Spatial Interaction and Local Government Expenditures for Functionally Impaired in Sweden

Lena Catharina Birkelöf
“...usually, that's the way it goes, but don’t forget, every once in a while, it goes the other way too...”
Abstract

The thesis consists of an introductory part and three self-contained papers.

Paper [I] studies the determinants of the differences in expenditure on services for functionally impaired individuals among municipalities in Sweden. A spatial autoregressive model is used in order to test whether the decisions on the expenditure level in a neighboring municipality affect the municipality’s own expenditure. The results show of spatial interaction among neighbors, possible due to mimicking. However, when controlling for differences among counties there is no evidence of spatial interaction. Therefore, the positive interaction first found can be interpreted either as a result of differences in the way county councils diagnose individuals or due to interaction among the neighbors in the same county.

Paper [II] takes advantage of a new intergovernmental grant in two ways. First, the grant is used to study the effect on municipal spending related to the grant. Second, the grant is used to test a hypothesis of spatial interaction among municipalities due to mimicking behavior. The data used pertains to the periods before and after the introduction of the grant. A fixed-effects spatial lag model is used to study the spatial interactions among municipalities. The results show that before the grant, municipalities interact with their neighbors when setting the expenditure level, while there is no evidence of interaction in the second period. This would support the hypothesis that the grants provide information to the municipalities and the need for mimicking diminishes with the grant.

Paper [III] examines whether local public expenditures on services to functionally impaired individuals crowd out other local public expenditures in Sweden. The hypothesis is tested on five different spending areas using a two-stage least squares (2SLS) fixed-effects model. While the results give no support for crowding out in the areas of social assistance, culture & leisure, and childcare & preschool, a negative relationship on spending for elderly & disabled care and on spending for education is found, suggesting that crowding out indeed occurs within the municipal sector. The negative relationships are significant both in a statistical and an economic sense.

Keywords: Local public expenditures, Spatial econometrics, Intergovernmental grants, Spatial interaction, Intergovernmental grants, Expenditure crowding out, Functionally impaired.
Acknowledgements

Life as a PhD student is like a rollercoaster with ups and downs along the way; but being part of the Department of Economics at Umeå University has lessen the downs and heightened the ups. To everyone that has come across this department during these years, even for a short amount of time, you all have touched my life; you are what make our department so great!

To my supervisor Magnus Wikström and co-supervisor Niklas Hanes for encouragement and invaluable help with my PhD work (and trying to get me to understand the basics) – you amaze me with your knowledge in both theory and empirics; to Magnus for always being able of relieving me from moments of distress with your great spirit; to Niklas who, one summer a few years ago, showed me the W; to Linda Andersson for giving me the idea of studying the area of LSS; to Thomas Aronsson, Johan Lundberg, and Sofia Tano for valuable comments on earlier versions of the papers.

To Olle Westerlund for fantastic support and for showing me Skivsjö; to Thomas A for always having time to answering my questions; to Johan for sharing your interest in spatial econometrics; to Eva Cederblad for sharing, caring and smiling; to Marie Hammarstedt for helping me with everything throughout these years; to Kjell-Göran Holmberg for fixing the computers; to Karl-Gustaf Löfgren for taking care of the PhD students in such a great way.

To all the current and former PhD students at the department for lots of fun and support during these years, especially to Linda S for becoming a dear friend and for brightening my days (even in the dark winter months); to Lars(a) for accepting that you are my idol; to Johanna for hiding with me in Aarhus; to Ulf for explaining everything from econometrics to the black swan; to Camilla for midnight swims in Nydalajön; to Sofia T for watching over me; to Catia, Linda H, Linda T, Magdalena and all the rest: I would not have made it without you.

To Sergio Rey for inviting me to San Diego State University; to David Folch for patiently trying to get me to use shortcuts; to Boris Dev, David & Clelia, Marta, Grant & Buttermilk, Phillip Stephens, and Xinyue Ye: thank you for your great hospitality and making my months in San Diego fantastic!

