Local public expenditure: Equality, quality and growth
To Andreas and Lova
Local public expenditure: Equality, quality and growth
Abstract


The focus of this dissertation is local government expenditure, where growth, quality, and equality is in the center of attention Essay 1: Sports and Local Growth in Sweden: Is a Sports Team Good for Local Economic Growth? The purpose of Essay 1 is to analyze the effect of professional sports on the municipality’s tax base. I find no indications of a positive effect on the growth rate of per capita income from having a team in the top series. Essay 2: Equality of Quality of Day Activity Service Programs in Sweden. In this Essay we investigates the equality of the day activity service programs for people with intellectual disabilities provided by local governments in Sweden. The findings are that despite the Act concerning Support and Service for Persons with Certain Functional Impairments intended to secure equality in living conditions, the quality of day activity service programs seems to be dependent on the local government’s tax base as well as the political preferences. In Essay 3: Analysis of Cost and Quality Indicators of Day Activity Service Programs in Sweden, we analyze the distribution of observable quality indicators for daily activity service programs. We find that municipalities that conduct regular user surveys find reasons to spend more per user on average. Additionally, the probability for transitions to employment at a regular workplace is higher in municipalities where as a routine a review is made of whether each participant can be offered an internship or work. The objective of Essay 4: The Composition of Local Government Expenditure and Growth: Empirical Evidence from Sweden, is to analyze whether there is a possibility of enhancing the average income growth rate at the local level by redistributing expenditure between main functional areas of local governments, while keeping the budget restriction fixed. We find that devoting large shares of expenditure on areas that increase labor supply, such as child care are positively related to growth in income. Additionally we find that spending areas previously categorized as productive can have a non-linear relationship with growth.

Keywords: Sports, growth, spatial econometrics, day activity service programs, intellectual disabilities, regional differences, local expenditure

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1 Introduction

1.1 Short Summary

The focus of this thesis is local government expenditure, in which growth, quality, and equality are in the center of attention. Essay 1 is *Sports and Local Growth in Sweden: Is a Sports Team Good for Local Economic Growth?* The purpose of Essay 1 is to analyze the effect of professional sports on a municipality’s tax base, because municipalities support professional teams with the belief that this can increase growth. However, the results show no indications of a positive effect from professional sports on the growth rate of average income or net migration.

Essay 2: *Equality of Quality of Day Activity Service Programs in Sweden.* In this Essay we investigate the equality of day activity service programs for people with intellectual disabilities and autism provided by local governments in Sweden. The findings of Essay 2 are that despite the Act concerning Support and Service for Persons with Certain Functional Impairments which is intended to secure equality in living conditions the quality of day activity service programs seems to be dependent on the local government’s tax base as well as its political preferences.

In Essay 3, *Analysis of Cost and Quality Indicators of Day Activity Service Programs in Sweden,* we analyze the distribution of observable quality indicators for day activity service programs in municipalities in Sweden. We find that municipalities that conduct regular user surveys find reasons to on average spend more per user. We also find that the probability for transitions to employment at a regular workplace is higher in municipalities where as a routine a review is made of whether each participant can be offered an internship or work.

The objective of Essay 4, *The Composition of Local Government Expenditure and Growth: Empirical Evidence from Sweden,* is to analyze whether there is a possibility of enhancing the average income growth rate at the local level by redistributing expenditure between main functional areas of local governments, while keeping the budget restriction fixed. We find that devoting large shares of expenditure on areas that increase labor supply, such as child care and elderly and disability care, is positively related to growth in income. However, a low spending share in these areas has a negative correlation with the growth rate. We also find that infrastructure
spending has a non-linear relationship with growth, implying that a sufficiently high spending share on infrastructure is negatively related to growth in the tax base.

1.2 Background and motivation
Most countries around the world have a public sector in excess of what is required for purposes to obtain at least a minimal level of law and order. The size of the public sector has also had a tendency to grow over time, where public expenditure as a share of GDP has increased from approximately 10 percent in the beginning of the 20th century to, as in Sweden over 50 percent today (Hindriks and Myles, 2013). Without going into potential explanations to this growth, it is however of interest for the purpose of this thesis to briefly discuss motivations for the public sector.

