demand in order to manage the resources prudently and hence increase audit costs. Alternatively, auditors may be inclined to charge 'rich' municipalities more than 'poor'. We expected average net operating results margin to be positively related to audit costs.

We measured the level of debt as average debt 2008–2010 in 1,000 NOK per capita. The burden of debt may pose financial risk for the municipality. Both creditors and citizens could therefore demand audit in order to verify the municipality's financial management (Baber *et al.*, 1987). A high level of interests and repayment of debt may also take resources that otherwise could have been used for service provision or saving. We expected the level of debt to be negatively related to audit costs.

Organizational structure often concerns degree of specialisation, hierarchical levels (management levels), and administrative span of control and affect task dependence as well as transparency and hence the need for audit and control. Following Collin *et al.* (2017) we measured the political specialization as number of standing political committees. We measured management levels as number of levels between the chief administrative officer and the operating managers. The management level variable varied from 1 to 5, where 1=0 levels, 2=1 level, 3=2 levels, 4=3 or more levels, and 5=varying levels between the different service areas. We measured the administrative span of control as the number of administrative units reporting directly to the chief administrative officer. Data for the number of standing political committees, administrative levels, and span of control were obtained from the Municipal Organization Database 2012 (Blåka *et al.*, 2012), question number 10, 18c, and 18a, respectively. We expected a complex organizational structure with many political committees, many hierarchical levels, and a broad span of control, to be positively related to audit costs.

Non-response and missing data

We analysed the pooled administrative and survey data (N=429) for whether the data were missing completely at random (MCAR). Little's MCAR test result showed that the data were not missing randomly (Chi-Square = 227.339, DF = 108, sig. = .000). The administrative data were nearly complete with only 2.6 per cent of the audit cost data missing. The four variables that used survey-based data from the municipal organization database, however, had missing data from 18.4 to 23.8 per cent. The capital Oslo has functions both as a municipality and a county and is more than two times bigger than the second biggest city (Bergen). In order to keep the data as comparable as possible, Oslo was therefore omitted from the analysis. Moreover, there were some municipal amalgamations prior to 2012, which resulted in some missing trend data for these municipalities. These municipalities, and other municipalities with missing data, were omitted from the analysis. Due to the low response rate for survey data on audit costs in 2012 we decided to use administrative data with higher response rate for audit costs for the majority of the analysis. We used our survey data regarding the organization of the audit. Therefore, the procedure of pooling the administrative and survey data, without resorting to replacing missing values with mean, gave a usable sample of 312 municipalities representing 72.7 per cent of the 429 municipalities in 2012.

Table I here

Table I reports descriptive statistic for some political-administrative variables for the non-responding and responding municipalities. The municipalities in the usable sample had lower audit costs per capita, had less outsourcing, were on average bigger, and were less central, than the non-responding municipalities. There were proportionally fewer small municipalities in our usable sample than in the population but given the high number of small municipalities remaining in the usable sample, we assess the usable sample as suitable for studying the relationships of interest for this analysis.

[Table II here]

Table II reports descriptive statistics for the variables in the usable sample. Common rules of thumb imply that skewness above +/-4 and kurtosis above 10 represent serious problems for non-normality. Visual inspection of plots and tests of normality of different

transformations indicated that transforming some of the variables improved the normality properties for these variables. Table II reports what we deemed to be the best transformations for these variables.

Analysis

Table III presents information on the municipal audit market in Norway in 2000 (four years before the deregulation in 2004 allowing contracting out), and in 2012 (eight years after the municipal audit reform). In 2012 there were even fewer municipalities (4) with in-house auditor than before. In 2012 six per cent of the municipalities had contracted private auditors, and six per cent of the municipalities had mixed inter-municipal co-operation and contracted a private auditor. The dominant organization of the municipal audit, however, continued to be some form of inter-municipal co-operation (87 %).

[Table III here]

In 2000, four years prior to deregulating the market, the mean municipal audit fee per capita was NOK 100 (N=306). Using the municipal price index with a factor of 1.615 for 2000–2012, the 2012-equivalent mean audit fee would have been NOK 161. Measuring the municipal audit fees in 2012 in the same way as Johnsen *et al.* (2004) measured the audit fees in 2000, gave a mean audit fee per capita in 2012 of NOK 131 (N=179). Therefore, the audit fee level seems to have declined 19 % in real terms after the deregulation of the audit market.

