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# **Marketization in space: Local and Regional Effects on Marketization in Denmark**

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## **Abstract:**

New public economics has introduced a set of new measures in the provision of public services through outsourcing of the provision to the private sector. This article focuses on the spatial context and relevance of these measures. The hypothesis is that spatial structures like market size and market structure are vital for the appropriateness of these measures. Using panel data for Danish municipalities for the period 1995 to 2004, several fixed effects models for the extent of outsourcing by Danish municipalities are estimated. The results show that spatial structures are vital to the outsourcing propensities in the public sector. They furthermore indicate that different types of provisions of public goods and services should be subject to different designs of marketization. Using specific instruments of marketization for all kinds of provisions in the public sector will not work exactly due to the influence of spatial structures on organizational designs. Space matters for marketization. The present Danish geo-administrative system is under change with the formation of larger municipalities and the substitution of counties by larger regions. This points to the importance of these results with respect to both spatial upsizing and organizational downsizing embedded in this reform. Reforms in space may be powerful engines for marketization in space, but may equally hamper marketization in the public sector if designed inappropriately.

## **1. Introduction**

Europe has since the 1980's been under an increasing influence of the thinking associated with the new public economics. This has especially been associated with

the increasing emphasize of competition within the European Unions, while national governments have been more or less committed to the principles from the new public economics. Supranational and national bodies have therefore taken different stances in the questions on implementing the principles. The issue of local and regional consequences of the marketization resulting from the principles of new public economics will be at the heart of the present paper.

Local and regional government takes an important role in the Danish public sector. Over 35 percent of production was in 2001 allocated to the budgets of local and regional governments. This reflects a broad portfolio of tasks within public provision of goods and services taken care of by local and regional government, such as extensive service provisions within primary and secondary schooling, health care, care for the elderly and child care. Using the typology of Esping-Andersen (1999) is a Nordic welfare state with extensive welfare provision and where local and regional government take an important role. The delegation rate of lower geo-administrative levels is high in Denmark. With such a dominant role of local and regional governments in Denmark, the local and regional effects of reorganizing the public provision of goods and services becomes important. What caveats must be considered when implementing the principles of new public economics in an economy with a high delegation rate in the geo-administrative system? In a decentralized system of provision, it becomes important to observe spillovers and externalities on the organization of the local and regional provisions. It furthermore becomes important to consider the trade offs between production efficiency and allocative efficiency combined with the political goals embedded in the desire to pursue public provision.

The main focus will be the possible gains and dangers from the use of marketization for local and regional governments in a strongly decentralized economy like the Danish. What will be the decisive characteristics to reach efficiency in the local and regional public provision of goods and services? The hypothesis is that spatial structures are important for the propensity of local or regional authorities to use marketization. Local and regional effects become important for the use of marketization in the public sector will be that the social, demographic and geographic

characteristics will be important to the efficiency of market solutions. Marketization will not work equally well in scarcely populated areas or in areas with social problems. These characteristics may be perceived as imperfections in space preventing an efficient outcome from marketization. The present approach of testing these questions will through the use of panel data methods using data for the 275 (271) Danish municipalities for the period 1995 to 2004. The results show, that spatial structures are vital. The dependencies will though vary according to the type of public good or service provided through marketization. The complexities in designing marketization procedures is enhanced from this heterogeneity across goods and services.

Using market forces in public provision may entail a number of advantages. An often referred to is the presence of economics of scale. Large entities will provide goods and services more efficiently. A present reform of the Danish geo-administrative system makes such considerations prevalent. A reform will reduce the number of municipalities to 98. This will increase the average size of municipalities, thereby potentially facilitating a more efficient provision. From a marketization perspective, it becomes important to observe whether such reforms further the use of market forces or prevents such. Resizing the geo-administrative structures changes the benchmark but may not necessarily introduce more competition and market provision. It is therefore not straightforward to connect geographies of geo-administrative structures and market forces with efficiency, as such will interact and potentially lead to a dominance of one or the other in the outcome for local and regional economies.

Previous papers on the Danish local and regional provision of public goods and services have found a number of important results. Houlberg (2000) analyses the optimal size of municipalities as measured by population in five areas of operation: childcare, primary schooling, care for the elderly, road construction/maintenance and administration. These five sub-areas of operations cover over 70 percent of the total tax financed net expenses of municipalities and over 90 percent of the net expenses on public services provided by municipalities. The general impression from these regressions is that there seems to be gains to be recouped from increasing the size of

municipalities, although these savings are moderate from a national perspective – about a 0.7-0.9 percent reduction in expenses. This also seems to be a position taken by Mouritzen (1999). The results furthermore indicate that the optimal size of municipalities varies according to operational area. While the optimal provision of primary schooling and road construction/maintenance requires municipalities of over 100.000 residents, the corresponding optimal provision of childcare only requires about 16.000-30.000 inhabitants. The Ministry of the Interior (2000) find similar results indicating an optimal average size of municipalities of about 25.000-35.000 inhabitants. They are though more optimistic on the potential savings taking into account the variation in the sizes of municipalities. These contributions have used an approach focussing on total expenses by municipalities on different operational areas using ordinary least squares as their vehicle of analysis. There are no separate considerations with regards to marketization or the use of panel data analysis.

Christoffersen, Paldam and Würtz (2000) offer an analysis focussing on the virtues of marketization. Cleaning and maintenance within primary schooling is here analysed. The issue is the extent to which marketization leads to improved efficiency in this operational field of Danish municipalities. This issue is analysed through the use of survey data from Danish municipalities. The results can be summarized in three points. One is that 66.5 percent of the schools organized cleaning individually at each school, while 19 percent were organized by a central provider within the organization of the municipality. Only 14.5 percent of the schools used private companies for cleaning tasks. Another result is that there are economies of scale in all three types of organization with respect to the provision of cleaning and the final result is that privatized cleaning is the cheapest for schools above 2000 square-meters for any quality. Other authors have focussed on privatization issues within specific operational areas of Danish municipalities, see e.g. Blom-Hansen (2003), Jensen and Rasmussen (1997) and Kristensen (1983).

A final issue concerning the use of marketization in public procurement is the political preferences for using such measures in public provision of goods and services. Christoffersen and Paldam (2003) indicate that the diffusion of marketization in the

public provision of Danish municipalities can be blocked by “welfare coalitions”, if a large share of the population in the municipality receive income from the municipalities. They furthermore point to the importance of local peer-effects with marketization in local public provision following a diffusion process that spreads gradually in the geography and that diffusion may be influenced by the extent economic pressure experienced by municipalities.

This paper focuses on the spatial issues in using marketization in public procurement in the local provision of goods and services. Section 2 offers the theoretical point of departure for such an analysis and argues for the spatial importance of these theoretical mechanisms. Section 3 describes the measurement of outsourcing and the spatial structure in sub-regional Denmark, while section 4 presents an empirical model and results for marketization in space. A more detailed analysis is offered in section 5, where a typology of services is introduced to test the importance of spatial structures in marketization in different typologies of public provision in an elaborate welfare state like Denmark. Section 6 offers a discussion of the results and points to a future research agenda emerging from the results.

## **2. The Spatial Construct of Marketization**

Marketization takes place in space. It will therefore be importance to consider the heterogeneities in space influencing the use of marketization in local public procurement. The transformation of the public sector by use of marketization was especially outspoken in Britain during the 1980’s and later during the transition of Eastern Europe in the 1990’s. Using market powers through privatization, i.e. marketization has according to Vickers and Yarrow (1991) three shapes: 1) privatization of competitive firms, 2) privatization of monopolies and 3) contracting out publicly financed services, i.e. service contracts. More alternatives have emerged since like the use of public-private partnerships to ensure construction and operations by privates of a public service. Another is the use of quasi-markets described by Le Grand (1991), where vouchers are allocated to potential uses, upon which choice of service provider is free to the user. These different types of marketization are described by the transfer of ownership and the market structure.

