Stockholm school of economics
Department of economics
Bachelor thesis
May 2012

The Effect of Redistribution on Government Spending in Swedish Municipalities

Sara Ersoy, 21886 Sandra Attermo, 21926

Tutor: Erik Lindqvist

Abstract

There is an ongoing debate regarding the efficient use of public spending in Swedish municipalities. Earlier research states that intergovernmental redistribution, such as the Swedish equalization system, cause a flypaper effect and increase the regional government spending. We examine the relationship between the equalization grant and government spending by running regressions of costs for different municipal activities and grant. Further, we analyze reasons behind the possible relationship by looking at the spending pattern and examining whether grant increase the quality of public services as perceived by the municipal citizen. Our results indicate that a flypaper effect exists in Sweden. Some results deviate from our findings, but they are likely to have a small impact on our overall conclusion. We found that the grant did not increase the perceived quality and that the increase in spending is not biased towards any specific activity. The purpose of the equalization system, to create equivalent welfare in the entire country, was thus fulfilled. After analyzing our results further, we argue that the increase in spending is most likely due to inefficiency.

Keywords: Redistribution; Flypaper effect; Government spending; Principal-agent theory

Table of Contents

Introduction

Empirical evidence indicates that redistribution of tax revenue in the public sector cause inefficient use of money (Barreti, Huber and Lichtblau, 2002, Dahlberg and Johansson, 1998, Rodden, Eskeland and Litvack , 2003, Stehn and Fedelino, 2009). When tax revenue is transferred through several steps, losses can occur due to higher administrative costs. Further, more individuals involved in the administration of money increases the risk that someone acts opportunistic. In addition, there is evidence that politicians are less careful when spending revenues from grant than revenues from tax (Rodden 2002). In this study, we examine the relationship between intergovernmental grant and spending in the Swedish municipalities.

Sweden is, to a large extent, a decentralized country. Compared to corresponding regions in other European countries, the Swedish municipalities have a high level of authority and are primarily self-supporting (Swedish Association of Local Authorities and Regions). The municipalities are responsible for financing and managing a major part of the welfare services. Geographical location, age structure and the citizen's taxable income vary among the municipalities and results in different economic conditions (Government offices of Sweden). The Swedish constitution states that every citizen should have access to equivalent welfare regardless of where they live; therefore there is an equalization system. The municipalities with poor economic conditions receive grant and municipalities with better conditions pay a contribution. The legal right to collect money from municipalities in order to pay for welfare in others is protected by the Swedish constitution (Swedish constitution, 1974:152). The purpose of the equalization system is that differences in municipal tax levels should be an outcome of different levels of efficiency or service level. Differences in costs determined by structural conditions should not affect the tax level (Government offices of Sweden, 2008).

There is an ongoing debate regarding the efficient use of money in municipalities. Further, there are doubts regarding if equivalent welfare across the country actually exists. For instance, some people blame the decentralization of the school system for causing the emerging crises in the Swedish schools (Dagens Nyheter, 2012). Another example is Timbro's and the tax payers association's campaign "Slöso" (people's representative against wasteful behavior). They enlighten the numerous expensive adventure baths and sport arenas that are being built where the actual cost for the project is often higher than what was initially

budgeted (Skattebetalarna and Timbro, 2011). Thus, this indicates that the governments can allocate money to projects that does not maximize the citizens' utility.

Research focus

The decentralization and the thereby needed equalization system can cause inefficiency and deadweight losses to the society. The efficient use of tax revenue is of high importance. In the on-going debate, questions are raised regarding how the municipal recourses are spent. Therefore, it is interesting from both an economical and a political perspective to investigate how the municipal equalization system influences government spending in Swedish municipalities.

There are numerous studies that examine regional redistribution. In these studies, two phenomenons often discussed are the flypaper effect and the fiscal illusion (Rodden et al, 2003). The flypaper effect imply that governments tend to use an increase in grants received to increase government spending instead of passing it on to the citizen by lowering the tax rate. The increase in government spending is higher as a result of the grant than for an equal increase in own source revenue such as taxes (Dahlberg and Johansson, 1998). Fiscal illusion is a perception that the government's costs are lower than they actually are and emerge when the governmental revenues are not fully transparent. The fiscal illusion hypothesis states that fiscal illusion increase when the link between taxation and spending power weakens. Therefore, government spending increase with federal grant and fiscal illusion can be viewed as an explanation to the flypaper effect (Grossman, 1998). There are indications of the effect in Sweden in a study that examines the years 1974-1987 (Dahlberg and Johansson, 1998). In 2005, the equalization system changed in order to minimize efficiency loss. Hence, we argue that the relationship between grant and spending needs to be examined in a more recent time interval.