[Table IV here]

Table IV shows changes in audit fees in NOK per capita from 2000 to 2012 by organization of the audit for the 125 municipalities that provided data on audit fees in both the 2001- and 2013-surveys. (The 2000-currency has been deflated to 2012-kroner.) The three municipalities with inhouse municipal auditors had the biggest increase in mean audit fees per capita with nearly 40 kroner, but these municipalities did not necessarily have had to incur transaction costs. Those municipalities that had chosen contracting a private auditor either partly or fully had the biggest decrease in mean audit fees per capita.

A major limitation with this, and many similar studies of municipal audit fee determinants, has been the problem of missing variables. In particular, audit fees may reflect audit production costs well but hardly reflects administrative costs (in inhouse production) or transaction costs (in partnerships and contracting out). Such costs may typically constitute 1–5 per cent of total costs in public service provision (Hodge, 2000).

[Table V here]

Table V shows audit costs per capita by organization of the municipal audit in 2012. Note that audit costs include audit fees as well as costs for the municipal control committees and their secretariats, which are an important part of the transaction costs. Only four, mostly large municipalities (excluding the capital Oslo, which also had inhouse municipal audit) had inhouse production of the audit. The four large municipalities with inhouse audit seem to have utilized economy of scale well in so far that their average audit costs were well below the level for those municipalities that had chosen other

organizational forms. Municipalities that chose to contract a private auditor had on average higher audit costs per capita than those municipalities that chose inter-municipal co-operation. The second lowest costs accrued to those municipalities that chose a mixed solution of inter-municipal co-operation and contracting with private auditors. Many factors other than organizational form could impact costs, however. The multivariate analysis below incorporate some of these factors.

A bivariate correlation analysis (not reported here) for the variables showed that municipal population and gross municipal income was highly correlated. Only municipal population was retained and used in the multiple regression analysis. The highest bivariate correlation between any of the other independent or control variables was .46, well below the common threshold of .70, indicating little potential multicollinearity problems.

Table VI documents a multivariate analysis with an ordinary least square (OLS) multiple regression model of municipal audit fees per capita as dependent variable. We used a modified audit fee (cost) model with organization of the municipal audit and leftist representatives as independent variables, incorporating some political-administrative determinants in the municipal context as controls. The regression model explained much of the total variation, with an adjusted R squared of .66. The highest variance inflation index (VIF) was 2.6, which is below the common threshold of 5 which often are used to indicate multicollinearity.

[Table VI here]

Regarding the focal research problem for this study, how organizational form affects audit costs, the analysis shows that municipal co-operation and contracting a private auditor was significantly related to low costs ($p < .01$), corroborating hypothesis 2. Hypothesis 3 on the relationship between many leftist representatives in the municipal council and high audit costs was not corroborated as the relationship was significant ($p < .05$) but negative. In relative terms measured by the standardized regression coefficients (beta), organizational size measured as (log of) municipal population, had biggest and negative correlation with audit costs. Number of co-operating partners, political concentration (political concentration inverse), municipal taxes (one over square), and average net operating margin were also significantly related to audit costs.

We also performed robustness checks. Replacing municipal population (natural log) with gross municipal income (natural log) as indicator for municipal size reduced adjusted R square from .66 to .62 but did not change relationships noteworthy. We ran analyses with interaction terms, different data transformation of some of the variables and ran robust regression models without the six most influential observations (Cook's distances above 0.05 but note that Cook's distance above 1 is normally regarded as threshold for influential observations) that could potentially have conflated the results. These analyses gave consistent results for the hypotheses.

Discussion

The municipal audit fee level declined 19 per cent in real terms from 2000 to 2012, the deregulation of the audit market taking place in 2004. Correlation is not necessarily causation, but the multiple regression analysis gave results indicating that competition in the municipal audit market was related to low costs. It was not the contracting of

private auditors in itself, however, that was most successful in achieving the lowest costs. The municipalities that chose a combination of co-operation and contracting private auditors were those who realized the biggest decrease in audit costs and had low costs eight years after the reform. This finding gives credence to the notion of plural forms (Bradach and Eccles, 1989), that contracting out or producing inhouse is not necessarily an either-or question but often involves partial contracting out (Leiren *et al.*, 2016). The findings also give credence to the notion that contracting out is a complex endeavour and must be tailored to local circumstances (Bovaird, 2016).