Does marketization improve production efficiency in the provision of public goods and services? In terms of the minimum cost activity, i.e. production efficiency a number of arguments may be stated. Competition through marketization may alleviate problems of organizational risks in a Leviathan state, see e.g. Rauscher (1997). Privatization may be the response to the failure of public ownership, see Megginson and Netter (2001). Problem associated with soft budget constraints and the lacking of takeovers in public organization is pointed out in Kay and Thompson (1986). Soft budget constraint appear due to a public owner being the lender of last resort and takeovers renders mal performing organizations in danger of changes in management structures. Furthermore capital markets for private firms often require extensive monitoring and information flows from firms. Public ownership may furthermore lead to underinvestment in the public capital stock, as pointed out by Hulten and Persson (1984). These issues would all point to more efficiency in the provision in a marketized alternative to public provision. Vickers and Yarrow (1991) do though argue that hard budget constraints may equally well work in public organizations. The method of marketization is furthermore important. Public organizations may be privatized through mass or voucher privatization, which may lead to a very diverse ownership. This may at the one hand prevent renationalization, but could on the other hand lax the managerial requirements concerted by the private owners, see e.g. Brada (1996).

Another issue concerns the allocative efficiency. Using marketization in operational areas in the public organization that are described by natural monopolies will not promote efficiency. Such problems are especially prevalent for certain types of marketization, see Kay and Thompson (1986). It is not clear that goals of allocative efficiency are reached through the means of marketization. The issues of allocative efficiency may be seen as intertwined with political arguments. Building of a political economy, Epple and Romano (1996) point to a system consisting of both public provision and private supplements. Even so, strong political influences may lead to agency problems, if public ownership with strong political undertones leads to lack of exact goals of the public organization, which would contracts with the managerial

level incomplete with associated agency problems between owners and the managerial level.

The price and quality of the public provision should also be considered. Both price and quality describe goods and services. If there are considerable diversity in consumer preferences with respect to goods and services, it may be allocatively efficient to have public provision which is often described by a high degree of universalism. In a political economy with redistributive policies, the diversity in consumer preferences can on the other hand be used as a redistributive instrument, as described by Besley and Coate (1991). The nature of the good or service may also diverge in another important dimension. The provision of public goods must be distinguished from private goods. Allocative efficiency will clearly depend on this dimension of the goods and service potentially subject to privatization.

How do all these considerations interact in space? This is clearly a difficult question, as several vibrant mechanisms and instruments mix into this cocktail of marketization. The focus is at present on the influences on scale effects in space, which was at the heart of the hypothesis stated in the introduction. How do scale effects in space mix in? The first thing to note is that the instrumentation of marketization matters. Many of the privatizations one may envisage would render controls to private firms that would not be limited to supply within specific jurisdictions. Public provision may therefore be pursued by the same firm across several geo-administrative entities. In the presence of economics of scale, this should itself lead to production efficiency. A number of other matters within production efficiency have to be taken into account, when going into space. One concerns the presence of specific competences in the organization. Privatization may lead to a provision by larger private organizations not limited to a specific jurisdiction, and these private organizations may embody highly specialized knowledge not present at the local and regional scale. Pre-privatized organizations would therefore not be able to reach the same production efficiency as the privatized organization, due to e.g. lacking managerial competences. This was according to Megginson and Netter (2001) of importance concerning privatization in the former Soviet Union.



Another issue concerning production efficiency is based on the ownership structure combined with shifts in the demand structure. Changes in preference structures among consumers and changes in demographic structures due to migration in a given geo-administrative entity may lead to significant changes in the demand for publicly provided goods and services. It may in such a situation be hard for local government to adjust a politically controlled local production in such situations, as this may entail political cost. The importance of “welfare coalitions” becomes more outspoken the closer politicians are to their constituency. The costs may also originate from inflexibilities in local labour markets. In either case, privatization may be expected to reduce these problems and improve on overall production efficiency. A last issue is the presence of market power. It may become difficult for the local government exactly to monitor the provision by the private firm providing the goods and services, if the private firm operates across several geo-administrative entities and dynamically adjusts the production according to the optimal production technology across these locations. An agency problem may become more outspoken at the local or regional level of administration. This will be a problem, if the privatized provision is based on mean voter preferences embedded in the contract signed with the private firm providing the goods and services. Similar problems are described in Le Grand (1991) concerning the 1988 Education Reform Act in Britain.

There are four additional issues to attend with respect to allocative efficiency, when introducing space into the above arguments. The decentralization theorem, see Oates (1999) may seem to be at odds with marketization. Removing controls and influences from local authorities does not allow for local adjustment of the public provision. One may on the other hand argue that marketization leads to a supply that is exactly adjusted to the local market due to the competition for local customers. The validity of such arguments would seem to depend on the extent of universalism in private provision rather than marketization itself. A supplement to this argument builds on information aspects. Local authorities may not exactly know the preferences of their residents, which would be a precondition for a politically optimal provision according

to the mean voter. Such information problems would arguably depend on the heterogeneity of preferences within a geo-administrative area.

Two arguments should be remembered when considering interdependencies in public provision. Some goods and services are by nature inter-boundary. Transportation is an example. Privatization of public transportation should take into account the coordination of services across boundaries of geo-administrative entities. This may in principle be easier for larger entities, but should even so be taken into consideration. Le Grand (1991) mentions the disadvantages of concessionary fares in Brittan, as being a problem of freely choosing type of transportation. Privatization should require more efforts in inter-boundary coordination. Another interdependency in public provision that must be taken into account concerns cross-subsidization. Pelzman (1989) uses the utilities industry, where public intervention may suppress spatial price differentials, which would otherwise occur due to economies of scale with respect to e.g. population density. Intervention creates monopoly rents, which are partly used to cross-subsidize high-cost consumers, i.e. consumers in geographies with low population densities. Marketization would through competitive pressure remove the rents that facilitate cross-subsidization.

Marketization has several important impacts in space. It may be expected to improve on production efficiency through various arguments like economies of scale, knowledge transfers from outside or simply from retaining any malperformances of public organizations, e.g. Leviathan state. The allocative efficiency will also be under influence. Different agency problems may occur, while marketization could on the other hand alleviate some types of local idiosyncrasies in decision processes. All these effects are in some manner related to the size of geo-administrative units. The size will partly influence the distance between voters and local politicians, the potential to harvest economies of scale in public production as compared to private production, the ability to organize contestable markets within the public organization with several units contesting for a give provision and the information problems and thereby the embedded agency problems. The hypothesis tested here is therefore that the size of geo-administrative entities responsible for public provision in the public

system matters for the efficiency of marketization. This will be tested in the following sections.

A final remark should point to the problems of benchmarking. Is marketization in space the efficient way to go? This will very much depend on the benchmark, as should be clear from the above. In a geo-administrative system that has been optimally fine tuned to harvest all gains from inter-organizational competition, the gains from marketization may be moderate. In a geo-administrative system that is inflexible and not adjusted to the most efficient provision of goods and services, marketization will score high. The benchmark will therefore matter. This adds to the importance of considering size of geo-administrative units responsible for local and regional public provision of goods and services.

### **3. Outsourcing and Spatial Structures in Sub-Regional Denmark**

The Danish geo-administrative structure consists of three levels with the state, counties and the municipalities exercising independent political as well as financial responsibilities. Much of the provision of public services in the Danish welfare state is pursued by the municipalities with important responsibilities in primary education, child care, care for the elderly, social security and culture/libraries. Combining this with a budget of 35 percent of the total production, makes municipalities important in an analysis of marketization in the Danish public sector. The following sections will therefore focus on the marketization behaviour of Danish municipalities.

The spatial structure of the geo-administrative system has been subject to several reforms over time. A reform in 1970 reduced the number of municipalities from about 1300 to 275. One of the most important reasons for the reform in 1970 was that buildings in the boroughs in many places had spread across the boundaries to the neighbouring municipalities. Another decisive factor for the reform was that the majorities of the parishes were too small to solve tasks for the local citizens and therefore had to cooperate with other municipalities. With the local government reform in 1970, the number of counties was reduced to 14 and the number of municipalities to 275. This created the basis for restructuring the distribution of tasks

and cost burdens from the state to the counties and municipalities. Counties and especially municipalities were gradually given more and more tasks in the public provision of services and were allocated the autonomies to finance the provision through local taxes. The eminence of spatial structures in the geo-administrative in Denmark has recently been re-emerging from a reform to be implemented as off January 1, 2007 reducing the number of municipalities to 98 and substituting the counties with five regions. The portfolio of tasks pursued by municipalities will become even wider in connection to this reform.

