Does dispersed public ownership impair efficiency?
Corporate governance versus political economy

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Abstract:
Corporate governance theory suggests that companies with dispersed and indirect ownership suffer from agency losses and inferior performance. A ‘worst case’ is where several political authorities own a company. In political economy, the problem is not the manager-agent, but politicians who impair efficiency to improve re-election prospects. Since politicians have lesser influence in inter-municipal firms, such companies are expected to have better performance than companies owned by a single public authority.

We compare companies with one and several municipal owners. Dispersed municipal ownership appears to have little effect on cost-efficiency in municipal refuse collection. This could imply that both hypotheses should be rejected, or that beneficial and detrimental effects of active political ownership cancel each other out.
Introduction

The inter-municipal company is an attempt to take advantage of economies of scale. Small authorities are often unable to exploit economies of scale in local infrastructure, while proposals to consolidate local authorities face intensive local resistance. The inter-municipal company is owned by two or more neighboring municipalities. Such firms can take advantage of economies of scale in infrastructure sectors like refuse collection and disposal, water supply and sewage treatment, and electricity distribution.

According to corporate governance theory, such companies suffer from a double weakness. First, indirect ownership yields inferior performance relative to direct ownership. Public ownership implies that all voters have a share in the company, which is an extreme level of dispersed ownership. Since individual voters are unable to take care of their ownership directly, ownership rights must be exercised through elected representatives. Second, dispersed ownership creates a collective action problem, which can lead to a loss of ownership control and inferior performance. Inter-municipal companies may therefore have lower cost efficiency than companies owned by a single local government. In principle, the efficiency gains related to scale economics could be smaller than the efficiency loss due to multiple owners.

Political economy has a completely different story. Where corporate governance theorists consider active owners to be an asset, political economists see the active politician-owners as a liability. Voters are unable to oversee their elected politicians. Politicians can therefore interfere in the management of the municipal company to cater for interest groups or important groups of voters. Voter-owners may therefore benefit from constraining their elected representatives. Our conjecture is that the management in companies owned by several municipalities is more independent than companies owned by a single municipality. Inter-municipal companies can have superior cost efficiency relative to firms owned by one political authority.

The current paper explores these propositions by means of data on Norwegian local government. In the ensuing section, we elaborate on our theoretical perspectives on
companies owned by one or more public authorities. In section 3, we describe the institutional setting. In section 4, we outline the research design and present empirical results on the role of ownership on costs and user fees for refuse collection.

Corporate Governance versus Political Economy

Since the early 1990s, there has been a marked interest in issues related to corporate governance in both public and private sector settings. Its basic premise is that a runaway management weakens company performance, and that active owners are desirable to sustain efficiency and profitability. On the other hand, political economy suggests that active politician-owners are the essence of the problem, not the solution. We provide a brief review of these theories, and suggest a way to discriminate empirically between the two conflicting propositions.

Corporate governance theory

Agency theory forms the benchmark model of corporate governance. Delegation of ownership rights may improve performance if agents are more competent than principals, but delegation may also entail a loss of control. Concentrated ownership strengthens incentives to oversee company management, which is expected to yield a positive net effect on performance.

First, dispersed ownership means that each owner has a weak incentive to monitor the performance company leaders. Lack of collective action among principals leads ownership to become separated from control (Fama and Jensen 1983:309). Second, owners will search of institutional alternative that compensate for lack of monitoring of company management. One such mechanism is economic incentives. Yet, multiple owners do not necessarily have identical interests, which create a common agency problem. Since incentives to reach one goal may undermine other goals, the overall result may easily be diluted incentives. Dixit (1997) suggests that public agencies must answer to more constituencies than do privately owned organizations. Finally, corporate governance theory observes that government ownership represents a polar case of dispersion. Even in relatively small local governments, ownership controls
must be delegated to administrators. All citizens have ownership rights, but very few have control rights. Since administrators can have goals that differ from the goals of the owner-citizen, publicly owned companies are expected to perform relatively poorly (Shleifer and Vishny 1997).