To Gunther Maier for your enthusiasm, dedication and support for the PREPARE group; to all participants and instructors for making it a joy to work during the summers; to Anna M for looking out for ferrets with me in Pécs; to the memory of José Carlos for making me smile (I miss you dearly); to Marco for being back; to Ridhwan & Ferdinand for discussing spatial econometrics with me at breakfast; to Slavo for the connection; to Mete, Reinhard, Ron, Selin, Shanaka, and Silvia: thanks for the memories from our amaaaazing day at Affisos beach (and the bus ride home).
To the Doctoral Programme in Population Dynamics and Public Policy at Umeå University, to JC Kempe Memorial Found for Scholarships, to Knut and Alice Wallenberg’s Foundation, to Länsförsäkringar i Västerbotten, to Nordea Norrlandsstiftelse (that made my stay in San Diego possible), to Siamon Foundation, to Swedish Council for Working Life and Social Research: I am deeply grateful for the financial support I have received during these years.

For the non-scientific side of my thesis: to Anna K for providing me with wine & accommodation in Stockholm; to Catta for taking me shopping & introducing me to the best fajitas in Los Angeles; to Frida for laughing & hanging out with me at Liverpool St. station; to Jocelyn & Julie for sharing the adventure of becoming a Surf Diva; to Johan for rhyming on demand; to Malin Brundin for being a miracle woman; to my Umeå friends: Annika, Desirée, Evelin, Stefan and Stina for delicious desserts & great get-togethers.

To my wonderful sister Anna for making me an aunt, to my brother Kent for being the twin I never had; to my lovely friend Marcela for saying hi to me in Newport Beach; to Jönssonligan for coming to Gran Canaria with me; to my wonderful grandmother who is making a serious effort in trying to understand what I am doing; to the greatest aunt one can possible have: faster Göta; to my Mom (and Peter) and my Dad (and Tarja), thanks for always believing in me and helping me out, making this PhD thesis possible.

I’m glad that I stuck this rollercoaster ride out: being a researcher rocks! So - Olle, Johan, Anna, Selin and all the others - now I’m finally able to start collaborating! 😊

At last, I want to dedicate this thesis to Arnliot who will always be an inspiration to me, in every way.

To all of you: Thank you!

Stockholm, December 2009

Lena Catharina
This thesis consists of an introductory part and three self-contained papers:


1. Introduction

Reforms and decentralization of the public sector (often) originate at the national government level, while being administered and carried out at the local level - which is meant to improve the public services provision and increase the accountability of the local government. One of the main arguments for decentralizing public activities is that the local governments are better informed about individual demands for public services than the national government (Oates, 1972). During the 1990’s, Sweden implemented major national reforms affecting the local government, thus expanding the local government areas of responsibility. For example, the authority of school provision was decentralized in 1991, when the responsibility for compulsory and upper secondary school provision was transferred from the national level to the municipalities. In 1992, the Ädel-reform was implemented, which transferred the responsibility for long-term service and care of the elderly and disabled from county councils to municipalities. Moreover, in 1994, the Handicap Reform transferred the responsibility for providing services and care to the functionally impaired from the county councils to the municipalities.

When local governments are faced with new areas of responsibilities imposed by the national government, it is important to analyze how these changes affect the service and expenditures of the local government, as well as the allocation of resources, including the interaction among municipalities.

What consequences (or perhaps even problems) are local governments facing when they get additional services and responsibilities? For one, resources to finance the new services and areas are needed. Resources to
finance the new areas could come from, for example, intergovernmental grants, an increased tax rate, or redistribution from other areas of the local government. When the budget is limited, the local government may be forced to prioritize its public service provision in another way than previously in order to finance the new responsibilities. This could then affect other areas of the local government, leading to crowding out of such areas within the local government sector. Another consequence that naturally comes with new areas of responsibility is the lack of experience and the information uncertainty that may follow. There are costs associated with learning and obtaining information; in order to minimize these costs, the local government may interact (mimic for example) with policy makers from other local governments in order to learn from them and avoid the cost of obtaining information themselves. This could lead to local governments’ expenditure decisions being positively affected by the level of spending by their neighbors.⁠¹ A third consequence concerns the regional differences in the provision of a public service. Even if the national government policies are intended to be uniform and equally accessible for everyone regardless of location, the provision of the public service is also likely to differ due to the differences that exist among local governments. For example, it can differ due to political ideologies but also due to differences in tax base or population size.