According to the classic textbook in public finance by Musgrave (1959) the public sector has three main functions: work towards an efficient use of resources, distribution of resources and stabilization of the economy. One example of when efficiency issue arises is in the case of provision of a public good, e.g., national defense or street lights. A public good is defined by being non-rival and non-excludable, where the former means that consumption is non-exhausting and the marginal cost of consumption is zero, and the latter means that consumption can take place without payment. There is thus a fundamental market failure, and one solution is public provision of the good or subsidized provision. Another example of an efficiency issue is external effects of consumption or production (positive or negative). A typical example of an externality is when a person keeps her garden nice for her own enjoyment, but neighbors also benefit from this through higher home value. The second function is when public sector re-distributes income in a way that is considered fair by the residents (Musgrave and Musgrave, 1989). The requirements of equity and efficiency are often at conflict, where an equitable policy can be highly inefficient implying that there is a tradeoff between equity and efficiently (Hindriks and Myles, 2013).

The provision of public services in a country is often, to some degree, decentralized from the central government to the sub-national governments, where the arguments for decentralization is that the sub-national level has some advantage in information of the needs in the region and can thereby provide public services more efficiently than the central government. The decentralization theorem states that if the cost of providing a local public good is the same for the central and the local governments it is always more
efficient (or as efficient) for the local government to provide the good (Oates, 1972).

Public goods that serve the entire economy should be left for the central government, and local public goods, goods that benefit only residents in that geographical area should be decentralized to local governments if they have an information advantage about preferences, to allow for differentiation in the provision of the particular public good. The preferences for public services are different among people, which means that the sub-national units will be different regarding the provision of public services. If people move in accordance to preferences (Tiebout, 1956), and preferences for public goods differ with income (Musgrave and Musgrave, 1989), the distribution of the tax base across sub-national units also will be different.

In an international comparison Nordic countries have a large local government sector. These countries are therefore often interesting cases to study, where this thesis particularly focuses on the case of Sweden. In Sweden, the public sector is structured into three levels of government; 290 local governments (municipalities), 21 regional governments (counties), and a central (national) government, where the local and regional governments in 2012 made up approximately 73 percent of total public consumption (SCB, 2014). In the 1990s the provision of many public services, such as child care, care for the elderly, education and health care was decentralized, or further decentralized, to the sub-national levels.

The mandatory commitments for the local governments are for example child care, education and care for the elderly. These functional spending categories are also the main expenditure areas for the local governments. In addition to mandatory tasks guided by Acts decided by the Swedish Parliament, the local governments can take on voluntary commitments e.g. culture and leisure. Tax revenue is the main source of income for the local governments. The municipality assemblies are free to set their own tax rate, however they can only tax personal income. Since the year 2000 there is also a balanced-budget requirement by law. For the local tier as a whole the income tax revenue as a share of total revenue is approximately 79 percent. However, there is a large variation across the country, Figure 1 shows the tax base distribution among Swedish municipalities. The figure reveals that the local governments have different ability to satisfy the preferences of the individuals in the municipality.
To give local governments more equal opportunities to provide services many countries distribute intergovernmental transfers to the local governments (Oates, 1999). This is also true in Sweden where the grants systems consist of both revenue and cost equalization, as well as general and certain specific grants. Until 2005 both the cost and revenue equalization scheme was horizontal where the sum of grants between recipients and contributors is equal to zero. However, the revenue equalization is thereafter merged with the distribution of general and specific grants by the national government and therefore a vertical transfer system that is mainly financed via the national budget. The purpose of the cost equalization grant is to support municipalities that face structurally different needs and higher costs than an average municipality, the local governments are however free to use the funds at their own direction. Figure 2 displays the distribution of income tax revenue plus grants per capita across Swedish municipalities. These range from 31,649 SEK per capita to almost the double, at 62,603 SEK per capita. This range may reflect the different preferences for public services across Swedish municipalities.
Figure 2 Distribution of income between municipalities in Sweden in the year 2010

Now, looking at the development of the tax base over time, i.e., the growth rate, Figure 3 illustrates the large variation in growth rates across Swedish municipalities, where the lowest growth rate is ten percent of the highest. Comparing the left map (2004-2007) to the right map (2010-2013) we also see that the variation is large over time. There are several determinants of the growth rate in the local tax base, where both the growth of average income and the growth of population are of interest. Previous studies have found that the level of the average income has a negative effect on growth (see e.g. Lundberg, 2003; Barro and Sala i Martin, 1992), implying that poorer regions tend to catch up with richer regions. Studies by e.g., Helms (1985) and Lundberg (2003) also show that local government expenditure can affect the growth rate, which implies that it may be in the power of the local government to impact on the growth rate of the tax base through the decision on how resources are allocated to different spending areas.
Figure 3: The distribution of the growth rate of the tax base 2004 to 2007 (left) and 2010 to 2013 (right).