The worst scenario is one of combined indirect and dispersed ownership. One such example is the case where numerous institutional investors (pension funds, insurance companies, etc.) own an entire private company. Another example is the case considered here: multiple political authorities (municipalities) exercise ownership rights on behalf of their citizens. Corporate governance theorists suggest that inter-municipal companies should have the weakest performance of all institutional creations.

Political economy theory

In principle, we would not expect elected politicians to behave differently than private owners in their management of publicly owned companies. Inferior performance would imply higher costs than necessary, which would lead to higher taxes or lesser revenue available for other political purposes. In other words, a politician should seek minimal costs for a given service output and quality to maximize electoral support.¹ When citizens are unable to oversee their elected representatives, politicians can get additional voter support by deviating from efficient operation of the company. Active political ownership may therefore undermine profitability and cost efficiency in publicly owned companies (Shleifer and Vishny 1994; Boyco, Shelifer, Vishny 1996).

Consider a publicly owned firm. Excess employment is one important source of inefficiency. Local politicians have an incentive to intervene in the operation of the company for the benefit of its employees, as they are more likely to support incumbent parties that protect the firm.² On the other hand, inefficiency diminishes

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¹Hart, Sheifer and Vishny (1997) suggest a model based on incomplete contracts where firms can use resources to improve quality and reduce costs. Private firms have stronger incentives to improve both quality and costs. Since contracts are incomplete, a private producer are likely to reduce costs too much as he ignores the impact on non-verifiable aspects of service quality. A publicly owned firm may have higher unit costs as it takes potential effects on quality into account.
²It is not clear whether integrated service provision or an independent municipal firm yields the more cost efficient service provision. Shirley (1999) suggests that the efficiency gain of establishing independent government owned firms require that governments be prepared to privatize the firm as
the profitability of the publicly owned firm, which reduces the welfare of other groups of voters. These voters are unlikely to be informed and concerned about their loss of profitability in a government firm.

Consider a privately owned firm. In a competitive environment explicit subsidies must be used to maintain excess employment. Voters not employed by the private firm are likely to become informed and alarmed about cash transfers. This reduces or eliminates the political gain of surplus employment in a privately owned firm.

In the current context, a public authority purchases services from a publicly owned firm. This means that ‘invisible profits’ and ‘visible subsidies’ are less relevant. In either case, inefficient service provision leads to higher taxes or fees, or fewer resources are available for providing other public services. Suppose one municipality is the sole owner of a company. When information problems hinder electoral controls, elected politicians can be tempted to purchase from the firm even if it is less than efficient. Incumbent politicians can gain votes from company employees without loosing voter support from other citizens.

Compare this situation with one where the company is owned by two or more municipalities. Suppose that facilities have been located in one of the municipalities to minimize costs. Politicians elected this municipality may ask for excess employment to further their re-election prospects. Those from other municipalities are likely to oppose such initiatives. When decisions are made with majority voting in the general assembly, proposals that will harm efficiency is not likely to get majority support. This presupposes that a dominant owner is incapable of exploiting the others for its particular political purposes. In other words, governmental intervention entails higher transaction costs under inter-municipal ownership than under a single municipal owner (Sappington and Stiglitz 1987). In direct contrast to corporate governance theory, the inter-municipal company should to be more efficient than companies owned by one municipality only.

well. If not, governments are not prepared to lay off employees, cut subsidies and implement the necessary restructuring of the company.

3The research design could be improved by data on the size distribution of ownership rights, and details about voting rights in the general assembly.
Empirical studies on public ownership

Ownership dispersion has been studied extensively in the corporate governance literature. Becht, Bolton and Röell (2003:63) have identified several generations of empirical research that addresses this hypothesis. Most show that profitability is higher in owner-controlled companies and family-owned firms (e.g. Bøhren and Ødegaard 2005). Other studies use indicators of ownership dispersion, and most reject the hypothesis that dispersion leads to inferior performance.