We will test the hypothesis that spending increase with grant in Swedish municipalities. If we find support for this hypothesis, our aim is to examine this phenomenon further. To study the reasons behind a possible higher spending in net-receiving municipalities, we will examine the pattern of spending – if there are any biases towards certain activities. In addition, we will examine the relationship between grant and perceived quality of the municipal services.

A higher quality in net receiving municipalities is contradicting with the inefficient use of money. Yet, the equalization system should be a subject of discussion. The purpose of the system is to create equality and not to enable net-receiving municipalities to provide services

with a higher quality than the average in Sweden. On the other hand, a lower or constant quality in net-receiving municipalities indicates that money is spent inefficiently or on activities that do not provide a higher utility for the citizen.

Question formulation

Our study aims to answer the question:

How does grant affect spending in Swedish municipalities?

To find the answer to our main question, we will analyze these sub questions:

- Does spending increase with grant?
- How is the possible increase in spending distributed among the different municipal activities?
- How does grant affect quality of the municipal services?

The equalization system in Sweden – context and background

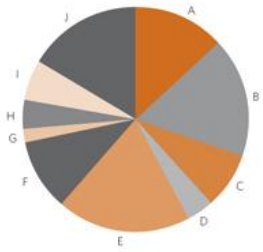
The Swedish municipalities

A municipality is a territorial area with self-government. The municipalities in Sweden are to a large extent decentralized. The decentralization is a fundamental part of the Swedish democracy and included as one of the basic principles in the Swedish constitution. Its purpose is to create efficiency, give a comprehensive scope and closeness to policymakers (Swedish Association of Local Authorities and Regions).

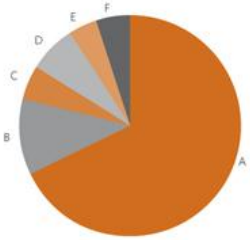
The decision makers in the municipality are politicians chosen through public elections. The politicians in the municipal government are responsible for financing and managing the education system, childcare and the social welfare system. In total, these activities count for approximately 75 percent of the municipal budget (Swedish Association of Local Authorities and Regions). A municipality is according to law obliged to offer and manage the following services: school, social welfare, environment and health protection, town planning, emergency services, residences, sanitation and waste management, water and drain, library and civil defense. They can also choose to offer optional services such as recreation and culture activities, technical service, energy supply and maintenance of streets (Government offices of Sweden).

Despite high level of independence, the municipal government has to follow guidelines set by the central government. Ultimately, they are regulated by the municipal law 1991:900. Each municipality decides on the level of municipal tax and how the tax revenue should be allocated. The average allocation of costs and income in the municipality is described closer in the graph below.

Allocation of costs and revenues in the municipal economy 2010



A – Pre-school and childcare 14%
B – Primary school 16%
C – High school 8%
D – Other education 4%
E – Elderly care 19%
F – Incapacity 11%
G – Social security 3%
H – Aid to individual and families 4%
I – Business activities 5%
J - Other 16%



A – Taxes 66%
B – General central grants 15%
C – Conditional central grants 4%
D –Fees 6%
E – Rentals and sales of business 4%
F – Other 5%

Swedish Association of Local Authorities and Regions

The equalization system

The government has provided grant to vulnerable municipalities for a long time. The first proper equalization system was developed in 1966. The system has been changed and updated continuously and the existing system is from 2005 (Government offices of Sweden, 2008). This system consists of four parts – income equalization grant, cost equalization grant, structure grant and regulation grant.

The income equalization grant is the main part of the equalization system, 77 percent in 2010 (Government offices of Sweden). It compensates for the fact that the average taxable income vary among municipalities. The average taxable income per citizen is calculated each year. Municipalities with an average taxable income below 115 percent of the state average are compensated with a grant and municipalities with an income higher than 115 percent have to pay a contribution. The amount to receive/pay is the difference between 115 percent and the municipal share of the state average multiplied with 95 percent for those who receive grant and 85 percent for those who pay a contribution. This is then multiplied with the regions average municipal tax in 2003. 2003 is used as the index year to prevent the municipalities from changing the tax rate and thereby impact the region average in order to receive a higher

grant level.[1] Since there are more municipalities that receive money than those who pay, most of the grant is funded by the central government.