Size varies in the Danish geo-administrative structure. Municipalities vary in terms of population and geography. The smallest Danish municipality has in the prevailing structure has 2091 residents and the largest 501158 residents with an overall average of 20101 residents for all municipalities and a standard deviation of 39422. The new structure implemented in 2007 will have the smallest municipality with 2091 residents and the largest with 501158 residents with an average of 55381 residents across all municipalities and a standard deviation of 60134. Size will therefore continue to matter as the total variance in population sizes of Danish municipalities is large and will prevail to be so. This also reflects, that the different reforms have not been able to restructure the metropolitan area, where the municipal structure is both more inhomogeneous and more integrated than in the rest of the country, Ministry of the Interior and Health (2004b).

These geo-administrative units were then supposed to be both a local democratic structure and the administrative/organisational framework to take over and implement activities from the state level, and obviously also an expansion of the provision of public services at large. Denmark didn't in this sense divert from many other "Western" countries, who typically in the 60's and 70's made reforms to essentially strengthen the political and administrative institutions of the welfare state which, bearing "social democratic" handwriting, aimed at improving its political and administrative problem solving capacity and to redress "market failures". The crucial frame of reference for the institutional reforms of this period was the expansive and active welfare state and its public sector (Wollmann 2004).

The municipalities are obliged by law to provide many different services, but municipalities retain considerable autonomies delegated to local elected boards. This autonomy is constituted on a legal basis as “freedom of the municipalities”. The autonomy is in practice related to the size, quality provided, mode of production in connection to the provision of the provision of services and the right to levy taxes. Even though there are rather complex systems of inter-municipal financial cross-subsidization, the lion-part of these activities are covered by local taxes. There is a strong tradition in municipalities for a production of publicly employed personnel. The municipalities can though choose the mode of production freely for many tasks and may use the market in the provision of several types of services. They may produce the service themselves or buy it in the market. The reforms of the spatial structure of the geo-administrative system in Denmark may as such be seen as providing bigger entities making it possible to establish local bureaucracies facilitating cost control and creating potential markets for services.

Municipalities may cooperate in the provision of services, which dilutes the ability to identify the importance of size relative to the use of marketization. Municipal cooperation do as such not follow county borders, but is much determined by historical and local circumstances and is unfortunately poorly or not documented at all, see Christoffersen et al 2003. There is obviously a clear difference between taking a point of departure in cooperation or joint-ventures of municipalities and the use of outsourcing. Municipal outsourcing is in it self not a new phenomenon, Danish Economic Council (2004). There has been a clear development in the last decade in the utilization of this municipal tool, Local Government in Denmark (2001). From the beginning of the 90’s and up to present, the number of tenders within some areas has literally exploded (Ibid).

Tenders have primarily been used within technical and administrative areas like: road and housing maintenance, winter service, cleaning services, driving services, waste management, waste water management, production and catering of foods, and

accounting. On some other areas there has been a limited or no use of tenders: child care, schools, and a number of other social services. Operative areas of municipalities where legislation does not prevent tenders but where tenders have not yet been used widely are: kindergarten, school-after-school centre (SFO), school libraries, school dental service, unemployment centres and different activities for teens. So far the empirics show great differences between the municipalities at large, Danish Economic Council (2004). The question is then, if there is any spatial variation in this development? Does size matter for the way municipalities choose to organize the provision of certain types of services? This may hinge on bureaucratic abilities to enter contracts with the private sector or simply political obstacles to used tenders. Either way, it would be important to establish the effects of spatial structures on marketization in municipalities.

A crucial issue is establishing a measure of marketization in municipalities. The approach taken by others is to use a outsourcing indicator. This will also be the vehicle of measuring marketization for the present analysis. The outsourcing indicator is a relative measure comparing the purchases of municipalities in the private sector relative to the total expenses. This indicator can be calculated for the aggregate activities or for individual operative areas. The data for these calculations are found in the web-database of Statistics Denmark and the web-database of the Ministry of the Interior and Health<sup>1</sup>. The data used in the estimation range from period 1995-2004. The databases monitor the current and capital accounts of municipalities and counties. The data in the municipality accounts are exclusive of VAT. The accounts are subdivided into several purposes (accounts) and by type of transaction. All Danish municipalities are included in the databases. The accounts includes detailed information on the total accounts and on seven operative areas of municipalities: 0. Housing and community amenities, 1. Public utilities, 2. Traffic and infrastructure, 3. Education and culture, 4. Hospital services and public health insurance, 5. Social and health services, 6. Administration. The accounts do therefore offer the opportunity to analyse the aggregate marketization activities of municipalities but also the marketization taking place in specific operative areas. The outsourcing indicator is

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<sup>1</sup> [www.statistikbanken.dk](http://www.statistikbanken.dk) and [www.noegletal.dk](http://www.noegletal.dk) respectively.

defined by the total gross expenditures in each operative area compared to the purchases from the private sector<sup>2</sup>. The outsourcing indicator is therefore defined by:

**Equation 1**

$$outs_{it} = \frac{\sum_j purpriv_{jit}}{\sum_j totex_{jit}} * 100$$

where  $j$  indicates the operative areas included in the outsourcing indicator,  $i$  indicates the municipality,  $t$  indicates the time period,  $purpriv_j$  is the expenses from purchases from the private sector in connection with public provision in the operative area  $j$ , and  $totex_j$  are the total expenses in connection with public provision in the operative area  $j$ .

Some caveats should be mentioned concerning the use of the outsourcing indicator. Data comparability over time is hampered by changes in budget and account systems, structural changes in budget and accounting practices of municipalities and for the metropolitan area the formation Capital Association of Hospitals on 1st. January 1995 which resulted in a separation of the hospitals of Copenhagen and Frederiksberg municipalities into an independent company, which is not included in the municipality sector. In the data set are also excluded Copenhagen, Frederiksberg and Bornholms Regionskommune, because of their special/mixed status as municipality and county. It is obviously a drawback to the analysis that a major urbanized area and a more rural area, which have interesting structural as well as spatial dimension, are excluded from the dataset.

It should also be noticed that VAT exempted areas are excluded, because VAT exempted areas are not registered separately, which unfortunately filters out some social and health services. Inter-municipal financial transfers are furthermore exempted, so that it is only purchases from the private sector that are included in respect to external purchases. Arrangements like “sales and lease back” can also

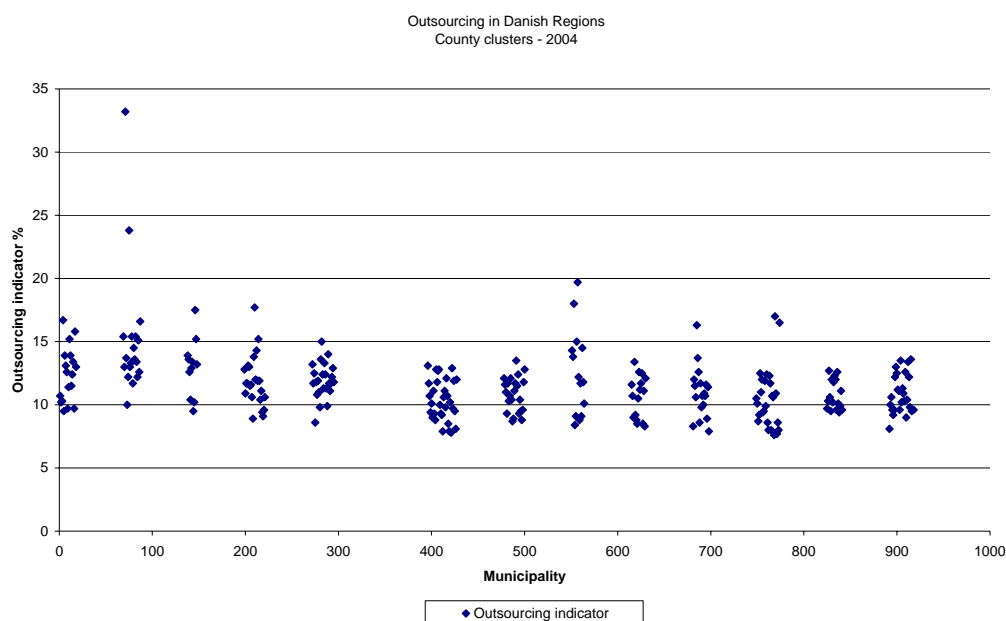
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<sup>2</sup> These purchases can be found under art. (activity) ”4.5 building contractors and craftsmen” and “4.9 other services”, which cover the external purchases from the private sector. It is not possible to identify the exact organizational measures taken to arrange the purchase, i.e. tenders or others.