Empirical studies related to the board of directors have often produced inconclusive results. The essential message appears to be that boards are an inefficient substitute for active and concentrated ownership. They are commonly seen as inefficient supervisors of the CEO, sometimes even “captured” by company management. As for other governance mechanisms such as hostile takeovers, large shareholders and CEO incentives, corporate governance research have not reached very robust results (Becht, Bolton and Röell 2003:83)

A large literature addresses the impact of public and private ownership in situations with monopoly and competition. For example, Savas (2000) asserts that the best way of organizing garbage collection is to divide the jurisdiction into appropriate sections, and organize competitive bidding for the sections from private firms and municipal agencies. The meta-study of Domberger and Jensen (1997) suggests that most frequently reported cost reductions from contracting out are in the interval of 10 to 30 percent. This appears not to result from reductions in wage levels, but from a broad set of managerial initiatives to improve cost performance. Waste collection has probably been studied more extensively than any other service. For example: Gomez-Lobo and Szymanski (2001) investigate U.K. local authorities refuse collection contracts, and find that a higher number of bids are associated with significantly lower cost of service. In the Dutch case, Dijkgraaf and Gradus (2003) find that contracting out yields cost savings of about 15-20 percent.

Competition does often – but not always - dilute efficiency differences between public and private firms. For example: In the Danish dental sector, Andersen and Blegvad (2006) observe no differences in cost-efficiency or effectiveness between public and private producers. Hjalmarsson and Veidepass (1996) analyze regulated local
monopolists providing electricity distribution in Sweden. This study reveals no significant differences in efficiency and productivity growth between private and public companies. Caves and Christensen (1980) compare two large public and private railroad companies in Canada, which competed over many routes. Initially, the private company had higher productivity than the public company. These differences were soon eliminated, and productivity differences disappeared. Borcherding, Pommerehne and Schneider (1982), Domberger and Jensen (1987), and D'Souza and Megginson (1999) provide further evidence and extensive reviews on the impact of public and private ownership.

Dubin and Navarro (1988) provide a rare example of empirical research on the political economy of government ownership. They analyze alternative governance systems of refuse collection in the US setting. They argue that a proper specification of the cost functions – particularly the role of density – is important for assessing the role of alternative systems of garbage collection. Their analysis suggests that private market organization (no government regulation of refuse collection) is significantly more costly than contracting, franchise or municipal provision (see also Vining and Boardman 1992). This system fails to take into account economies of density in garbage collection. Both municipal provision and contracting is more efficient than private market organization, while franchise is in between (Dubin and Navarro 1988:233).

What is striking is the almost total lack of research addressing performance differences between organizations operating within the public sector (Dunsire et.al. 1998:368). In light of the conflicting theoretical propositions outlined above, it is particularly remarkable that no empirical study has analyzed the performance of companies with more or less dispersed public ownership.

Refuse collection in Norwegian local government

Governments are increasingly providing public services by means of publicly owned companies, usually to improve efficiency (Sørensen and Bay 2002). National
governments own companies in to provide postal services, telecommunications, electricity, and public transportation. In local government, number of companies has increased considerably in the infrastructure sectors. Municipal companies distribute electricity in local and regional networks, provide parking facilities, manage municipal properties, operate ports, provide water and sewage, and collect, handle and dispose household and business waste. Number of companies owned by Norwegian local authorities has increased from 1560 companies in 1999 to 2203 in 2004. Numbers of firms that are independent legal entities have increased from 773 companies in 1996 to 1728 in 2004.

Similar to other countries (Dunsire et.al 1988: 366-7), local governments in Norway have established companies to take advantage of scale economies. They set up traditional limited liability companies, which are owned by one or more municipalities, or owned together with one or more private shareholders. The entity called the inter-municipal corporation has unlimited liability, and can only be owned by two or more local governments. Number of inter-municipal companies has increased from 7 in 1996 to 206 in 2004.

The empirical analysis employs data about refuse collection in Norwegian local government. Local government comprises the 434 municipalities and 18 counties. Local elections to municipal and county councils are held every four years in between national elections. The current analysis uses data about municipalities only. Municipalities have responsibility for the establishment and operation of kindergartens, primary schools, health centers/primary health services, social welfare, culture (cinema, sports, music schools, etc.), some clerical functions, communication (municipal roads), infrastructure services (water works, sewers, refuse collection and disposal), planning and construction, industry development, and operation of public utilities and tax collection.