The purpose of the cost equalization grant is to compensate municipalities that due to exogenous factors have higher costs. A standard cost for school care, senior citizen and other mandatory operations are calculated for each municipality. The standard costs depends on variables that the municipality cannot control for such as geographic location, age structure, and population density. Municipalities with unfavorable cost structure receive a grant and those with a favorable cost structure pay a contribution. Actual costs in the municipality does not change the level of grant. The cost equalization is a complete internal equalization between municipalities with no funding from central government (Government offices of Sweden, 2008).

When the equalization system changed in 2005, some municipalities experienced a large decrease in their cost equalization grant. These municipalities receive an additional contribution called the structural grant (Government offices of Sweden, 2008).

The regulation grant/regulation contribution is a disposal activity that is calculated as the difference between assigned capital and the total sum of the above mentioned grants and it is distributed as a specific amount per citizen (Government offices of Sweden, 2008).

Previous research

Intergovernmental equalization

Stehn and Fedelino (2009) study the fiscal incentive effects of the German equalization system. They conclude that in order for net-recipient states to maintain a sustainable debt level, they have been dependent on transfers from the federal government. Instead of decreasing their expenditures due to higher deficits, they rely on receiving benefits from the transfer system. In contrast, the net-contributing states have through cautious spending ensured fiscal sustainability. The study explains that the benefit from developing a capacity that goes beyond the average, in order to raise revenue, is equalized away by the transfer system. The transfer system gives low incentives for net-contributing states to increase productive activities that will provide higher tax bases.

[1] See appendix A for a more thorough calculation of the income equalization grant.

According to Barreti et al. (2002), which studies equalization transfers in Germany, an increase in tax revenues in a given state cause a corresponding decline in the equalizing transfers. The incentives for increasing the tax collection are low because of this "tax on the tax" mechanism, where an increase in regional income yields a marginal tax rate of 100 percent.

There is a "common pool" problem due to transfers between federations, where recipients do not use the money efficiently (Rodden et al., 2003). Since the recipients receive money from taxpayers in other jurisdictions, their incentives to minimize the costs and spend money cautiously are low. Eventually, this leads to debt accumulation and deficits due to overspending and under taxing.

The flypaper effect and the fiscal illusion hypothesis

Rodden (2002) concluded that there is discrepancy between how individuals view grants and own resources (tax revenue). The relationship between municipal tax paid and welfare benefit received is clear among taxpayers. In contrast, the relationship between federal tax paid and federal government transfers grants to local governments to spend on welfare is not that clear to the taxpayers. This is an example of the fiscal illusion hypothesis – both individuals and local politicians believe that their government spending is paid by someone else. When municipalities receive grants from government they can choose to spend them or to use it to lower the tax rate. However, since citizens do not see the grant as money paid from their own pocket, they have low incentives for demanding a tax cut in the municipality. They rather view it as additional money to use for spending.

According to theory, the flypaper effect should not exist. Inman (2008) mentions four possible explanations to why the flypaper effect still exists. The most promising explanation is that the flypaper effect is best seen as an outcome of political institutions and the associated incentives of elected politicians.

Hines and Thaler (1995) summarize some research on the flypaper effect and finds that for every dollar in grant, the examined governments used between 0.25 and 1.06 dollars for government spending. Even though these numbers differ to a large extent, they are all higher than what Hines and Thaler estimate as what the federal states normally use for government spending – their marginal propensity for spending – between 0.05 and 0.10 dollar per one dollar increase in income.

Dahlberg and Johansson (1998) examined the relationship among Swedish municipalities' revenues and spending, by looking at migration. They study the municipal economic results during the years 1974-1987. Dahlberg's and Johansson's empirical results show that grants cause spending. The researchers imply that this is an indication of the existence of a flypaper effect in Sweden, although their study is not a complete interpretation of it.

Further, Dahlberg, Lundquist and Mörk (2008) examine if municipal politicians allocate grant in order to benefit their own interests. They found that with higher grant to the municipality, the administrative employment increased significantly. On the other hand, the employment within childcare, elderly care and schools did not increase significantly. This supports the fact that politicians have the possibility to influence the allocation of the grant after their own interests.