This thesis, which consists of three self-contained papers, studies different aspects of the municipalities’ expenditure decisions regarding the provision of services to functionally impaired (which was transferred to the municipalities as part of the handicap reform of 1994). Paper [I]

¹ Neighbors are not necessarily geographical neighbors; other forms of “neighborhoods” are also possible.
addresses regional differences in expenditure for services to functionally impaired. Paper [II] analyzes an unconditional non-matching intergovernmental grant and explores whether this grant has affected spending and the level of interaction among municipalities. Paper [III] examines the effect of the expenditure for services to functionally impaired on other areas within the local government, with regards to the hypothesis of expenditure crowding out.

The rest of this introduction is organized as follows. Section 2 briefly describes the local governments in Sweden, and the background to the reform for functionally impaired. Section 3 gives a short review of the theory and empirical studies of the provision and determinants of local public services relevant to this thesis. Summaries of the papers included in this thesis are given in Section 4.

2. Background

The local government

Sweden is divided into 290 municipalities and 21 counties. The municipalities and county councils are responsible for different activities, and they are entitled to levy their own taxes. The municipalities provide services and functions such as elderly care, education and childcare, while county councils are responsible for areas such as health and medical care. Many of the services provided by the local governments are regulated in various laws or have stipulated guidelines (i.e. the Social Services Act, the Education Act, and the Health and Medical Services Act). In many countries, the municipalities’ areas of responsibility have been extended
and the municipal public service provisions have expanded over time. Sweden has implemented numerous reforms and decentralizations of public services to the local government level over the last decades, thus expanding the local government sector.²

**Figure 1.** Government consumption expenditures in Sweden 1993-2006.

Note: The figure shows the government consumption expenditures for the different levels of government, given in million SEK, current prices, for the years 1993-2006. Transfers are not included in these figures. Source: Statistics Sweden.

In Figure 1, the government consumption expenditures for the three levels of governments are shown (i.e. central government, county council and municipality level). As can be seen in the figure, the municipalities’

² The Ädel-reform, the Education Reform, the Handicap Reform and the Maximum-fee Reform for childcare are some examples.
share of total public expenditure has increased over the years, from about 44 percent in 1993 to nearly 50 percent in 2006.

Table 1 shows the average distribution of municipal income and expenditures for the year 2006. Tax revenue is the main source of revenue for the municipalities. Municipalities are entitled to set the local tax rate to finance their provision of public services; however, since income taxes are already high in Sweden, the excess burden of a further increase in the tax rate could be very large for the municipalities. Thus, this makes it harder for municipalities to motivate additional tax increases. This, in turn, also makes them dependent on other sources of revenue, in order to fully finance the public service provision. Other sources of revenue include intergovernmental grants and user fees, which amount to sixteen and seven percent, respectively, in 2006.

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly &amp; disabled</td>
<td>Tax revenue</td>
</tr>
<tr>
<td>Education</td>
<td>Grants</td>
</tr>
<tr>
<td>Childcare</td>
<td>User fees</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Rent &amp; sales</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>Other revenue</td>
</tr>
<tr>
<td>Culture &amp; Leisure</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Sweden and Swedish Association of Local Authorities and Regions (SALAR).

The distribution of income and expenditures differs among municipalities. Due to the differences, there is a fiscal equalization grant system in place, intended to guarantee that all municipalities have an equivalent economic

---

3 Property taxes are set and collected at the national level.
foundation irrespective of their particular structural circumstance. The fiscal equalization grant system includes income equalization, cost equalization, and structural grants.