affect the level of municipal expenditure and outsourcing levels, which can distort the measurement of expenditures as it leads to a bias in both expenditure levels and outsourcing indicators. Finally, as mentioned previously, the municipalities are obliged to follow certain public accounting rules, but there remains some discretion between the municipalities in implementation of these rules. In spite of these caveats, the outsourcing indicator remains the most accurate measure available from the accounts of Danish municipalities.

So does the outsourcing indicator exhibit spatial different patterns? A very first indication can be found in figure 1, where the outsourcing indicator for all operative areas of municipalities in 2004 is illustrated.

*Figure 1: Outsourcing indicator, Danish municipalities 2004.*



Spatial patterns have in figure 1 been indicated by the segregation of municipalities by county. All municipalities in a county will be located with some proximity, although this is obviously only a crude measure of spatial structure. There are considerable differences in the spatial structures via-a-vis different modes of clustering and variation between the counties. The municipalities are in some geographies crowded into small, dense groups while municipalities in other



geographics fall into far-stretched clusters. One tentative answer to the question is then that there seems to be a substantial in-and-between cross county variation in the outsourcing indicator for the municipalities in Denmark. Spatial structures do seem important for marketization in the public provision of services and goods in Denmark.

#### **4. An Empirical Model for Marketization in Space – the Danish Case**

More detail is needed to draw final conclusions. Using the panel structure of the data available, the following will specify a model for the marketization activities of Danish municipalities and test whether the importance of spatial structures continues to be significant when including a number of other background variables of importance for the usage of marketization and outsourcing in Danish municipalities. The first step will be to specify an empirical model. A detailed description of the data and data sources used in the empirical model can be found in appendix.

Previous findings can be helpful in specifying a model of marketization in space. One issue concerns the average expenditure per capita which reflects the costs a municipality can expect, if it provides an average service and is performing on an average efficiency level. A positive relationship between gross expenditures per capita and the average expenditure per capita can be expected, where any divergence reflects the differences between service levels and efficiency levels in the provisions of goods and services by municipalities, cf. Danish Economic Council (2004). The Danish Economic Council (2004) proposes that the outsourcing levels explain differences in the efficiency in the provision of services: a municipality with a high level of outsourcing is more cost efficient conditioned by a given provision level. The expected outcome should be a negative relationship between an outsourcing indicator and the gross expenditure per capita. Empirical findings on cost savings among Danish municipalities and in an internationally context suggest private provision is more cost efficient, see Kristensen (1983) and Danish Economic Council (2004).

Due to the endogenous nature of the outsourcing behaviour by municipalities caution is called for, when specifying an empirical model. There is furthermore the problem of unobservable heterogeneity in an empirical model due to e.g. heterogeneity with

respect to for example management, working conditions, political issues, organizational aspects and unobservable heterogeneities in the “anatomy” of municipalities. In line with previous findings, the empirical model proposed here explains current outsourcing levels by the gross expenditure of the previous period. The model sees lagging behaviour by municipalities reflecting the adjustment in outsourcing propensities to pervious budget experiences. Another important factor is the tax base, which reflects the economic autonomies of the municipality. Since 2001 there has been a tax-stop imposed on municipalities by the central government, but municipalities can still to some extent adjust the mode of financing. The municipals are though obliged to stay within the tax-stop on a national average, implying that the average tax level across all municipalities cannot increase. The argument is here that budget squeezes will push municipalities towards marketization. An empirical model for outsourcing by Danish municipalities can therefore be specified as in equation 2, which will be called the *non-spatial model*, as it does not embed any non-financial characteristics of municipalities.

**Equation 2**

$$outs_{it} = \alpha + \beta_0 grossex_{it} + \beta_1 reqcost_{it} + \beta_2 taxrate_{it} + \beta_3 grossex_{it-1} + \beta_4 reqcost_{it-1} + \beta_5 taxrate_{it-1}$$

where  $grossex_{it}$  is the gross expenditure per capita in municipality  $i$  in time period  $t$ ,  $reqcost_{it}$  is the required average expenditure and  $taxrate_{it}$  is the tax rate. These variables also enter as lagged values. It is noticed that the lagged values and current values will not enter simultaneously in the estimations presented here. This implies that the dynamics structure will only consider reactions in outsourcing to present current conditions in a municipality or reactions to previous conditions in a municipality. This assumption corresponds to imposing either the restriction  $\beta_0=0$ ,  $\beta_1=0$  and  $\beta_2=0$  or  $\beta_3=0$ ,  $\beta_4=0$  and  $\beta_5=0$  during the estimation procedure.

Demography can be expected to be a significant factor behind the marketization efforts of the municipalities, which may not be captured from the empirical model in equation 2. Following the reasoning of Christoffersen and Paldam (2003), it can be expected that municipalities facing economic distress will push towards

implementing outsourcing activities. Municipalities facing a relative high share of children or elderly needing provision of publicly provided care can be expected to have greater economic pressure towards cost saving through outsourcing. A relative higher share of either children or elderly can therefore be expected to be a significant factor to push relatively stronger towards the use of marketization than might be captured in the parameter required average cost per capita, which is based on average measures and logics concerning the financial redistribution system amongst municipalities and the state. The specification in equation 2 furthermore used arguments from efficiency, but differences in demographic structures may in themselves change the pressures towards outsourcing cf. the notes above. Allowing for demographic factors would furthermore put the efficiency argument to the test, as it corresponds to a test of whether the variations in the required average cost per capita in the specification of equation 2 reflects variation in efficiency or variation in demographics. The demographics furthermore capture the spatial issues in some sense, as they reflect differences in the texture of municipalities. The empirical model specified in equation 3 is therefore an extension of the model in equation 2 and includes demographic components. It is considered a *semi-spatial model*.

$$\begin{aligned}
 \text{Equation 3} \quad \text{outs}_{it} &= \alpha + \beta_0 \text{grossex}_{it} + \beta_1 \text{req cost}_{it} + \beta_2 \text{taxrate}_{it} + \\
 &\beta_3 \text{shpop0to6}_{it} + \beta_4 \text{shpop7to16}_{it} + \beta_5 \text{shpop65plus}_{it} + \\
 &\beta_6 \text{grossex}_{it-1} + \beta_7 \text{req cost}_{it-1} + \beta_8 \text{taxrate}_{it-1} + \\
 &\beta_9 \text{shpop0to6}_{it-1} + \beta_{10} \text{shpop7to16}_{it-1} + \beta_{11} \text{shpop65plus}_{it-1}
 \end{aligned}$$

where  $\text{shpop0to6}_{it}$  is the share of the 0-6 years olds in the population of municipality  $i$  at time  $t$ ,  $\text{shpop7to16}_{it}$  is the share of the 7-16 years olds in the population of municipality  $i$  at time  $t$ ,  $\text{shpop65plus}_{it}$  is the share of the persons of age 65 years or older in the population of the municipality. These variables also enter as lagged values.