Theoretical framework

The municipal equalization system is in this thesis analyzed through incentive theory. The central concept of this theory is that a task is delegated from a principal to an agent whom should act in the principal's interest (Laffont and Martimor, 2001). The relationship between the principal and the agent is problematic since they often have conflicting objectives. Further, the agent has access to private information since the principal cannot fully observe the agent. Hence, there are incentives for the agent to perform the task differently from what the principal desires.

Two types of incentive-related problems associated with asymmetric information are moral hazard and adverse selection. Moral hazard emerges when the principal cannot observe the actions of the agent. Adverse selection occurs when the agent has more information about himself than the principal whom therefore cannot take all information into account in the choice of agent.

Redistribution can be viewed as a principal-agent problem where the principal redistribute resources among agents to increase equality. For redistribution to be effective, lump-sum transfers have to be feasible (Vickrey, 1945). Otherwise, agents can affect the base of the redistribution. This creates deadweight losses and redistribution then becomes a tradeoff between efficiency and equality.

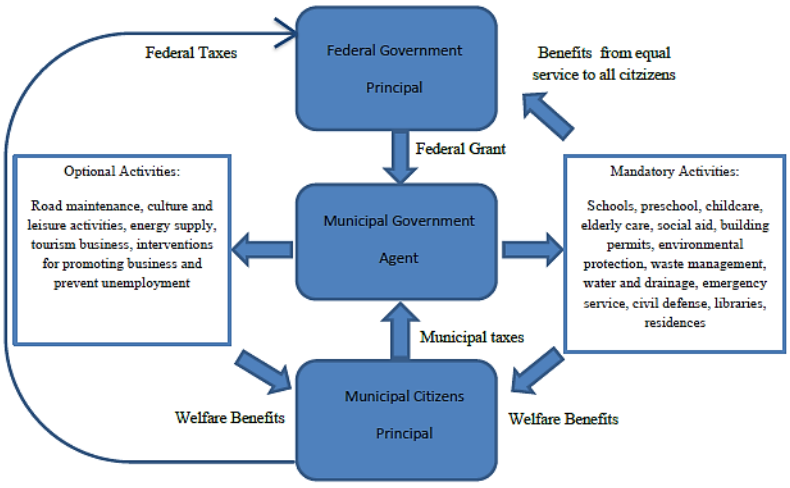
The conflicting objects and asymmetric information between principal and agents cause moral hazard problems in the redistribution process. The principals' objective is equality in

income. If the outcome of the redistribution depends on actual income, regardless of how the differences in agents' income have emerged, then all the agents have incentive to overspend and thereby decrease their income (Bordignon, Manasse, and Tabellini, 2001). The problem can be reduced by adjusting the redistribution for differences in income that depends on the agent's behavior. This is often hard to implement. There is also the asymmetric information problem – the agents know more about which income differences they can manipulate (Bordignon et al., 2001).

In this study, the central government acts as the principal and redistributes money with the purpose to generate access to equivalent welfare in all municipalities. The central government has to keep the central budget in balance and therefore intends to use all resources as efficient as possible. The municipal governments act as agents and their objective is to benefit their own citizens. Hence, they have low incentives to use their money efficiently and reduce costs since they are financed by grant consisting of tax revenue from other municipalities. The central government cannot observe the true effort of the municipalities, only the economic performance, and this can cause a moral hazard problem.

There is a second principal agent relationship between the municipal government and the citizens. The citizens are the principals that through elections chose their agents. The citizens have different interests and there incentives to control and monitor the policy makers vary. The agents may have other objectives than to satisfy their principals. Politicians could for example choose to not lower the tax rate in the municipality in order to afford activities that benefit their own interests.

Model 1. Principal - agent relationships in the Swedish democratic system



Fiscal illusion and the flypaper effect is an additional disturbance in the principal-agent relation between citizens and municipal government. The citizens can observe the government spending but they do not see the connection to their own tax money. Hence, they do not use their voting power to reduce spending and taxes, even if that is what they prefer.

Method and data sources

Data

All of the data used is from *Statistics Sweden*, henceforth SCB, and *Swedish Association of Local Authorities and Regions*, henceforth SKL.

This data can be regarded as comprehensive and reliable. We will discuss some data further in the method.

The municipal equalization system changed 2005 and we therefore only use data from 2005 and onward. All data was not available from 2011 and therefore we will study the years 2005-2010. Exceptions were made for cost per pupil in primary school where the system changed 2005 and the data from 2010 was not yet compiled.