Reform for Services to Functionally Impaired

The handicap policy of today began in the 1960’s and 1970’s with an effort at creating equal opportunities for individuals with disabilities, where concepts such as “integrating and normalizing” played a central role. Up until then, the public provision of care and services had mostly been of medical character, and had often been provided in institutional facilities by the county councils. A number of reforms were implemented in order to create conditions that would enable those with a handicap to live their lives in the same way as other members of society (SOU\textsuperscript{4} 2008:77).\textsuperscript{5} In 1994, there was another Handicap Reform which, among other things, clarified the division of responsibilities between county councils and municipalities for disabled and functionally impaired individuals. For instance, the responsibility for providing services to functionally impaired individuals was transferred to the municipalities. In addition to the transfer, a new law called the LSS-act\textsuperscript{6} was implemented. The LSS-act is an entitlement law geared towards individuals with functional impairments; this act extended the rights of the functionally impaired and more people became eligible to receive services.

The transfer of the responsibility for services to functionally impaired was a continuance of the decentralization trend in Sweden: the trend was to

\begin{itemize}
\item SOU = Swedish Government Official Report.
\item For example, the “Provisions and Services Law” (Omsorgslag) from 1967.
\item LSS-act = Act Concerning Support and Service for Persons with Certain Functional Impairments, LSS (1993:387).
\end{itemize}
transfer public services provision from the central level to the local level with reforms such as the Education Reform and the Ädel-reform mentioned in the introduction. One reason for transferring the responsibility for services to functionally impaired was that the new LSS-act was designed to be a compliment to other laws, laws for which the municipalities already had responsibility. To ensure that the individuals eligible for the LSS services would not be caught between different levels of government (the county level and municipal level), the LSS service needed to be on the same level as the other laws relevant for the functionally impaired. The main reason for implementing a new law such as the LSS-act was that individuals with severe functionally impairments were facing worse living condition than most other people in the community. The laws and regulations that were in existence prior to the LSS-act were not sufficient to create the good living conditions that other people without functional impairment already had. With the LSS-act, individuals with severe and long-lasting functional impairment became part of their community, which enabled them to get greater control of their own life (SOU 2008:77).

The LSS-act

The LSS-act, section 1, contains provisions relating to measures for special support and services to those with an intellectual disability, autism or a condition resembling autism; or for those with a significant and permanent intellectual impairment that occurred after brain damage in adulthood; or for those with other major and permanent physical or mental impairments not due to normal aging. Individuals who belong to any of the above three groups are entitled to support and services if they
need such assistance in their daily lives and if their needs are not satisfied in some other way. The support and services that eligible individuals can receive, according to the LSS-act, include services such as “counseling and other personal support”\(^7\), “personal assistance”\(^8\), “relief service in the home”, “residential arrangement for adults” and “daily activities”.

The LSS-act recognizes that the individuals are different, with different needs and wishes. The LSS-act gives the entitlement and right for individuals to obtain services according to the act, while there is room for individual variation. The possibility of individual variation in the act exists to ensure that each individual gets services according to what suits her and her needs the best (NBHW\(^9\), 2006). Furthermore, available municipal resources (or lack thereof) is not a valid reason for influencing the decision-making, as under the Social Services Act, which is a more general, goal oriented framework law, leaving room for the municipalities to interpret and implement the goals in accordance with local ambitions (Lewin, Westin, and Lewin, 2008). Another purpose of the LSS-act was to give individuals with functional impairment a stronger position in the welfare system. An explicit purpose of the LSS-act was to overcome local variation in support (Lewin et al., 2008).

---

\(^7\) Counseling and other personal support is the one service for which the county council is still responsible (although, by agreements, some municipalities have taken over this service as well).

\(^8\) Personal Assistance is the responsibility of the municipalities for the first twenty hours (per week). If an individual’s needs call for more than twenty hours per week, then it is the responsibility of the federal government (Social Service Administration) (as regulated in the LASS, Assistance Benefit Act).