Spatial structures may influence the extent of outsourcing in various ways. Public provision implies scale effects in production which is determined by the size of the geo-administrative unit. Translated to a municipal context this implies that the size of the municipality affects the potential of cost savings from outsourcing. Small

municipalities have greater cost savings through outsourcing than bigger municipalities, because larger municipalities can more easily harvest the scale effects by in-house production. Small municipalities may on the other hand see the opportunity to harvest similar scale effects from outsourcing the provision to a private supplier that has the responsibility to service several small municipalities. Outsourcing becomes a vehicle in reaching the scale of minimum cost production. Size may though be important from another perspective. Outsourcing requires competences of establishing materials and creating tender materials in a quality that allows for contractual arrangements with several years of commitment of public funding. It may be argued that building such competences requires a certain size in staffing, which may be hard to find in smaller municipalities. This would point to the opposite conclusion on the importance of spatial structure for outsourcing. Regarding the differences in the spatial organization of the municipalities, many provisions of services are demanding personal service. The proposition is that less densely populated areas will have lesser cost savings from outsourcing. Following this line of reasoning introducing a variable for differences in the spatial organization of the municipalities seems evident. The question is then: does size really matter – and how?. Equation 4 specifies the *spatial model* of outsourcing.

$$\begin{aligned}
 \text{Equation 4} \quad \text{outs}_{it} = & \alpha + \beta_0 \text{grossex}_{it} + \beta_1 \text{req cost}_{it} + \beta_2 \text{taxrate}_{it} + \\
 & \beta_3 \text{shpop0to6}_{it} + \beta_4 \text{shpop7to16}_{it} + \beta_5 \text{shpop65plus}_{it} + \\
 & \beta_6 \text{popsize}_{it} + \beta_7 \text{popdens}_{it} + \\
 & \beta_8 \text{grossex}_{it-1} + \beta_9 \text{req cost}_{it-1} + \beta_{10} \text{taxrate}_{it-1} + \\
 & \beta_{11} \text{shpop0to6}_{it-1} + \beta_{12} \text{shpop7to16}_{it-1} + \beta_{13} \text{shpop65plus}_{it-1} + \\
 & \beta_{14} \text{popsize}_{it-1} + \beta_{15} \text{popdens}_{it-1}
 \end{aligned}$$

where  $\text{popsize}_{it}$  is the population size of municipality  $i$  in time period  $t$ , and  $\text{popdens}_{it}$  is the population density in municipality  $i$  at time  $t$ . These variables also enter as lagged values.

Understanding the consequences of outsourcing is contextual, where a municipal capacity to estimate and manage the sizeable costs of contracting, monitoring and controlling is needed, in case private production is preferred over the public one.

Transactions costs can become the significant factor in the decision to implement new tools of marketization in the municipality. Activities and experiences from for example the provision of elderly services, where the municipalities since 2002 have been forced to implement market inspired organizational structures like i.e. Buyer-Supplier-Consumer-Models (BUM – Bestiller Udfører og Modtager), show ambiguous results and increasing organizational costs in defining activities, implementing the organizational setup, monitoring and controlling. This is part of and supplemented by initiatives propagating new cost based accounting systems, which are to be implemented in the coming years, Ministry of Interior and Health (2004a). Among some of the recommendations is also a limit spanning from 50.000 to 100.000 DKr. to when outsourcing needs to be considered for example within activities like construction and buying of different goods in order to handle “minor activities” without facing dramatic costs in the bureaucracy. The spatial structure of municipalities should be expected to be of importance, as indicated from these cases.

One cost factor is also the political process of redistribution, where public production is used as an efficient means for selecting and discrimination. Obviously the suggested approach in equation 4 cannot include all contexts of the decision making processes in the municipalities. Public policies and public outputs have many ends and very subtle dimensions, whose revealed preferences might themselves be functions of the supply institutions chosen Borcharding (1982). It is a complex interaction between goals (ends) and institutional choice (means) setting the scene for marketization efforts of the municipalities. Even so, testing the importance of spatial structures for marketization is an important task, as shown in figure 1.

All models are estimated using panel methods with fixed effect specification, as the dataset consists of the total population of municipalities of the time period considered. A crucial aspect in the specification of empirical models of the marketization behaviour of local authorities concerns the times structure of dependencies. The present analysis will offer two sets of estimations for both the non-spatial, semi-spatial and spatial models. One set of estimations assumes a marketization response to present structures in the municipality. This can be

interpreted as a perfect foresight specification in that municipalities are assumed to plan marketization measures based on expected outcomes in the period of marketization. The other set of estimations assumes a reactive behaviour of municipalities, where the municipalities react to previous structures in their use of marketization. The perfect foresight and reactive estimation results for both the non-spatial, semi-spatial and spatial models are shown in table 1.

**Table 1: Fixed effects models for outsourcing**

	Foresight Non- spatial	Foresight Semi- spatial #1	Foresight Semi- spatial #2	Foresight Spatial	Reactive Non- spatial	Reactive Semi- spatial #1	Reactive Semi- spatial #2	Reactive Spatial
grossex	0.007 (5.07)**	0.008 (5.57)**	0.003 (1.29)	0.003 (1.49)				
taxrate	-0.031 (0.96)	-0.045 (1.42)	-0.019 (0.59)	-0.041 (1.28)				
reqcost	0.041 (5.23)**	-0.018 (1.26)	0.032 (3.98)**	-0.009 (0.63)				
shpop0to6		0.157 (2.02)*		-0.028 (0.33)				
shpop7to16		0.319 (4.14)**		0.162 (1.97)*				
shpop65plus		0.430 (8.08)**		0.393 (7.35)**				
popsize			0.089 (0.77)	0.135 (1.15)				
popdens			0.371 (6.02)**	0.309 (4.79)**				
lgrossex					0.007 (4.45)**	0.008 (4.74)**	-0.001 (0.26)	-0.001 (0.33)
ltaxrate					0.132 (3.59)**	0.125 (3.41)**	0.140 (3.85)**	0.131 (3.61)**
lreqcost					0.054 (5.64)**	0.013 (0.84)	0.045 (4.57)**	0.028 (1.73)
lshpop0to6						0.203 (2.41)*		-0.062 (0.67)
lshpop7to16						0.230 (2.63)**		0.016 (0.18)
lshpop65plus						0.391 (6.36)**		0.341 (5.55)**
lpopsize							0.310 (2.42)*	0.387 (2.93)**
lpopdens							0.040 (5.85)**	0.036 (5.08)**
constant	10.324 (15.81)**	-0.027 (0.02)	1.465 (0.76)	-4.475 (2.11)*	6.816 (8.39)**	-2.815 (1.54)	-6.117 (2.84)**	-10.995 (4.58)**
Observations	2680	2680	2680	2680	2412	2412	2412	2412
# of komcode	268	268	268	268	268	268	268	268
R-squared	0.05	0.08	0.07	0.09	0.05	0.07	0.08	0.09

Absolute value of t statistics in parentheses - \* significant at 5%; \*\* significant at 1%

Source: Statistics Denmark ([www.statistikbanken.dk](http://www.statistikbanken.dk)), the Ministry of the Interior and Health ([www.noegletal.dk](http://www.noegletal.dk)) and own calculations.

Space matters for outsourcing in a rather pronounced manner. Using the population size (popsize) as an indicator for market size and population density (popdens), share of population aged 0 to 6 years (shpop0to6), share of population aged 7 to 16 years

and share of population aged 65 or more years as an indicator for market structure, the spatial structures are vital in the estimations. In the non-spatial model with foresight, the gross expenses (grossex) and required cost (reqcost) are significant. Both reveal an increasing propensity to use outsourcing in their relative size. Going one step deeper, the age variables all become significant in the first semi-spatial at the cost of required cost. There is collinearity between age variables and required costs and this prevails in all columns. The age variables are structural variables that reveal the background for the significant parameter estimates of required costs in the non-spatial model. Similar collinearities are revealed for gross expenditure and population density. Adding population density leads to a significant parameter estimate for this variable but leads to insignificant parameter estimates for the gross expenditure variable. The structural variables revealing spatial heterogeneities do therefore seem to capture much of the explanatory power of the variables in the non-spatial model. Outsourcing in public provision depends on spatial structures.