Method

How does grant affect spending?

In the first step of the study, we examine whether spending increase with the income equalization grant, henceforth income grant. According to theory, the total amount of grant should determine the increase in spending. Since the cost equalization grant depends on factors that can affect spending, such as population density, using the total amount of grant will results in omitted variable bias. Therefore, we use the income grant in our main regressions. We repeat the regressions with the total amount of grant to test if the results are still valid.

We examine if spending is affected by the income grant by running linear regressions where spending, measured by the cost of different municipal activities, is the dependent variable and the income grant is the independent. We examine both costs for the municipality's core welfare activities such as school and elderly care and costs for other activities such as culture. When data is available, the cost per user of the service/activity is used. Otherwise, we use the cost per citizen. We choose to study the gross costs, since municipalities can charge differently for their services which will affect the net costs.

We study the spending of the following activities:

Political activity – Costs for board and committee activities such as support to political parties, costs for public elections and costs for the administration that is directly connected to the municipal politicians.

Infrastructure and protection – Costs for tourism, streets and roads, parking, parks, emergency services, environment and health protection, improvement of residences and industry promotion.

Recreation – Support to associations, sport and recreation facilities and community youth centers.

Culture – Support to cultural associations and study organizations, music and culture school, costs for libraries and museums.

Business activity – Business activities run by municipal administration. Energy, water and waste management are the most extensive activities. Other activities such as public transportation and residence and harbor activities are also included here.

Pre-school – Costs for pre-school, per enrolled child.

Primary school – Costs for education, per student.

Care for elderly, special homes – Costs for care of elderly in special homes, per user.

Care for elderly, home care – Costs for care of elderly with home care, per user.

Differences in government spending in municipalities are due to several factors. We are not able to control for all variables that affect spending. Therefore, we choose explanatory variables that are most likely to have an influence on it. Our choice is based on earlier research, variables used when calculating the municipal standard costs and logical reasoning.

We use the following control variables:

Total population – There are economies of scale in several municipal activities. Thus, the cost/citizen for certain activities is higher in municipalities with a small total population.

Population density – A larger spread of citizens give rise to higher costs in several activities. This is one of the factors used when calculating the municipal standard cost. Population density is here measured in citizen/km^2.

Political majority - Different political ideologies have different views on government spending. The main hypothesis in earlier research is that left-wing governments spend more. This has been proven in some studies while others do not show any

relationship.[2] Political majority can explain parts of the differences in spending for Swedish municipalities and therefore we use dummy variables for different political majorities; left wing, right wing or other in our regressions.[3]

We use more explanatory variables in the regression in order to observe if the potential change in spending due to grant remains significant. We use these five regressions for every type of cost:

$$\text{cost}_{it} = \beta_0 + \beta_1 \text{income grant}_{it} + u_{it}$$
$$\text{cost}_{it} = \beta_0 + \beta_1 \text{income grant}_{it} + \beta_2 \text{pop density}_{it} + u_{it}$$
$$\text{cost}_{it} = \beta_0 + \beta_1 \text{income grant}_{it} + \beta_2 \text{total pop}_{it} + u_{it}$$
$$\text{cost}_{it} = \beta_1 \text{income grant}_{it} + \beta_3 D_1 + \beta_4 D_2 + \beta_5 D_3 + u_{it}$$
$$\text{cost}_{it} = \beta_1 \text{income grant}_{it} + \beta_2 \text{total pop}_{it} + \beta_3 D_1 + \beta_4 D_2 + \beta_5 D_3 + \beta_2 \text{pop density}_{it} + u_{it}$$

D_1=1 when left wing government, 0 if else, D_2=1 when right wing government, 0 if else, D_3=1 when other government, 0 if else. u is the standard error.

Cost for municipality *i* year *t* is given per user or per citizen. Income grant for municipality *i* year *t* is also given per citizen. The data for each municipality every year is regarded as an individual observation. Hence, 290 municipalities for six years yield 1740 observations.

If β_1 is positive with a p-value of less than 0.05, we conclude that the grant has a positive impact on spending. Since we do not know the level of spending in the municipalities with a corresponding level of own-source income instead of grant, we cannot verify if a flypaper effect exists in Sweden. Nevertheless, a positive coefficient for grant is a strong indication of it. Further, we use the results from these regressions to analyze whether the possible increase in spending is biased towards any activities. We do this by comparing the coefficient for grant as a percentage of average cost for different types of spending.