\(^9\) NBHW = The National Board of Health and Welfare.
Since the transfer of responsibility and the implementation of the LSS-act, there has been a considerable increase in the expenditure for services to functionally impaired. In 1998, the per capita expenditure was 2095 SEK, while ten years later, in 2008, it had increased to 4895 SEK per capita. The increase in the municipalities’ expenditure for providing the service to functionally impaired can largely be attributed to changes in the LSS-act over the years; more people are included in the act now as compared to when it was first implemented. In 1999, 43991 individuals were granted services; in 2008, this number had increased to 58735 individuals (NBHW). Thus, the number of individuals who received services according to the LSS-act increased with more than 30 percent during 1999-2008. However, there are major regional differences within the country with regards to the number of individuals granted services; from 28 individuals per 10000 inhabitants in the municipality of Vaxholm to 169 individuals per 10000 inhabitants in the municipality of Vännäs (NBHW). There are also great variations in expenditure per capita in the municipalities, which largely contribute to the differences in the number of individuals who are granted services. In Figure 2, the distribution of LSS expenditure per capita (age 0-64) for all municipalities for the year 2008 is illustrated. In 2008, the average expenditure for LSS-services ranges from 655 SEK per capita for the municipality of Ydre, to 11646 SEK in the municipality of Vännäs. The average spending for the country was 4594 SEK per capita at this point in time.

10 Current prices, source: www.WebOr.se (WebOr is an online database with data from Statistics Sweden provided by the Swedish Association of Local Authorities and Regions).
Figure 2. Distribution of LSS expenditure per capita (age 0-64) for municipalities, year 2008.

In 2004, a new expenditure equalization system with regards to LSS-expenditure was implemented (SFS 2003:886). The expenditure equalization for LSS is not part of the regular intergovernmental grant system. The purpose of the LSS expenditure equalization system is to create the same basic economic conditions for the municipalities to provide services to functionally impaired according to the LSS-act.
3. Provision and Determinants of Local Public Services

The purpose of this section is to describe the parts of the research tradition in local public economics that intersect with this thesis. There are mainly two strands of the literature that are of particular interest for the present thesis. One is the literature on the determinants of public expenditures. This literature tries to answer questions such as what factors are important in explaining the variation in expenditures among local governments, and how do local governments (or their decision-makers) react to economic incentives. The other part concerns the (economic) relations between the municipalities and between the municipalities and the other levels of government in a nation, commonly known as fiscal federalism. Questions typical for the field of fiscal federalism are how should the responsibilities between the different levels of the public sector be assigned in a nation? What are the effects of decentralization of decision-making from the central to the local level? Do local governments interact with one another in their decision-making and, if so, how?

Since the seminal work by Borcherding and Deacon (1972) and Bergstrom and Goodman (1973), the determinants of public expenditure at decentralized levels of government are often analyzed with the median voter model. The local decision is then regarded as a function of the characteristics of the median voter. In empirical applications, determinants also include economic, demographic and geographical characteristics of the local government, for example tax base, population, intergovernmental grants, as well as other institutional and socio-economic factors. It is important to include intergovernmental grants in local governmental expenditure studies. Due to vertical fiscal imbalances
many local governments are dependent on the grants in order to fulfill their responsibilities. A vertical fiscal imbalance arises when expenditure responsibilities are decentralized to a lower level, but not the equivalent increase in revenue raising responsibilities (Boadway, 2001). How do municipalities react to grants from the central government? For one thing, empirical work often finds that public spending from grants exceeds that from equivalent increases in income, which is contrary to the theory of intergovernmental grants.\textsuperscript{11,12} This empirical finding was labeled “the flypaper effect” by Courant, Gramlich, and Rubinfeld (1979); since “money sticks where it hits”. However, empirical estimation may face problems of, for example, endogeneity or omitted variables. Dahlberg, Mörk, Rattsø and Ågen (2008a) account for endogeneity of grants by using a discontinuity in the grant provision in Sweden to identify the effect of the grant. They find that the grant is used to increase spending (by more than with a similar increase in the tax base), while the grant is not used to reduce tax rates. Witterblad (2008) studies the determinants of local expenditures and the existence of a flypaper effect by using a political model that includes income distribution (low and high income earners) in the municipalities. His results show that the income distribution in the municipality explains the flypaper effect and the differences in expenditure among regions; municipalities with a higher share of low income earners show a greater flypaper effect.