All structural parameter estimates are positive pointing to more outsourcing in municipalities with a higher population density, a higher share of the population aged 65 or more and a higher share of the population aged 7 to 16 years. Market structure is important. The more surprising result in table 1 is that market size does not matter for outsourcing levels. Having larger markets does not lead to more marketization. While some spatial structures are of importance others are not. Two aspects should furthermore be noticed. Tax rates do not influence outsourcing in the foresight model and the share of the population aged 0 to 6 years does not in all estimation model return significant parameters estimates. The later does seem surprising, as municipalities have major responsibilities in providing child care. It points to missing usage of outsourcing in this field of operations as compared to services provided to other age groups.

The insignificant parameter estimate of the tax rate in the foresight models becomes significant in the reactive models. While outsourcing by municipalities may be subject to adequate expectations on the spatial structures, the expectations on tax rates not. The idea that a budget squeeze leads to more outsourcing takes place in a reactive

manner. The necessity of implement high tax rates today leads to a higher propensity of use outsourcing tomorrow. This is the variable with the clearest time dimension with reactive behavior by municipalities. It may reveal that municipalities are able to project spatial structures, but that tax rates are set each period in a political process with a degree of a veil of ignorance and where the central government also enters into the process. Planning outsourcing cannot be done on the basis of expected tax rates but must be based on historical experiences.

The estimation results in table 1 reveals clear importance of spatial structures in the process of marketization in space. Municipalities with specific spatial structures have a higher propensity to use outsourcing in their provision of services and goods to their inhabitants, but will market size continue to be insignificant disregarding the sectors and operations of municipalities? The question then becomes, if these structures are robust across different sectors and operative areas of Danish municipalities. This is the issue next.

## **5. A Typology of Marketization and Spatial Structures**

Marketization through outsourcing implies goods and services provided to individuals by the public sector are bought in the market. A number of studies show that the same goods and services are on average about 20-30 percent cheaper if bought on a market than if they are produced within a public organisation. Financial pressure may therefore lead municipalities to evaluate their cost functions. The fixed costs and economies of scale in the production of local public services have becomes a subject. The use of external experts/consultants, more highly skilled staff and implementation of automatic administration systems through IKT can also contribute to explain this change in the understanding and management of municipal cost structures. Particularly the small municipalities may be especially sensitive to financial squeezes through the pressure from increasing fixed costs in the provision of services. They may be more eager to escape high unit costs by bringing in private producers or establishing markets. Some of these spatial differences may be of different importance to different operative areas. This is the issue there.



Testing whether marketization efforts vis-à-vis outsourcing follows the market size within the geo-administrative unit and market structure through population density and demographics subsumes different aspect of economies of scale in the municipal outsourcing behaviour. Going into more detail with this relationship renders one into a curse of dimensionality. There are too many types of operations to allow for a detailed analysis. In the following the outsourcing indicator is therefore amalgamated into 3 typologies. Clustering operations into typologies is always subject to criticism. Since this analysis is not per se partisan or ideological by nature, we believe it is possible to implement a distinction in the main accounts with a typology of different service provision. The typology also reflects a kind of progression in the experiences with outsourcing amongst the municipalities, see Christoffersen and Paldam (2006). The technical areas are in the forefront of experiences with the utilization of markets. The semi-welfare services are related to areas, where some experiences have been reported, i.e. outsourcing of administrative functions. The welfare-services have so far been primarily within the “core” of public service provision, and constitute the most limited base of experience amongst the municipalities so far. The typology of technical, semi-welfare and welfare services is as follows:

- The *Technical* service provisions comprise the main accounts of municipalities: 0. Housing and community amenities, 1. Public utilities and 2. Traffic and infrastructure,
- The *Semi-Welfare* service provisions comprise the main accounts of municipalities: 3. Education and culture, and 6. Administration.
- The *Welfare* service provisions comprise the main accounts of municipalities: 4. Hospital services and public health insurance, and 5. Social and health services<sup>3</sup>.

The emphasis of welfare in the typology must be interpreted within the context of Denmark being a Nordic welfare state. Certain welfare services do seem more essential in this kind of welfare state than others and this is reflected in the typology.

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<sup>3</sup> Since main account 4. is excluded the typology of *welfare* consists of main account 5. comprising provisions of social and health services.

The typology therefore builds on the nature of goods and services but also on the empirical findings of previous writers.

The first typology of services has been labelled “technical” pointing to the non-welfare nature of these services. They mostly concern infrastructure and similar operative areas. Table 2 presents the estimations using the perfect foresight and reactive interpretation of equation (2), (3) and (4).

**Table 2: Fixed effects models for outsourcing on *Technical* service provisions**

	Foresight Non-spatial	Foresight Semi-spatial #1	Foresight Semi-spatial #2	Foresight Spatial	Reactive Non-spatial	Reactive Semi-spatial #1	Reactive Semi-spatial #2	Reactive Spatial
grossex	0.005 (1.03)	0.005 (1.11)	-0.023 (2.86)**	-0.026 (3.13)**				
taxrate	-0.078 (0.70)	-0.101 (0.90)	-0.050 (0.45)	-0.083 (0.74)				
reqcost	0.331 (12.08)**	0.358 (7.19)**	0.361 (12.70)**	0.398 (7.90)**				
shpop0to6		0.034 (0.12)		-0.297 (0.98)				
shpop7to16		-0.246 (0.90)		-0.441 (1.52)				
shpop65plus		0.275 (1.46)		0.304 (1.60)				
popsiz			1.868 (4.65)**	2.065 (4.95)**				
popdens			-0.489 (2.27)*	-0.410 (1.80)				
lgrossex					0.007 (1.18)	0.007 (1.13)	-0.023 (2.57)*	-0.028 (3.01)**
ltaxrate					0.380 (2.92)**	0.350 (2.68)**	0.409 (3.15)**	0.380 (2.92)**
lreqcost					0.414 (12.14)**	0.523 (9.11)**	0.445 (12.68)**	0.568 (9.79)**
lshpop0to6						0.084 (0.28)		-0.317 (0.96)
lshpop7to16						-0.746 (2.39)*		-0.981 (2.98)**
lshpop65plus						0.123 (0.56)		0.164 (0.74)
lpopsiz							2.118 (4.62)**	2.357 (4.97)**
lpopdens							-0.056 (2.30)*	-0.041 (1.59)
constant	34.487 (15.17)**	32.825 (5.78)**	12.493 (1.85)	10.993 (1.46)	23.559 (8.19)**	28.169 (4.32)**	-1.177 (0.15)	2.077 (0.24)
Observations	2680	2680	2680	2680	2412	2412	2412	2412
Number of komcode	268	268	268	268	268	268	268	268
R-squared	0.09	0.09	0.10	0.10	0.10	0.10	0.11	0.11

Absolute value of t statistics in parentheses, \* significant at 5%; \*\* significant at 1%

Source: Statistics Denmark (www.statistikbanken.dk), the Ministry of the Interior and Health (www.noeglletal.dk) and own calculations.

The services embodied in the “technical” typology are not by nature related to any demographic characteristics in a spatial context, which is also reflected in the

insignificant parameter estimates for the age variables. Rather the pure issues concerning financial issues in the municipalities through required costs are of importance. A remarkable result from table 2 is the significant parameter estimate for market size, i.e. population size (popsize). For these kinds of services and goods the importance of size is more predominant than the importance of market structure. Reflecting on the nature of the services and goods these results seem plausible. Having a larger market size will facilitate a larger volume in a tender which potentially provides lower prices. Road maintenance or building roads is an example which may be expected to be less sensitive to questions of standardized quality to be specified in a tender, which may arguably be more difficult in personal services often related to welfare services and goods. Tax rates do again only takes importance for the extent of outsourcing through a reactive pattern.