There are several additional factors that may have affected the content and quality and hence the costs of the audit in the period studied (2000–2012). For example, changes in municipal amalgamations and organizational structures, municipal regulations and tasks, information technology, the training and competence of the auditors, and developments in the audit market could have affected both governance structures and costs. The option of contracting out, introducing some competitive forces, even though each and every municipalities did not have to contract a private (external) auditor, may nevertheless have contributed to a downward pressure on the cost level. This reduced cost level may have come partly from increased efficiency due to competition between inhouse production and outsourcing and the threat of outsourcing, but also from better utilisation of economy of scale due to concentration in the inter-municipal audit co-operation during the period. (From 2000 to 2012 the number of municipal auditors serving two or more municipalities decreased from 73 district auditors in 2000 to 41 jointly owned or inter-municipal co-operative auditors in 2012, and the average number of municipalities per auditor in these inter-municipal co-operative audit arrangements increased from 5.8 in 2000 to 9.3 in 2012.)

By 2012, 20 percent of the municipalities had used a contracting out process in the organizing of the municipal audit, and some had gained experience from two rounds of contracting out since 2004. Only 53 municipalities (12.4 %) of the 429 municipalities in the population had, however, contracted a private auditor in 2012. Assessing transaction costs is difficult and market contracting is risky. Brown and Potoski's (2003) empirical analysis of US municipal and county government in 1997 showed that most governments choose the safest alternative of internal production. Our data corroborate their conclusion, but the Norwegian municipalities, were many are small, chose inter-municipal audit co-operation instead of inhouse production.

Johansson (2008, p. 259) argued, based on empirical studies of contracting out in Swedish municipalities that it was not 'contracting out in itself, rather than alignment, that is the important factor in explaining economic efficiency'. The notion that using the market involves risk and transaction costs in addition to audit fees, may explain why many municipalities did not undertake contracting out or commissioned private auditors, despite this option seemingly having lower costs in many cases. There might therefore have been some misalignment in this market.

Sweden and Norway have different arrangements for their municipal audit, but interestingly Tagesson *et al.* (2015) found that in 2010, 72 % of a sample of Swedish municipalities awarded their professional audit to the audit firm that gave the lowest price in the tender. In Norway a majority of the municipalities had not contracting out the municipal audit, and the use of contracting out in the municipal audit seemed to have levelled out at about 20 per cent of the municipalities. Therefore, there still seems

to be a potential for reducing audit costs in this sector, given that contracting out in itself does not violate audit quality or auditors' independence. The financial consequences of misalignment in the organization of the municipal audit may, however, be modest for many municipalities in Norway, in particular for the small municipalities. If contracting a private auditor reduces audit costs in the magnitude of 48 NOK per capita, an average municipality of 11,700 inhabitants could have gained ca. 561,600 NOK in 2012 (ca. 62,400 Euro). Political and administrative costs for realignment could easily offset this gain, at least in the short term.

Municipal audit being a professional service should indicate that other issues than low costs also are important in the organization of this service, typically audit quality, specialization and independence. There are examples of low quality in private audit firms' audit of municipal accounts, at least from Sweden in the early 2000s (Tagesson and Eriksson, 2011), and the big four accounting firms are regularly involved in accounting scandals in the international audit market. Moreover, some private auditors specialize in public sector accounting and possibly consulting. One example being PwC in Sweden that acquired a municipal audit firm (Komrev) which gave PwC a large share of the municipal market based on specialization and extensive municipal experience (Tagesson *et al.*, 2015).

Finally, regarding independence, the dividing line is not between inhouse and external auditors, or between public or private auditors, but concerning the competence of the specific auditors and their integrity relative to other interest, for example avoiding 'rocking the boat' in order for selling lucrative consulting in the same market. Audit that gets the public's attention, is often 'bad news'. This bad news may reflect negatively on the municipal's management and politicians at large. Audit information may therefore not pay off for the parties in the next election, and hence audit will be demanded less and costs decrease when there is much political competition. Therefore, low audit costs are just one dimension in the overall judgement regarding how to (best) organize the municipal audit. Nevertheless, being significant and sometimes substantial costs differences dependent on the organization of the audit, contracting out is still an important issue in public policy and public management practice.