Source: SCB
1.3 The scope of the dissertation

Many municipalities across Sweden face a noticeable challenge with an increased demand of public services and tight budgets. The decision of where to allocate resources is therefore crucial, and perhaps increasingly crucial. In Essay 1 we study a voluntary local government commitment, namely sponsoring a professional sports team. The theoretical motivation for such an intervention would be on either equity gains or efficiency gains. If, as in this case, sports generate positive externalities by attracting business or individuals to move there, this activity can be subsidized on economic grounds. However, it could also be the case that the residents in the municipality have preferences in favor of subsidies towards sports, and that they do not want lower tax rates or more resources to e.g. infrastructure if it comes to the cost of losing their sports team. Though, when allocating more resources to one area, the share spent on another area needs to be decreased, unless more income can be raised. The relationship between the composition of local government expenditure and the growth rate is studied in Essay 4.

Regarding mandatory tasks, the central government tries to monitor the lower levels of government via legislation as well as via the intergovernmental grant systems. One specific example is the Act concerning Support and Service for Persons with Certain Functional Impairments (the LSS Act, henceforth). The LSS Act was implemented in 1994 to give individuals with some specific and long-term intellectual disabilities guaranteed equality in living conditions and participation in the community, independent of location. In 2004, this legislation was complemented with a specific LSS grant for the purpose of giving municipalities’ equal means for upholding equity in the provision of LSS services. This is an example of the central government trying to steer the local governments in one specific direction. The self-governance of local areas is a tradeoff between independency and equity. Local governments should be able to make their own allocation decision with the aim to maximize the utility of their residents. However, when it comes to this specific expenditure area, there is a law clearly stating that there should be equality in living conditions and participation in the community, independent of location. The results presented in Essay 2 imply that this is not the case. The decision on the amount to spend on day service activity programs, which is one part of the LSS Act, depends not only on the budget of the local government but also on the preferences of the majority in that area. In Essay 3 we take this issue one step further and look at what the governments can do to improve the quality of daily activities.
1.4 Data and methodological considerations

All essays in this dissertation use data from official sources, which means that the data is to some degree controlled. However, this does not guarantee a flawless quality of the data. In some cases we have been in contact with municipalities where the numbers have been questioned. The solution has been either to remove that particular observation or test the model without these municipalities and see if it affects the results.

In three of the essays we use panel data and thereby have the possibility to use fixed effects to control for some of the unobservable variables that would otherwise be left out of the model. In Essays 1 and 4 we study growth rates where we are mainly interested in the long-run growth. There are several aspects to consider when looking at a development in a variable over time, e.g., what growth period to choose, how to handle spatial interactions between municipalities, serial correlation, fixed or random effects, etc. For many of the issues at hand there are available tests to guide the researcher, but for some issues this is not the case and it will be up to the researcher to make the judgement.

A common issue in all Essays is causality. For policy implications this is of course an important question. To settle the direction of causality one needs to know the counterfactual, i.e. what would be the result if this did not happen. As this is nearly impossible to know, the second best way is to make experiments. In social sciences this is however seldom possible. In the context of Essay 1, we would thus like to put all the professional sports teams in one cup, shake them around and then randomly put them in different municipalities. This would mean that we would have a random assignment of the variable of interest, which would allow us to estimate a causal relationship. Another way to establish causality is when the researcher can identify a natural experiment. The difficulty in this case lies in finding a change that can be isolated and that is strong enough for identification.