Empirical evidence also shows that political party variables are of great importance in the decisions making. In a study on Spanish regions, Solé-

\textsuperscript{11} Theory predicts that an increase in grants should have the same effect as an equivalent increase in income (Bradford and Oates, 1971 a,b).
\textsuperscript{12} There is a large literature considering intergovernmental grants; see e.g. Hines and Thaler (1995) and Oates (1999).
Ollé (2006) found that left-wing governments increase taxes, debts and spending when their electoral margin increases; while right-wing governments, on the other hand, decrease taxes, debts and spending when their electoral margin increases. The incentives of the local policy or decisions-makers may be to support his or their own goals or ideologies. Dahlberg, Lindquist, and Mörk (2008b) use the same discontinuity rule in the grants in Sweden as Dahlberg et al. (2008a), but it is now used to study the incentives of bureaucrats, and how they reacts to grants. They find that the number of bureaucrats increases when there is an increase in grants, while the number of other personnel in the local government is unaffected by the grant. This adds to the explanation of variation in expenditure due to the fact that the local bureaucrats may let their own goals influence the spending decisions regarding grants.

Public services are usually provided by different levels of government, in Sweden as well as in other countries. Via new laws, reforms, decentralizations and other factors, such as an increasing elderly population, the responsibility and the extent of the public provision of a service can change, both by size and by what level that is obligated to provide the service (transfer from the county to the municipality level, for example). Although there are benefits from providing certain types of services at the central level, such as defense, many other services and functions are best provided at the local government level. One reason for the decentralization of public services to the local government level is of normative character; it may be desirable that public services that help and enable citizens in their daily life should be provided at the same level as other daily public services, such as elderly care, education and daycare, in order to integrate all individuals into their own community. This is one of
Introduction and Summary

the reasons why services to functionally impaired was transferred to the municipalities, to make them part of their own municipality as well as to normalize functional impairments in society. Another argument for decentralization is that communities differ from one another, and services to citizens should be provided at the local level, because the local level is in a better position to account for their preferences and other local characteristics, as compared to the central government. The local variation in provision would thus improve efficiency, rather than the uniform provision that the central government is assumed to provide (Boadway, 2001). This is the classical argument for decentralization (Oates, 1972).

With decentralization, local variations in tax rate, service level, as well as the performance of the local policy-makers and politicians are more visible to the inhabitants of the jurisdictions. With free mobility, inhabitants can move to (or stay in) the region that best suits their needs and preferences. Since municipalities collect taxes from the inhabitants’ income, the decision to move to another jurisdiction will directly affect the resources of the local government.13 For this reason, local governments are interdependent when making their tax policy or expenditure level decisions; they must also take other jurisdictions’ decisions into account; giving rise to fiscal interaction. One aspect of fiscal interaction is the theory of tax competition. Tax competition is when the local governments compete for a mobile tax base (see Wilson, 1999, for an overview); where the tax rate in one region depends on the tax rate in neighboring regions. Positive spatial autocorrelation is found when a jurisdiction responds to neighbors’ policy or expenditure level in similar

13 The same reasoning also applies to property tax and corporation tax. However, contrary to many other countries, in Sweden, the local government can only levy taxes on income, not capital or properties.
Another aspect of fiscal interaction is the yardstick competition model. In the yardstick competition model, due to lack of information on its own local government, voters can use the performances of other jurisdictions as a benchmark to compare it to the performance of its own jurisdiction. Besley and Case (1995) develop and test a model of yardstick competition where voters in a local jurisdiction compare the performance of neighboring jurisdiction in order to evaluate the performance of its own politicians and policy-makers with regards to local tax setting. Since politicians (are assumed to) care about being reelected, they will take neighboring jurisdiction decisions into account before deciding on their own policy, which would lead to positive spatial autocorrelation. The result from Besley and Case’s study supports their hypothesis that yardstick competition indeed influences the decision-making. Along with tax competition and yardstick competition, there are other possible sources of interaction among local governments as well: expenditure spillover, mimicking, and welfare competition for example (see Brueckner, 2003 and Revelli, 2005).