Conclusions

The introduction of contracting out in the municipal audit market in Norway in 2004 seems to have contributed to a reduction in audit fees eight years after the deregulation, compared to the situation four years before the deregulation. Those municipalities that chose a combination of contracting a private auditor and some form of inter-municipal co-operation, achieved the lowest costs. Rehearsing one of the core administrative doctrines in NPM of using competitive forces and decentralization, allowing local freedom in organizing public sector services, the inherent message and important action is not necessarily to tender private producers instead of having inhouse or joint public organization production, but assessing alternatives and adapting the organization to local circumstances. Therefore, introducing the option of contracting out, in particular using plural forms involving both inter-municipal co-operation and some contracting with private auditors and not necessarily choosing external, private auditors only, seems to be related to cost efficiency in this market. More research, however, is needed on the impacts on audit quality and auditor independence.

The results from the analysis of the municipal audit reform in Norway is interesting in

several ways, also for public management in other countries. First, this study, analysing the organization of the service provision, contributes to the study of determinants of audit costs. Moreover, municipal audit is a professional service with economy of scale in some of the service production, in particular in the financial audit, and a high degree of asymmetric information. The analysis and results are therefore also generalizable to many other professional services, addressing the bigger question on how public sector organizations might be better organized in order to provide effective and efficient public services, independence, and accountability. Finally, the analysis of the effects of the reform introducing contracting out of municipal audit, is relevant for the bigger question on the effects of NPM-reforms and in particular whether public sector reforms such as contracting out improve service delivery in the longer run. By introducing the option of contracting out rather than compulsory tendering this financial management reform may be regarded as a 'success story' both politically and economically. The municipalities have got more choices in organizational design, costs have decreased, and local political autonomy has been preserved.

There are limitations in the analyses in this study, that future research could address. This study has not studied the level of audit quality and the conclusions refer only to cost. Auditor's identity, experience and size, number of tenders in the competitions, the quality of the audits, and the content of the audit for example with respect to emphasis on performance audit, are all factors that may affect the costs and could be included in future research.

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Tables

Table I. Analysis of non-response and usable sample 2012 (N=427)

	N		Mean (s t a n d a r d d e v i a t i o n i n p a r e n t h e s i s)		Minimum		Maximum	
	Non- response	Sample	Non- response	Sample	Non- response	Sample	Non- response	Sample
Audit cost per capita 2012, NOK	105	312	196.35 (149.28)	177.01 (138.68)	4.1	10.17	786.00	942.56
Outsourcing municipal services 2012	15	312	0.20 (0.11)	0.15 (0.13)	0.07	0.00	0.40	0.73
Municipal population 1.1.2013	116	312	9536 (26359)	10616 (18136)	500	209	267950	179692
N o n - c e n t r a l municipality 2008	116	312	0.44 (0.50)	0.48 (0.50)	0	0	1	1
Leftist representatives 2011	115	312	0.32 (0.15)	0.35 (0.14)	0	0	0.65	0.87
Average net operating margin 2008–2010	114	312	1.97 (3.23)	1.98 (3.44)	-6.17	-6.93	20.67	25.1

Note: The capital, The Municipality of Oslo, has both municipal and county functions and was excluded from the analysis.

Table II. Descriptive statistics (N=312)

	Mean	St.dev	Min	Max	Skewness	Kurtosis
Audit cost per capita 2012	177.01	138.68	10.17	942.56	2.24	7.06
Municipal co-operation and contracting a private auditor 2012	0.13	0.33	0	1	2.28	3.21
Outsourcing municipal services 2012	0.15	0.13	0	0.73	1.18	1.9
Municipal population 2013	10616	18136	209	179692	5.04	34.38
Municipal population 2013 (LN)	8.57	1.13	5.34	12.1	0.34	-0.04
Non-central municipality 2008	0.48	0.5	0	1	0.09	-2
Number of co-operating partners 2012	9.79	7.2	0	26	1.04	0.35
Leftist representatives 2011	0.35	0.14	0	0.87	0.17	0.17
Political concentration HI 2011	0.28	0.1	0.14	1	3.39	19.3
Political concentration HI 2011 (inverse)	3.93	0.99	1	7.36	0.01	0.4
Gross operating income 1000 NOK 2012	73945 8	1.17E+06	36497	1.16E+07	5.18	35.65
Gross operating income 1000 NOK 2012 (LN)	12.97	0.96	10.5	16.27	0.58	0.35
Taxes 1000 NOK per capita 2011	140.3	48.19	87.05	539.94	4.43	27.58
Taxes million NOK per capita 2011 (1/square)	0.06	0.02	0	0.13	0.11	0.26
Average net operating margin 2008–2010	1.98	3.44	-6.93	25.1	2.73	14.39
Net debt 1000 NOK per capita 2011	48.39	20.82	-22.05	123	0.48	1.67