Yet another possibility is to use an instrumental variable technique, where the task is to choose a variable (instrument) that is highly correlated with the variable of interest (e.g., the local government spending share) but uncorrelated with the error term, and not an explanatory variable in the original equation (Murray, 2006). A good instrument needs to be both relevant and valid. Using an invalid instrument can even result in more biased estimates than running the model without instruments, and using a weak instrument can also yield misleading results (Murray, 2006).
So, can a relationship between two variables be interesting if it’s only a correlation, and can you argue for its causality, and still be useful to policy makers, and future research? Looking at Essay 4, we make a point of not a priori classifying various local government expenditure as productive or unproductive, but instead let data speak for itself. To establish the direction of causality this means that we need to find an instrument for every expenditure category, which we could not do. Thus, in Essay 4 we cannot claim causality. It could very well be that a higher growth rate makes the local government divide the budget differently, because it can allocate a spending larger share on e.g., child care. However, we try to reduce the reverse effects by keeping the budget fixed, which means that we rule out the case where a municipality could increase all spending areas. Instead, the municipality assembly is required to reallocate between spending areas, reducing the reversed effects.

In Essay 1 we do not find any positive effects on the growth rate from having a professional sports team. If there were a reversed causality in this case, we would expect that a high growth rate is connected to a municipality being able to give higher support to a team, and thereby increasing the chance of having a team in the top series. This means that we would overestimate any positive effect, which we could not establish in the first case.

In Essay 2 we study the variation in average cost per user of day activity service programs. A high average wage in the municipality could drive the cost and result in a positive effect from the income variable on cost per user. However, we use fixed effects so it is only an issue if the income level within the municipality has increased. In the Essay we also instrument for income by using different variables that are considered determinants of income, and which we do not believe affect the cost per user, namely the share of high educated and share of children in the municipality. High educated consists of people with a university education of three years or more. Data shows that income levels have increased but the cost per user has decreased during this time period. However, there may still be omitted variables that vary over time and are not controlled for by our time controls, which means that we cannot claim causality.

In Essay 3 we use a cross section of Swedish municipalities and add a county dummy variable to control for some variation that we cannot observe. Here, we focus on how quality indicators are related to the cost of day activity service programs. In the case of a positive correlation, which we find evidence for regarding the application of user surveys, we can argue that conducting a user survey isn’t all that costly, so it must be something
else that affects the costs. Even the case where no correlation can be established is interesting since this means that a quality improvement can be performed without increasing costs. Thus, to answer the earlier stated question, yes, even a correlation or the lack of a correlation, can be informative for policy makers and future research.

2 The essays

2.1 Essay 1

Sports and Local Growth in Sweden: Is a Sports Team Good for Local Economic Growth?

In Essay 1, we try to answer the question, of whether a municipality can turn to professional sports as an engine of growth. To answer this question, we analyze whether a municipality’s net inbound migration and per capita income are affected when a local sports team enters or exits the highest and second-highest national leagues of ice hockey and soccer in Sweden. The reason for this question is that many local governments give substantial financial support to professional sports teams in several countries, including the U.S. (Coates and Humphreys 2003b) and Sweden (SKL 2010). Promoters of these subsidies often claim that teams who make it to the national premium leagues in the sports with major public attendance will contribute significantly to the local economy. Thus, the teams contribute indirectly to the tax base and tax revenues of the local government by providing marketing services that enhance the local community’s public image and thus attract labor and business. In addition, a team may provide direct injections into the local economy from spectators’ spending on tickets, meals, and lodging, among other things.

However, most previous empirical studies on the impact of sports on the local economy have not found any significant correlation (see, e.g., Baade 1994 and 1996, Hudson 1999 and Coates and Humphreys 2003a), whereas some have even found a negative relationship (see, e.g., Coates and Humphreys 1999 or Baade and Dye 1990). Coates and Humphreys (2003b) argue that negative effects could arise because of the opportunity costs incurred from crowding out other, more productive, public expenditures. We contribute to this literature by also including spatial dependence that can bias the results if not included (Anselin 1988). As most empirical studies on this topic are conducted using U.S. data, we add the perspective of the ef-
ffects of sports in a country with a public sector and a sports league organization, which is traditionally different than that of the U.S., by using municipality-level panel data for Sweden from 1996-2012.

We find no robust statistically significant effects for any of the sports-environment variables on the average income growth rate in Swedish municipalities. We do find indications of a negative effect from ice hockey on the average growth in mean income as well as some indications of a positive effect from having a team in the second highest league. Thus, using both a different dataset and alternative econometric modelling, our findings are in line with previous results in the sports economics literature regarding the highest league.