When estimating the models of fiscal interaction, findings of positive spatial autocorrelation (i.e. the slope of the reaction function is non-negative) are consistent with yardstick competition, tax competition, mimicking and welfare competition models. Therefore, additional evidence is needed to discriminate between the models (Brueckner, 2003). Recently, there have been a number of empirical studies that make an effort to separate the sources of interaction. In a study on local property
tax rates in Italian cities, Bordignon, Cerniglia and Revelli (2003) try to discriminate between the tax competition and the yardstick competition hypothesis. They found a positive interdependence in the tax rate only in those cases where a strong majority did not back them up. The result points toward the source of interaction coming from yardstick competition. In a study on Swedish local income tax policies, Edmark and Ågren (2007) use a governmental reform that changed the system of tax base equalization to test for tax competition and yardstick competition. While they found weak evidence of tax competition, which is consistent with attracting mobile taxpayers, they found no evidence of support for the yardstick competition model.

Other studies that try to separate tax competition from yardstick competition are those of Solé-Ollé (2003), Allers and Elhorst (2005), and Rattsö and Fiva (2007). They are all using the property tax rate (in Spain, the Netherlands, and Norway, respectively); the results all point toward yardstick competition.
4. Summary of Paper [I], [II], and [III]

**Paper [I]: Exploring Differences in Expenditure for the Functionally Impaired: Neighborhood Interaction and the Federal Structure**

One of the reasons for the reform that implemented the LSS-act and transferred the responsibility for services of functionally impaired to the municipalities was to overcome regional differences in the provision of these services. However, both the number of individuals receiving services and the expenditure per capita differ greatly among municipalities. The purpose of this paper is to study the differences in expenditure for services to functionally impaired individuals among municipalities in Sweden.

Besides traditional explanations such as differences in the number of disabled persons in the community, or economies of scale, other explanations are also studied here. Since the provision of LSS services is relatively new for the municipalities, the uncertainty at the service and expenditure level may be great. In line with this, a social interaction hypothesis is studied. It is hypothesized that the municipalities interact or mimic each other to minimize the cost of obtaining information on the “right” services or the expenditure level and, by mimicking, they can learn from their neighbors. In addition to the social interaction hypothesis, the influence of the former caregiver (county councils) is also taken into account.

The empirical analysis is based on a dataset of 288 Swedish municipalities for the year 2003. The hypothesis of mimicking (and social) interaction among neighboring municipalities is studied by means of a spatial
autoregressive model, where the spending of one municipality depends on its own characteristics but also on the level of spending by its neighbors. To account for the possible influence of the county councils, the spatial autoregressive model is specified with and without explanatory variables for county councils.

The results show a positive and significant spatial interaction term for model-specification without explanatory variables for county council, supporting that cooperation or mimicking among municipalities exists with regards to the expenditure level for functionally impaired. However, for the specification with county-council effects, the results show a non-significant spatial interaction term. Therefore, it is not possible to determine if the positive spatial interaction first found is due to municipalities belonging to the same county council, or if it is because municipalities in the same county cooperate or mimic each other. The similarities among neighboring municipalities may be due the fact that the county councils used to be caregivers for individuals with functional impairments, and that the county councils are still those diagnosing individuals receiving LSS services.

Paper [II]: Intergovernmental Grants and Local Public Expenditure Decision: Interaction due to Information Spillover

This paper analyzes the effect of a new unconditional intergovernmental grant distributed to Swedish municipalities. The grant was implemented in 2004 and is associated with expenditures for services to functionally impaired individuals. The grant is not based upon actual costs incurred by the municipalities; instead, it is based on nationally set standardized costs. Two main hypotheses are tested in this paper. First, similar to previous
studies on intergovernmental grants, the effect of the grant on related public expenditure is studied. Is this grant used to increase expenditures for functionally impaired?

Second, and unlike other studies on intergovernmental grants, this study focus on the information on standardized costs associated with this grant, and study whether it causes municipalities to change their level of interaction among each other. It is hypothesized that the standardized costs may be viewed as a signal from the national government to the municipalities on what the right expenditure level should be. Here, it is argued that prior to the implementation of the grant, municipalities used the expenditure levels of other municipalities as information sources, and mimicked their neighbors in order to get the “right” service or expenditure level. After the implementation of the grant, and its associated information on standardized costs, the need to mimic should have decreased (or diminished), since the information could instead be obtained through the grant.