How does grant affect the quality of municipal services?

The second step in this study is to investigate whether there is a relationship between grant level and perceived quality of the municipal services. Therefore, we run a regression where quality is the dependent variable and income grant the explanatory variable. We examine the

[2] A summary of some research on this subject is presented in for example Blais, Blake and Dion, 1993

[3] Data of the ruling political parties in every municipality is from SKL. We divided the municipalities into leftwing, rightwing or other majority. There were cases where it was hard to decide which majority it was. It is also possible that there were changes in some municipalities between the elections. Hence, this data can contain errors.

perceived quality of core activities such as elderly care, primary school and pre-school, as well as the citizens' perceived quality of the additional services provided and their overall satisfaction with the municipality.

When measuring quality, a survey by SCB called the citizen survey is our major source. This survey is sent out to 500 random citizens in smaller municipalities and 1000 in larger ones (SCB 2011). Data is not available for each municipality every year and some of the municipalities have never participated in the survey. Hence, this data is not completely comprehensive. Furthermore, the answers in the survey are likely to be influenced by personal factors such as overall life satisfaction. This is further affected by socioeconomic status that depends on income (Edwards, Klemmark, 1973). Consequently, a negative relationship between income grant and perceived quality can be due to richer people's higher life satisfaction.

To reduce this problem, we analyzed the questions in the survey to find the quality indexes that are less likely to be influenced by personal factors. Further, we avoided quality indexes for activities that a majority of the citizens are unlikely to have an opinion on, for example water and drain. Eventually, we chose eight different quality indexes. Six from the part of the study called NMI – satisfaction with the municipal services; two from NRI – satisfaction with the municipality as a place to live in. The following indexes are used in the regression: NMI Sanitation and waste management, NMI Opportunities for culture activities, NMI Pre-school, NMI Opportunities for sport activities, NMI Road maintenance, NMI Overall satisfaction, NRI Public transport and NRI Opportunities for recreation activities.

When measuring quality for elderly care and primary school, we use measurements from SKL open comparisons. For primary school, quality is measured by average grade and the percentage that achieved at least pass in final grade in all subjects. We compare the results for each municipality with the result calculated in a model called the SALSA-model. This model is used in SKL open comparison and it takes into account background factors such as parent's level of education, share of students with foreign background and share of male student.[4] For elderly care, we use a customer satisfaction index based on a yearly survey from the National board of health and welfare.

[4] For more information about the SALSA measurement, see The Swedish National Agency for Education's webpage; http://www.skolverket.se/statistik-och-analys/2.1862/2.5714/en-statistisk-modell-1.163764

The regression model is:

$\text{quality}_{it} = \beta_0 + \beta_1 \text{grant}_{it} + u_{it}$ for municipality *i* year *t*.

If β_1 is positive, the quality of municipal services is higher in net-receiving municipalities.

Empirical Analysis

How does grant affect spending?

As seen in Table 1 and 2, our results correspond to the conclusion of Dahlberg and Johansson (1998). There is a positive relationship between grant and spending on most activities which can be interpreted as an indication of a flypaper effect.

Table 1. Grant coefficients for the regression: $\text{cost}_{it} = \beta_0 + \beta_1 \text{income grant}_{it} + u_{it}$

Type of cost	Grant coefficient, regression 1	Change as percent of average cost 1	standard error
Primary school	0.56379271**	0.00823%	0.067264939
Business activities	0.17026964**	0.00542%	0.013902265
Political activities	0.02772896**	0.00390%	0.001739114
Infrastructure and protection	0.09973110**	0.00268%	0.008228861
Culture	0.01178891**	0.00118%	0.002258324
Home care for elderly	1.06074136**	0.00080%	0.351847878
Recreation activities	0.001860754	0.00015%	0.002927759
Pre-school	-0.020755452	-0.00002%	0.075653543
Special homes for elderly	-0.240532458	-0.00005%	0.697116554

* indicates a p-value lower than 0.05, ** indicates a p-value lower than 0,01. Standard errors are computed assuming homoscedasticity

Table 2. Grant coefficients for the regression:
$\text{cost}_{it} = \beta_1 \text{income grant}_{it} + \beta_2 \text{total pop}_{it} + \beta_3 D_1 + \beta_4 D_2 + \beta_5 D_3 + \beta_2 \text{pop density}_{it} + u_{it}$