2.2 Essay 2

Equality of Quality of Day Activity Service Programs in Sweden. In Essay 2, we investigate whether the intended levelling of quality between localities has been achieved for daily activities (DAs henceforth) in Sweden.

The Swedish national entitlement legislation is known to be one of the most developed in Europe for persons with intellectual disabilities or autism. Its aim is to provide equal quality of DAs independent of location. Not much is known about the content and quality of such daily activity programs.

As the content of these services varies substantially and has to be adapted to local circumstances, it is a major challenge to national policies to ensure that basic quality standards are met everywhere. In Sweden, differences between localities in the quantity and quality of services for people with intellectual disabilities and autism have been a major concern in the policy debate. NBWH (2007) and Lövgren et al. (2013) have observed a lack of research regarding daily activities. Based on national data for Sweden it was recently concluded that the human rights of many persons with disabilities were not being met (Danermark & Larsson Tholén 2014). A crucial issue in analyzing the performance and equality in DAs is the ubiquitous lack of all sorts of quality indicators, especially outcome indicators.

We estimate a reduced-form model of demand and supply side determinants of a latent quality variable for day-service programs using panel data on expenditure per attendee for the 290 Swedish municipalities 2004-2012. We find that the expenditure per attendee is, among others things, correlated with the local tax-base and outcome in elections to the local assemblies. While for many other public spending items, this would be a natural consequence of local government’s self-governance, LSS services are an explicit
exception. The LSS Act ensures equality in standards regardless of locality, and the cost-equalization scheme is intended to make that possible. These results imply that the rights of persons living with intellectual disabilities with regard to equal quality of daily activities independent of where they live are not fully honored in budget allocation decisions made by local governments.

**2.3 Essay 3**

*Analysis of Cost and Quality Indicators of Day Activity Service Programs in Sweden.* In Essay 2, it was found that the intended equality in the quality of DAs independent of location has not been achieved. This Essay takes the analysis a few steps further by introducing some explicit quality indicators that are available for one year, 2012.

The content of DAs may vary considerably, from work-like structured occupation to social meeting places with few scheduled activities. Little is known about how the participants’ quality of life is affected or about the effectiveness of these programs in providing vocational training. However, one reason for the findings that differences between localities are sustained as explained in Essay 2, could be the lack of common indicators that make the quality of services provided by the 290 self-governed municipalities commensurable. Such indicators, aiming for the measurement of “prerequisites for good quality”, have recently been collected by the Swedish National Board of Health and Welfare. The main focus of this study is the ways in which some of these indicators are related to the expenditure per user and the probability of transitions of DA users to employment.

If effective, the quality indicators can be expected to affect quality in one of two ways; either by raising the outcome quality per unit of expenditure or by revealing outcome quality deficiencies that motivate additional spending. In the first case, when cost efficiency is improved, the expenditure per user will stay constant or fall. In the second case, expenditure per user will rise. The purpose of this study is to analyze the cross-sectional variation of the municipality-level average cost per user and how it is related to some of these quality indicators. A further purpose is to investigate whether successful vocational training, measured as the probability of a transition to employment at a regular workplace, can be explained by economic factors and quality indicators. From a previous survey of all municipalities, NBWH (2008) reported that more than half of the municipalities had not seen any such transition during a five-year period. We estimate two statistical cross-sectional models using data from 240 municipalities in 2012. The first is an
OLS model of average expenditure per participant and the second a probit model of the probability that there was at least one transition from a day program to employment during a year. Explanatory variables in both models are the quality indicators. In addition, we use political and economic variables, including population size and county-level fixed effects, as covariates. We observe that both the expenditure per attendee and the quality indicators vary considerably despite the entitlement legislation that gives eligible persons the right to services of equal quality independent of location. We find that municipalities that conduct regular user surveys find reasons to spend more per user on average. We also find that the probability for transitions to employment at a regular workplace is higher in municipalities where as a routine a review are made to determine whether each participant can be offered an internship or work.

2.4 Essay 4


In Essay 4, we analyze the relationship between local economic growth and the composition of local public expenditure.