The empirical analysis is based on 288 municipalities for the years 2001-2007. The hypotheses are tested using a spatial panel autoregressive (SAR) model including fixed effects for time and municipalities. In the SAR model, the spatial autoregressive parameter measures the interaction among neighbors. The data set is divided into two time periods: 2001-2003, corresponding to the period before the grant, and 2004-2007, corresponding to the period after the implementation of the grant. In order to support the hypothesis that the grant provides information that

---

15 In this study, the neighbors are defined as a municipality’s neighbors and its neighbors’ neighbors.
causes the municipalities to mimic less, the interaction parameter should be positive in the first period, and zero (or decrease) in the second period.

With regards to the first hypothesis, the result in this study is in line with other empirical studies; it shows that spending on services from grants exceeds that from a corresponding increase in income. With regards to the second hypothesis, the result supports the hypothesis of interaction among neighboring municipalities due to information spillover. In the first period, the interaction parameter is positive and significant, indicating spatial interaction among municipalities, which could be due to mimicking. In the second period, the interaction parameter is insignificant, which supports the hypothesis that the grant provides information and there is no need to mimic each other after the implementation of the grant. This result is interesting, since it shows that the source of spatial interactions among local governments can be due to information uncertainty. The information uncertainty aspect is important to take into account when implementing new services or decentralizing existing services to local governments, for example.

**Paper [III]: Do Local Public Expenditures for Functionally Impaired Crowd Out Other Local Public Expenditures?**

This paper examines the effect of the increasing expenditure for services to functionally impaired on other areas within the local government, with regards to the hypothesis of expenditure crowding out. To support the crowding out hypothesis, increases in expenditure for functionally impaired must have negative effects on other expenditures in such a way that it cannot be explained by other factors determining the expenditures. Although the local government has the autonomy to set its own local tax
rates, the income from taxes does not fully cover the municipal service provision. Therefore, when an expenditure program within the municipality is forced to redistribute its resources, other areas within the municipality are also likely to be affected. It is unlikely that every area will be affected in the same way, though. Areas that are heavily regulated by laws or for which strict guidelines are provided are not likely to be as affected as other areas. Furthermore, since it may be less noticeable to decrease resources in a large service area than in a small area, larger areas are likely to be affected to a greater extent than smaller areas.

The empirical analysis is based on 288 municipalities for the years 1998-2007. The crowding out hypothesis is tested on five spending categories: elderly & disabled care; education; social assistance, childcare & preschool; and culture & leisure, together constituting 90 percent of the total expenditures of the municipalities. The hypothesis is tested with an ordinary least squares (OLS) model and a two-stage least squares (2SLS) model; both models including time and municipal fixed effects. It is possible that some spending categories may be simultaneously decided with the spending for LSS services; in such a case, the LSS expenditure is endogenous, making OLS estimates biased and inconsistent (Baltagi, 2002; Green, 2003). Therefore, to account for the bias in this case, instrumental variables must be used.

The results from the empirical analysis show that the LSS expenditure variable is endogenous in the models for elderly & disabled care spending and education spending. The instruments used in the 2SLS estimation are the three most important determining factors for LSS expenditure. The tests confirm that the instruments are both valid and relevant here. For
the other three spending categories, LSS expenditure is not endogenous, thus making OLS sufficient. While the findings of this study do not support the existence of crowding out for the spending category of social assistance, childcare & preschool, and culture & leisure spending, it strongly supports crowding out of expenditures on elderly & disabled care and expenditures on education, both in a statistical and an economic sense. The results are credible, since both the elderly & disabled care and the education areas are large areas within the municipality sector and although regulated by law, it is not as strict as the LSS-act.
References:


SFS 1982:763 Health and Medical Services Act.


SFS 1993:387, Act Concerning Support and Service for Persons with Certain Functional Impairments.


Statistics Sweden (SCB), www.scb.se.

Swedish Association of Local Authorities and Regions (SALAR), www.skl.se

WebOr: www.webor.se