Type of cost	Grant coefficient, regression 1	Change as percent of average cost 1	standard error
Primary school	0.55714912**	0.00813%	0.071739904
Business activities	0.17149284**	0.00546%	0.015979732
Political activities	0.02618768**	0.00368%	0.001932756
Infrastructure and protection	0.09638819**	0.00259%	0.009416989
Culture	0.01253040**	0.00126%	0.002480412
Home care for elderly	1.55857753**	0.00117%	0.339962012
Recreation activities	-0.001897121	-0.00015%	0.003287217
Pre-school	0.126513657	0.00012%	0.085890255
Special homes for elderly	0.651514978	0.00014%	0.788246131

* indicates a p-value lower than 0.05, ** indicates a p-value lower than 0.01. Standard errors are computed assuming homoscedasticity.

Spending on recreation activities show no significant relationship with grant. A possible explanation for this deviation can be found when looking at the components of the municipal costs for recreation. In some municipalities, the grant allocated to sport associations is a large part of this cost (Swedish sport confederation, 2010). The grant is given to associations on basis of the number of members and how many activities they participate in. Citizens with higher income are to a larger extent active in associations (Larsson 2008, SKL 2011). This causes a negative relationship between income grant and municipal spending on recreation which can offset the possible positive relationship.

Further, it may seem remarkable that cost per pupil in pre-school does not show any relationship with grant, while cost per pupil in primary school has the highest coefficient. We do, however, see one major difference when comparing the cost associated with each pupil in pre-school and primary school. The cost per pupil in primary school does not vary because of differences in the number of hours the pupil spend in school since this is to a large extent determined by law. In pre-school, on the other hand, the time children spend at school vary with the parents' working hours. A low income grant implies high average wage which can be due to more working hours. Hence, a negative relationship between income grant and cost per child in pre-school can offset the positive relationship likely to exist due to the flypaper effect. In the regression of cost per pupil in pre-school on grant and population density, we obtain a coefficient with a p-value of 0.04. There is then a positive relationship where the increase per SEK in grant is very small, approximately 0.000002 percent.

Surprisingly, there is no relationship between the costs for elderly care in special homes while there is a relationship for the cost of elderly with home care. According to an evaluation of cost per user that SKL did, the cost vary to a large extent among the municipalities. An explanatory factor that is not considered in our model is the mix of users. Some users, called special cases, require extensive recourses because of complex health problems (SKL, 2008). The number of special cases affects the average user cost to a large extent. It is reasonable to assume that elderly people with serious health problems are randomly allocated among the municipalities and that the cost for these special cases is exogenous. Hence, the average cost for elderly in special homes is less dependent on the income grant and more of the mix of users. The cost for home care is less dependent of the mix of users since there are no special cases in home care.

The results from our regressions with the total amount of grant as the dependent variable support our results. The coefficient for grant is then positive and statistically significant for all types of costs.

Even though our results are not fully consistent, we see a relationship between spending and income grant. We argue that it is more probable that the grant level affects spending than the opposite, even if this is a possible interpretation of the results. The explanatory variable, the income grant, is only dependent on the municipal citizens' average taxable income in comparison to the central average. It is unlikely that the municipal level of spending has an impact on the average income of the citizen to a considerable extent in the short run. However, in the long run, spending on for instance school can raise the probability that the citizens increase their education level and thus their wages. Furthermore, there are omitted variables that most likely have a major impact on both spending and income. For example, it is probable that the same factors that we argue raise costs, such as population density in backcountry municipalities, in addition reduces the opportunity for citizens to find high paid jobs without moving from the municipality to a larger city. Despite this, it is more likely that the income equalization grant cause increased government spending than the contrary. Hence, as predicted by looking at earlier research, the conclusion of the first part of the analysis is that spending increase with income grant.

How is the possible increase in spending distributed among the different municipal activities?

When analyzing possible reasons for the increase in spending, we look for biases. A large increase in, for example political activity, can be an indication of wasteful behavior – politicians spending money on projects that does not maximize the citizens' utility. On the contrary, a large increase in spending on core activities, such as school, is rather an indication of higher costs in the municipality due to inefficiency or structural factors. In our results, primary schools increase the most with grant. On the other hand, home care for elderly increases the least. In addition, we had costs variables that did not show any relationship with grant both in core activities (special homes for elderly and pre-school) and in additional activities (recreation). Hence, we cannot conclude that municipal politicians allocate money to benefit their own interest when they receive higher grant. From our results, it rather seems as if the increase in spending is caused by either inefficiency in all municipal activities or of omitted variables, which raise costs in net-receiving municipalities.