Political committees	2.76	2.07	0	10	0.84	0.97
Management levels	2.27	1.36	1	5	1.03	-0.13
Administrative control span	13.31	15.89	1	215	7.35	84.26
Administrative control span (LN)	2.26	0.77	0	5.37	0.34	0.27

Table III. The municipal audit market in Norway 2000 (N=409) and 2012 (N=429)

	2000		2012	
	N	Percentage	N	Percentage
In-house municipal auditor	9	2%	5	1%
District auditor/Co-operation with other municipalities	400	98%	371	87%
Contracting private auditor	-	-	26	6%
Municipal co-operation and contracting a private auditor	-	-	27	6%
	409	100%	429	100%

Sources: Survey data and data provided from the Norwegian Association of Municipal Auditors. Data for 20 municipalities are missing for 2000.

Table IV. Changes in audit fees per capita from 2000 to 2012 (NOK) (N=125)

	N	Change in mean audit fees per capita, NOK	Std.deviation
Inhouse municipal auditor	3	39.92	24.13
Co-operation with other municipalities according to the Municipal Act §27	11	-6.55	40.64
Co-operation with other municipalities through joint ownership of a municipal corporation	88	9.87	54.25
Contracting a private auditor	7	-12.25	38.90
Municipal co-operation and contracting a private auditor	16	-23.85	37.83
Total	125	3.59	51.32

Source: Survey data.

Notes: 2000-kroner deflated to 2012-kroner.

Table V. Audit costs per capita by organization of the municipal audit in 2012 (N=417)

	N	Per cent	Mean audit cost per capita, NOK	Std.deviation
Inhouse municipal auditor	4	1.0%	124.94	82.87
Co-operation with other municipalities according to the Municipal Act §27	85	20.4%	177.08	120.13
Co-operation with other municipalities through joint ownership of a municipal corporation	276	66.2%	193.60	144.34
Contracting a private auditor	26	6.2%	141.42	194.70
Municipal co-operation and contracting a private auditor	26	6.2%	122.46	96.18
Total	417	100.0%	181.88	141.49

Source: Statistics Norway on audit costs, survey data on organization.

Table VI. Multiple regression (OLS) of municipal audit costs per capita in 2012 (N=312)

	Coefficient	Standard deviation	P-value	Standardized coefficient (beta)
Intercept	1080.35	58.01	<.001	
Municipal co-operation and contracting a private auditor 2012	-31.68*	15.6	0.043	-0.08
Outsourcing municipal services 2012	35.87	37.63	0.341	0.03
Municipal population 2013 (LN)	-83.48**	6.5	<.001	-0.68
Non-central municipality 2008	4.48	10.78	0.678	0.02
Number of co-operating partners 2012	1.55*	0.74	0.036	0.08
Leftist representatives 2011	-96.22*	38.38	0.013	-0.1
Political concentration HDI 2011 (inverse)	-32.74**	5.46	<.001	-0.23
Taxes in million NOK per capita 2011 (one over square)	-1016.53**	232.68	<.001	-0.16
Average net operating margin 2008–2010	4.19**	1.49	0.005	0.1
Net debt 1000 NOK per capita 2011	-0.13	0.24	0.594	-0.02
Political committees	0.66	2.57	0.798	0.01
Management levels	-3.63	3.47	0.297	-0.04
Administrative control span (LN)	9.36	6.7	0.164	0.05
R ²	0.68			
Adjusted R ²	0.66			
F-value	48.30**			
F-value significance	<.001			
Highest VIF	2.60			
Highest Cook's distance	0.25			

Notes: **Correlation significant at the 0.01 level (2-tailed). *Correlation significant at the 0.05 level (2-tailed).

Municipal co-operation and contracting a private auditor is a dummy variable based on a survey question regarding the organization of the audit, where 'contracting a private auditor' and 'combination, including contracting a private auditor' was coded '1', else '0'.