Economic growth is the center of attention for reasons such as maintaining or improving standards of living. There are obviously many factors affecting the level and speed of growth, and the local municipal assembly may have direct power over some of these through the budget in terms of how expenditure are balanced between pure consumption and productive investments.

Our focus is on the relationship between growth and the composition of local government expenditure, keeping the size of the government budget constant. For governments in countries such as Sweden with little or no room to expand the size of the budget through increased tax rates or deficit financing, it seems highly interesting to analyze the budget components and explore how the composition of existing expenditure may influence growth. Following the theoretical framework of Devarajan et al. (1996), we also incorporate non-linear relationships between public policy variables and growth. It is also important to control for the spatial dependence between neighboring municipalities, if spatial dependence is present and ignored, it may bias the results (Anselin, 1988). Most studies in this line of research have ignored distortions in terms of potential external effects on the income and/or expenditure side. Horizontal tax competition is an example of such
an externality, which means that tax changes in one locality affect tax income of another locality due to the mobility of the tax base.

We find that expenditure on child care and elderly and disability care both have a negative relationship with the local average income growth rate if the shares spent on these expenditure categories are low. However, the results indicate a non-linear relationship which means that the relationship turns positive when increasing these spending shares beyond their respective switch points. There are also indications of a non-linearity in the infrastructure spending share, a spending category usually considered as productive. However, our results show that it could be non-productive if the local government devotes too large a share of the budget to infrastructure.

3 Comments on policy and future research

All essays in this dissertation concern the use of public funds, in which the local government acts on behalf of its tax payers. The results contained in this dissertation cannot, and should not, be used to give a specific local government the advice to invest in this or allocate more resources to that. However, what we can do is advice local governments to evaluate every investment on its own, and consider potential alternatives. Looking at the support of professional sports, for example, we have not found any indications of a positive effect on the growth rate for municipalities, on average.

In Essay 4 we see results indicating a non-linear correlation between the share of local government infrastructure expenditure and the growth rate of average income. According to previous studies by e.g., Helms (1985) infrastructure spending is productive. However, the results in Essay 4 imply that infrastructure spending is not automatically growth enhancing, but rather that every investment should stand on its own, as even productive expenditure can become unproductive if overused (Devarajan et al., 1996). In both Essays 1 and 4 we cannot observe the quality of the publicly provided good in focus, or the quality of other publicly provided goods. An investment in professional sports or an arena for example, could be justified if it raises the welfare of the residents in the municipality. It could very well be the case that the individuals have stronger preferences for professional sports than other services or goods provided by the municipality. The study conducted in Essay 1 focuses on whether there is evidence of any economic externalities from professional sports. But other externalities from professional sports may still exist, e.g., as a ground for motivating children to play sports, gen-
erating a sense of a belonging, which will increase the welfare of the residents. Another alternative is that hooliganism at games requires increased police effort and that loud noise from arenas create negative externalities that reduce the welfare of the residents. All of these alternative possibilities are important to consider, but difficult to measure and outside the scope of this dissertation.

The Swedish municipalities are self-governed but have to obey by the laws set by the Swedish Parliament. To help municipalities comply with the law the central government also give grants. However, according to results in this dissertation this is not enough, it is difficult to reach equality in the quality of locality provided services across self-governed municipalities. There is a tradeoff between equity and independence. Both the central and the local governments face difficulties. The central government sets laws and obligations that the local governments should comply with. The LSS Act has been effective for over two decades. Results in this dissertation show that local spending on day activity service programs is strongly correlated with changes of local political preferences and the local income which means that despite the implementation of a specific equalization scheme equalization of standards is not met.

Let us lastly summarize the findings from this dissertation. Subsidies to teams in the highest series of soccer and ice hockey cannot be justified on the grounds of economic benefits. The intended equality in quality of services provided according to the LSS Act across locations has not been fully accomplished. User surveys can increase the overall quality of day activity service programs provided under the LSS Act, making the activities more in line with the user’s needs and the policy maker’s intention with the Act. Also, the probability of transitions to employment at a regular workplace is higher in municipalities where as a routine a review is made of whether each participant in day activity service programs can be offered an internship or work. Finally, in the allocation of resources it is important for the local government to evaluate every project by its own since overspending on functional spending areas usually considered as productive can be unproductive, due to the presence of non-linear relationships between the composition of expenditure and growth.
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