Tax revenues account for 45 percent of municipal revenues. Most of the tax revenues are collected as a proportional payroll tax, i.e. as income taxes. Central government

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4 Local governments can operate agencies as part of the municipal core organization, or establish particular agencies with boards and which have unlimited liability.

5 Oslo, the capital, is left out of the analyses, since it is both a municipality and a county.
stipulates the minimum and maximum levels of tax rates. Block grants and earmarked
grants account for most of the other revenues. Exogenous (per capita) revenues
include block grants plus regulated income taxes.

Municipalities collect user fees as well. In the refuse sector, fees are legally required
to cover the costs of providing the service (PPP: “Polluter pays principle”).
Nevertheless, the local governments have considerable discretion in how they
stipulate unit costs of collecting and handling refuse. Local governments may choose
to subsidize refuse collection as a hidden reduction in taxes, or local governments
may use the fees to finance other government services like education or health care.
Note that voters have information about fees, not actual unit costs.

The impact of dispersed ownership on costs and user charges

Garbage collection is a relatively simple production activity. Households and firms
leave their garbage at collections points and the service operators transport the
garbage to disposal sites. Service operator basically needs drivers, loaders and
collection vehicles. The cost of garbage collection depends on several factors such as
regional characteristics (e.g. density of collections points), service specifications (e.g.
sorting of garbage, frequency of collection,), productivity of labor and capital, and
input prices.

We assess the importance of number of owners in inter-municipal companies and in
companies owned by one municipality only. The empirical analysis relies on data
from a survey questionnaire to municipal agencies responsible for the refuse sector in
the municipalities. The questionnaire was designed for this project and all questions
were related to garbage collection. In June 2001 the questionnaire was sent to the
leader of the garbage collection unit in all local governments. After two reminders,
the response rate was 55%, which means that 236 of the 435 local governments had
returned the form. The sample is unbiased with respect to population size, local
government revenue and urban centrality. In table 1, we present relevant descriptive
statistics. The table comprises data about the use of competitive tendering in the
refuse sector, population size, and shares of population living in sparsely populated areas⁶. To reduce the strain on the environment from the deposition of waste in landfills, local governments implemented sorting and recycling of domestic waste. Garbage sorting can be applied for a number of types of waste.⁷ The sorting index displayed in table 1 measure average number of sorting categories used by the municipality. Municipal revenues comprise block grants and taxes on income and assets. Due to the regulation of these tax rates and the fact that all municipalities have used the maximum rates for several decades, municipal revenues can be considered exogenous in this context.

Table 1 here

About half the companies are privately owned, and quite few are owned by both municipalities and private. At the other extreme, 9 percent of municipalities operate refuse collection be means of an integrated agency. Exclusively municipalities own the remaining companies, and most are inter-municipal companies.

Unit costs appear to be moderately low with one municipal owner, even lower with 2-4 owners, while costs again are higher with 5 owners or more. Use of private providers does not yield lower than average unit costs. Variations in user fees are much smaller than in unit costs, both between ownership types and in the aggregate. These statistics lend some preliminary support to the corporate governance hypothesis, i.e. ownership dispersion lowers cost efficiency.

Sorting of garbage in the households may increase costs of collection, but use of sorting does not vary with ownership. As to be expected, inter-municipal companies are often used when populations are relatively small and settlement is more dispersed. Long traveling distances could explain higher costs in municipalities using companies with numerous owners. Municipalities that operate companies with more than 8

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⁶ The population in sparsely populated areas has been defined by Statistics Norway, see [http://www.ssb.no/beftett_en/about.html](http://www.ssb.no/beftett_en/about.html)

⁷ The survey questionnaire requested information on sorting of a) paper waste, b) glass and metals, c) plastic, d) hazardous waste, e) garden waste, f) crude waste, g) electrical appliances, h) washing machines, i) refrigerators, freezers, medicines, j) clothing and shoes, and k) miscellaneous waste.
owners have relatively high municipal revenues, which also could account for low cost efficiency. Finally, the use of competitive tendering varies with ownership, suggesting that competition also could explain some of the variations in cost efficiency.