The other type of services and goods in the typology were characterized as semi-welfare service provision. Table 3 summarizes the estimation results for the outsourcing indicator within this type of operations by Danish Municipalities. The table reflects a different dependence on spatial structures than found in table 2, which confirms the importance of focussing of different types of services and goods when analysing marketization in the public sector.

For the semi-welfare services and goods, market size does not influence the extent of outsourcing. It is rather influenced by market structure measured by the population density. Two other factors have significant parameter estimates. Required costs are significant in the lacking presence of age variables. This is similar to the structures in table 1. The major novelty in table 2 is the significant parameter estimates of the tax rate even in the foresight specification. Outsourcing on semi-welfare services and goods is decreasing in the tax rate. This adds new detail on inability to predict tax rates in the coordinated negotiations between municipalities and the central government taking place to set these each year. The outsourcing activities in semi-welfare services and goods are influenced by the tax rates of the same period. This does seem hard to interpret, but can reflect that the semi-welfare types are more responsive to financial pressures.

**Table 3: Fixed effects models for outsourcing on *Semi-Welfare* service provisions**

	Foresight Non-spatial	Foresight Semi-spatial #1	Foresight Semi-spatial #2	Foresight Spatial	Reactive Non-spatial	Reactive Semi-spatial #1	Reactive Semi-spatial #2	Reactive Spatial
grosssex	0.002 (1.38)	0.002 (1.69)	0.000 (0.16)	-0.000 (0.03)				
taxrate	-0.080 (2.80)**	-0.092 (3.19)**	-0.074 (2.60)**	-0.089 (3.10)**				
reqcost	0.024 (3.45)**	0.003 (0.27)	0.018 (2.49)*	0.008 (0.65)				
shpop0to6		0.043 (0.61)		-0.075 (0.97)				
shpop7to16		0.084 (1.21)		-0.018 (0.24)				
shpop65plus		0.236 (4.88)**		0.210 (4.31)**				
popsiz			-0.016 (0.15)	0.041 (0.39)				
popdens			0.229 (4.13)**	0.221 (3.76)**				
lgrosssex					0.003 (1.88)	0.003 (2.15)*	-0.001 (0.24)	-0.001 (0.62)
ltaxrate					0.092 (2.77)**	0.088 (2.62)**	0.096 (2.87)**	0.091 (2.73)**
lreqcost					0.016 (1.81)	-0.003 (0.18)	0.009 (1.01)	0.006 (0.38)
lshpop0to6						0.008 (0.10)		-0.159 (1.88)
lshpop7to16						0.070 (0.88)		-0.067 (0.80)
lshpop65plus						0.214 (3.81)**		0.179 (3.17)**
lpopsiz							0.092 (0.78)	0.182 (1.50)
lpopdens							0.025 (4.04)**	0.026 (3.97)**
constant	10.862 (18.53)**	6.503 (4.46)**	6.579 (3.77)**	4.003 (2.07)*	7.627 (10.33)**	3.907 (2.34)*	1.199 (0.61)	-0.760 (0.34)
Observations	2680	2680	2680	2680	2412	2412	2412	2412
Number of komcode	268	268	268	268	268	268	268	268
R-squared	0.01	0.02	0.02	0.03	0.01	0.02	0.02	0.03

Absolute value of t statistics in parentheses, \* significant at 5%; \*\* significant at 1%

Source: Statistics Denmark ([www.statistikbanken.dk](http://www.statistikbanken.dk)), the Ministry of the Interior and Health ([www.noegletal.dk](http://www.noegletal.dk)) and own calculations.

The final type concerns welfare goods and services. The spatial structures again shift, as shown in table 4. Marketization through outsourcing of welfare goods and services depends significantly on all the variables indicating spatial structures and therefore represent the most complex model. A new issue is furthermore the joint significant of parameter estimates of required costs and age variables. Collinearity between these variables does not result in problems of significant parameter estimates for these types of goods and services. The high dependency on age structures in space is not surprising, but the joint significant parameter estimates for required costs points to additional effects for these kinds of goods and services. One possible interpretation is

that the financial pressure on municipalities for these kinds of services cannot accurately be captured by variation in tax rates, which would explain why tax rates are not even significant in the reactive model. The financial strain for these kinds of goods and services are to a larger extent dependent on efficiency in production due to the labour intensive nature of personal services. This may to a larger extent be captured by the required costs for providing the service.

**Table 4: Fixed effects models for outsourcing on *Welfare* service provisions**

	Foresight Non-spatial	Foresight Semi-spatial #1	Foresight Semi-spatial #2	Foresight Spatial	Reactive Non-spatial	Reactive Semi-spatial #1	Reactive Semi-spatial #2	Reactive Spatial
grossex	0.006 (4.75)**	0.007 (4.88)**	-0.005 (2.47)*	-0.004 (1.89)				
taxrate	-0.037 (1.18)	-0.036 (1.18)	-0.014 (0.45)	-0.028 (0.91)				
reqcost	0.103 (13.45)**	0.041 (3.03)**	0.096 (12.43)**	0.059 (4.36)**				
shpop0to6		0.392 (5.23)**		0.092 (1.13)				
shpop7to16		0.438 (5.89)**		0.198 (2.52)*				
shpop65plus		0.354 (6.89)**		0.309 (6.05)**				
popsize			0.520 (4.75)**	0.511 (4.54)**				
popdens			0.421 (7.18)**	0.346 (5.60)**				
lgrossex					0.007 (4.22)**	0.007 (4.21)**	-0.008 (3.41)**	-0.007 (2.95)**
ltaxrate					0.066 (1.87)	0.063 (1.81)	0.080 (2.33)*	0.074 (2.15)*
lreqcost					0.115 (12.49)**	0.065 (4.22)**	0.110 (11.84)**	0.086 (5.62)**
lshpop0to6						0.430 (5.35)**		0.108 (1.24)
lshpop7to16						0.381 (4.57)**		0.135 (1.55)
lshpop65plus						0.308 (5.25)**		0.266 (4.56)**
lpopsize							0.748 (6.17)**	0.743 (5.93)**
lpopdens							0.036 (5.57)**	0.029 (4.34)**
constant	1.671 (2.65)**	-11.364 (7.33)**	-15.513 (8.42)**	-20.794 (10.25)**	-0.541 (0.70)	-12.709 (7.30)**	-20.062 (9.85)**	-24.755 (10.88)**
Observations	2680	2680	2680	2680	2412	2412	2412	2412
Number of komcode	268	268	268	268	268	268	268	268
R-squared	0.14	0.17	0.18	0.20	0.14	0.16	0.18	0.19
Absolute value of t statistics in parentheses, * significant at 5%; ** significant at 1%								

Source: Statistics Denmark ([www.statistikbanken.dk](http://www.statistikbanken.dk)), the Ministry of the Interior and Health ([www.noegletal.dk](http://www.noegletal.dk)) and own calculations.

The spatial structures are in all specifications significant for both market size and market structure. This indicates that the nature of these services is quite different and requires both large markets and high densities to become subject to outsourcing.

Scarcely populated municipalities do organize the provision through marketization through outsourcing. A caveat may though be in place with respect to these conclusions. Some goods and services within this type are provided by institutions located and owned by other municipalities. This may result in a transfer of monies to other municipalities, which would in the outsourcing indicator lead to an increase. Even so, spatial structures are crucial factors in determining outsourcing levels among these types of goods and services.

Marketization through outsourcing will depend differently on spatial structures for different types of goods and services provided by municipalities. This reflects different abilities to organize provision through the market due to the nature and complexity of goods and services. Outsourcing will depend on market size for technical goods but not market structure, while both market size and market structure is of importance for welfare service provision. These heterogeneities point to caution in making straightforward statements on the appropriateness of marketization. Some types of services are simple in terms of marketization in space, while others do remain complex. This points to very different capabilities of handling tenders and other instruments of marketization by municipalities and calls for specific designs depending on types of goods and services. It remains an open question if such specificities can be attained in fixed administrative structures. More detailed surveillance of marketization designs may be called for to determine the precise organizational structure to provide different types of goods and services through marketization.

## **6. Discussion**

Denmark faces a radical reform of the geo-administrative system to be implemented by January 1 2007. Counties are replaced by larger regions and municipalities are merged into larger entities. Two outcomes will materialize from this reform. Regional authorities will loose autonomy through a loss of independent tax subscription and local authorities will gather more tasks in their portfolio of responsibilities. Spatial structures will furthermore change, as the average municipality will increase in size from 20101 inhabitants to 55381 inhabitants with an equivalent change in standard

deviation in size from nearly two times the mean to just little over the mean. The reform therefore reflects a particular mix of organizational downsizing through the allocation of tasks of public provision from regional to local levels and of spatial upsizing through an increase in the size of municipalities. The crucial question becomes what can be expected from these changes in the spatial structure of public service provision?

One of the prominent concepts in public service provision has emerged since the increased focus on the transformation of the public sector through marketization in Britain during the 1980's and later during the transition of Eastern Europe in the 1990's. Marketization is used to introduce competition and avoid incentive problems in the organization of public service provision such as the emergence of a Leviathan state, see e.g. Rauscher (1997) or Megginson and Netter (2001). Marketization furthermore renders controls from political systems to private investors with a higher degree of explicit goals for the managerial level. Hard budget constraints will dominate in private organizations, although they may also prevail in public organizations, see Vickers and Yarrow (1991). This may from an efficiency perspective be seen as an advantage but will from a redistributive or allocative perspective seem less clear in terms of benefits. The spatial consequences of marketization concern managerial competences, welfare coalitions, heterogeneity in demand, inter-boundary dependencies, market size and market structure. Managerial competences may not be available at a sufficient level of public service provision is organized in a very local setup. Welfare coalitions among public employees may be stronger if they are close to the politicians deciding on the organization of public service provision. Information on heterogeneity in the demand for public service provision may be harder to come by in larger organizations. Inter-boundary interdependencies in public service provision will become small from expanding spatial boundaries of the organization. Market size may be of importance to harvest the full potential of marketization in public service provision and market structure may be of importance in defining contracts and reaching scale economics in the marketization of public service provision. All these arguments point to the importance

of the spatial structure of the organization of public service provision, which is tested in this article.

The results from the fixed effects models specified are that spatial structures are of vital importance for the propensity of marketization in public service provision. The results furthermore indicate that these dependencies on spatial structures will be different for various types of goods and services. For the aggregate marketization effort of Danish municipalities, the results indicate that spatial market structures are vital for the outsourcing levels. This is especially so for spatial market structures in terms of population densities and age structures within municipalities. Higher population densities and higher shares of the age groups eligible for local service provision leads to higher levels of marketization. Introducing a typology of service types does though reveal important differences in these dependencies on spatial structures. Outsourcing levels in technical service provision will be less dependent on market structures and more dependent on market size. These type of services not associated with personal services will therefore require larger geo-administrative entities to reach the full potential of marketization. Semi-welfare services will to some extent require a similar organization of public service provision, although some age variables will be of importance. Welfare service provision will finally require an organization that takes care of all kinds of spatial structures, such as market size and market structure to reach the full potential of outsourcing. These very different dependencies point to the importance of considering the nature of public services before designing procedures to reach the full potential from marketization.

How may public service provision then be designed using marketization, given these results? The upcoming reform of geo-administrative structures may give some of the answers by increasing the spatial structures of local authorities in Denmark. The results do though point to a requirement to consider in more detail the market structures. Three alternative policies towards the organization of public service provision appear relevant to consider. The first may be labeled a *laissez-faire* policy, rendering it purely into the hands of local authorities to decide on the extent of marketization. This will lead to the heterogeneities in the usage of marketization and



render some local and regional authorities in a position of more competitiveness in terms of cost efficient service provision due to their inherent spatial structures created from the reform. Another alternative is to allow for a large extent of decentralized cooperation among local authorities in specific areas of public service provision. Local authorities may join in using instruments of marketization. This has the advantage of potentially circumventing problems of welfare coalitions, inter-boundary dependencies, market size and partially market structure. It will though still be subject to problems of managerial competences in the sense that enforcement of such public-private contracts will increase in the number of participants. It will furthermore have potential problems in adapting heterogeneity in demand, as pooling service contracts across more local authorities will lead to a change in the average of service levels relative to independent contracting.

Third alternative is an increased use of marketization. The change in geo-administrative structures taking place as off January 1 2007 may be expected to benefit the use of marketization in public service provision. Even so, a number of details that determine the extent of marketization have not been considered in the reform. The question then becomes, if the dependencies of market size and market structure in future organizational designs can be changed so as to further the use of marketization in spite of the absence of these considerations in the reform. Three answers pertain to the distortions of transfer pricing between municipalities, the potential for franchising arrangements in existing institutional concepts of public service provision and a more elaborate use of public-private partnerships. It seems necessary to slack the municipalities resources and possibility to think in new experiments with pricing systems, organizational design with different managerial possibilities, new legal possibilities of corporate involvement etc. Even if the typology of service provisions proposed here is rather crude, it still points to another basic problem. Decision making is based on rather critical accounting procedures and not on pricing systems based on for example alternative costs, marginal cost pricing and so on. This is a major challenge the coming years.

One major step stone lies in reforming the budget cooperation between the central government and local authorities. It could be an impetus to reflect upon whether the budgetary cooperation between the central government and local authorities at present and in the future is part of the problem rather than part of the solution? The results in this paper reveal a general pattern of spatial dependency. This may reflect incentive distortions through the transfer pricing system that ultimately results in a non-market bias on the different types of services. A mind experience could be a scenario, where a relative reduction in the priority given to dealing with local and regional distribution considerations would give rise to the broader issue of the essential role of local government? If the market control of welfare service is pushed far enough, it is possible to imagine a situation where the state would be responsible for setting the conditions according to which type of businesses are active in the market. In this way, everyone would be faced with the same conditions. Widespread market control can bring with it the issue of a further extensive centralisation of political power. The transition to extended market control is also – at least indirectly – a reflection of how citizens as consumers receive extended power at the expense of political and bureaucratic systems. This would logically at some point result in a reorganising of political power. This brings the issue of a fundamental evaluation of how the emphasis between marketization and municipal structure reforms should be framed, where exactly the efficiency problem for the public sector vis-à-vis the Danish Welfare State actually lies –and especially the spatial challenges?

If the efficiency mainly concerns allocation of provisions, i.e. where citizens end up receiving the wrong benefits, market provision according to marginal costs and marginal utilities seems the obvious solution. A logical step would be another local government reform ending up with organizational downsizing the municipality system. However, if the efficiency issue is more a question of production efficiency combined with goals of political redistribution, then a local government reform would obviously focus on creating strong municipalities that can use marketization instruments in their aims of redistribution. One important condition would in either case be that tendering can take place in a market with real competition, where private firms do not collude. The ability of bringing about a competitive market in limited

local markets without collusion is another issue that should influence the spatial changes in the organization of service provision.

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## Appendix

*Table 1: Definition of sets and variables*

<b>Set</b>	<b>Definition</b>
$t = [1995; 2004]$	Year
$i = [1; 275]$	Municipal code
<b>Variable</b>	
$outs_{i,t}$	Outsourcing indicator for municipality $i$ at time $t$ – as defined in equation 1
$grossex_{i,t}$	Gross expenditure per capita in municipality $i$ at time $t$
$reqcost_{i,t}$	Required expenditures per capita in municipality $i$ at time $t$
$shpop0to6_{i,t}$	Share of population aged 0 to 6 years in municipality $i$ at time $t$
$shpop7to16_{i,t}$	Share of population aged 7 to 16 years in municipality $i$ at time $t$
$shpop65plus_{i,t}$	Share of population aged 65+ years in municipality $i$ at time $t$
$taxrate_{i,t}$	Taxrate is the tax percentage deducted of the personal income in municipality $i$ at time $t$
$popsiz_{i,t}$	Population size in municipality $i$ at time $t$
$popdens_{i,t}$	Population density in municipality $i$ at time $t$