Based on the results in table 1, we estimate regression models for unit costs and user fees. We assess the impact of ownership types and ownership dispersion controlling for the factors displayed in table 1. Ownership dispersion is measured as number of municipalities and as dummy-variables. The regression estimates are displayed in table 2.

Table 2 here

Similar to previous studies, we observe that competitive tendering yields a cost saving of about 19 percent, while it yields a reduction of user fees of about 12 percent.\(^8\) Households receive about 60 percent of the competitive savings, while 40 percent is used for public purposes. Somewhat surprisingly, shares of population residing in sparsely populated areas may have a negative impact of costs and fees. The impact of population size and settlement pattern is relatively small, which is in line with previous studies (see review in Dijkgraaff and Gradus 2003: 153-154). Levels of municipal revenue have a significant positive effect on unit costs: a one percent increase in per capita revenue increases costs with 0.9 percent. Comparable results have been obtained for other public services in Norway, including health care (Hagen 1997), education (Borge and Naper 2005). Similar results have also been obtained in the Swedish case (ESO 1996). Affluence breeds inefficiency.

Higher levels of revenue have a small, yet positive, effect on user fees as well. A third of the cost increase is passed on to the service users. Other studies on the use of user charges in Norwegian infrastructure sectors suggest that local revenue impacts negatively on total infrastructure fees\(^9\) (Borge 2000). Outside the refuse sector, fees

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\(^8\) Monkerud and Sørensen (2004) present supplementary analyses that make adjustment for potential selection bias. The results do not deviate substantially from those presented here.

\(^9\) Total fees includes water supply, discharge of sewage, garbage collection and chimney sweep for a standard home.
are apparently used as a substitute for ordinary taxes. In the refuse sector, revenues decrease efficiency and induce municipalities to raise fees.

In table 2, types of ownership appear to have weak effects on unit costs and fees. Private as well as mixed public and private appear to have somewhat higher unit costs than the independent municipal corporation with a single owner (reference category in the regression). These effects are not significant at conventional levels.\(^\text{10}\) Ownership type has very small effects on for user fees as well. Combined ownership may lead to lower user charges than other organizational forms. Furthermore, number of owners of inter-municipal firms has no significant effect on unit costs (model I). When numbers of owners are measured by dummy-variables (model II), we find no systematic effect of number of municipal owners. The fee regressions yield similar results (models III and IV).

We suggest two interpretations. First, we may reject both corporate governance and political economy theories. Dispersed ownership is simply irrelevant for cost efficiency in publicly owned corporations. Use of competitive tendering and local government revenue levels are relevant political factors, not ownership type or number of owners in the public company. Second, the effects due to corporate governance and political economy may cancel each other out. A single government owner may take some initiatives that inhibit efficiency while others promote efficiency. Both types of interventions become less frequent as number of owners increase. Therefore, the ratio of ‘good’ and ‘bad’ political proposals cancels each other out independently ownership dispersion. To assess this interpretation empirically, we need data on how government owners exercise their ownership rights, and the extent to which active government involvement in company affairs impair or improve efficiency. Not only would such research bring valuable insight on the effects of dispersed public ownership; it would also advance our understanding of why elected politicians attempt to influence the management of publicly owned firms.

\(^{10}\) In additional analyses (not presented), we included an interaction term between ownership dispersion and use of competitive tendering. We found no support for interaction, which implies that ownership dispersion and types do not impact differently under monopoly and competition.
Conclusion

The issue addressed here is whether the manager-agent or the politician-principal explains lack of efficiency in government companies. The corporate governance argument suggests that dispersed and indirect ownership weakens ownership controls, leading to agency losses and inferior performance. In political economy, additional problems arise since citizens have imperfect control of their elected politicians. Politicians may weaken company performance to improve re-election prospects. Elected politicians have lesser influence in inter-municipal firms, and such companies are expected to have better performance than companies owned by a single public authority.

The empirical analysis presented here suggests that dispersed public ownership appears have little effect on cost-efficiency. This finding departs from mainstream corporate governance research, and speaks against the political economy hypothesis as well. The possibility remains that beneficial and detrimental effects of active political ownership cancel each other out.
References