How does grant affect the quality of municipal services?

The result from the regression of SCB quality index on the income equalization grant can be seen in table 3.

Table 3. Grant coefficients for regressions of quality indexes.

Quality index	Coefficient	Standard error
NRI Public transport	-0.0008579**	0.0001003
NRI Opportunities for recreation activities	-0.0002106**	0.0000666
NMI Sanitation and waste management	0.0000181	0.0000544
NMI Opportunities for culture activities	-0.0001749*	0.0000855
NMI Pre-school	-0.0000884	0.0000560
NMI Opportunities for sport activities	-0.0003543**	0.0000680
NMI Road maintenance	-0.0004154**	0.0000762
NMI Overall satisfaction	-0.0004398**	0.0000609

* indicates a p-value lower than 0.05, ** indicates a p-value lower than 0.01. Standard errors are computed assuming homoscedasticity.

There is a small negative relationship between the grant and perceived quality, except for quality of pre-school and sanitation and waste management that shows no statistic relationship with the income grant. Hence, the extra spending does not generate higher quality. As discussed in the method, the survey is only conducted for a small part of the citizens. Furthermore, the answers may be influenced by a number of personal factors that, due to the small number of observations, strongly affect the results. Thus, the negative relationship could be caused by the fact that people with low income are less satisfied with their overall life. Other factors that can influence the citizens expectations, and thereby their perceived quality, are tax level and fees charged for the municipal services.

When measuring the quality of primary school, we made two regressions. In the first, we regressed deviation from the SALSA average grade on grant. We found a negative relationship, the deviation decreases with approximately 0.01 percent per SEK increase in grant. In the second, we regressed deviation from the SALSA percentage that achieved at least pass in final grade in all subjects on grant. This regression did not show any statistic significant relationship.

The regressions of quality in elderly care did not correspond to the other results. Here, we received a positive relationship; 0.0003 percent for home care and 0.0004 percent for special homes for elderly. The result for special homes for elderly did not contribute to the analysis, since the cost showed no significant relationship with the income grant.

Although the results are not entirely coherent, we can at least conclude that there is no significant increase in the perceived quality with increased spending. Furthermore, there is no considerable difference in the level of welfare that is due to the equalization system.

Discussion

The results indicate that the municipalities are providing their citizens with welfare services comparable with the average level in Sweden. However, the cost for welfare is considerably higher in municipalities that receive larger income grants.

We argue that there are four possible explanations for this. First, municipalities that receive higher grant may spend more because the politicians choose to invest in projects that primarily benefit their own interests. This is a disturbance in the principal-agent relationship both between citizens and municipal government and between municipal and central government. Although the politicians are elected by the citizens, they might not be sufficiently monitored. Fiscal illusion put less moral constraint on the politicians – they do not realize that the grant revenue they are wasting is also their own voters' tax revenues. Dahlberg et al. (2008) found that the number of employees in the municipal administration increased with grant and interpreted this as a result of politicians allocating money after their own interest. In our results, we do not find any evidence neither for nor against this explanation. There is no pattern in the increase of spending that indicates that this is a general problem.

Secondly, the increased spending could be a consequence of higher quality in the service provided. This is an agency problem in the relationship between municipal and central government since the purpose of the equalization system is to create equal welfare, not welfare with higher quality than the average municipality. According to our results, the quality is not higher in the municipalities that receive more grant and we can thereby reject this explanation.

A third explanation is that some variables that we did not controlled for, such as age structure and geographic location, can cause both higher costs and give less opportunities for the citizens to reach the higher income bracket. It will then be a shortcoming in the equalization system and not an agency problem. To be able to reject this explanation, we need to conduct a more complex study where we include more explanatory variables.

The fourth possible explanation is most appropriate according to our results. It is an agency problem between the central and municipal government. The central government's purpose is to benefit citizens in all municipalities. On the contrary, the municipal government's goal is to primarily benefit their own citizens. They have low incentives to reduce spending to benefit citizens in other municipalities. Stehn and Fedelino (2009) describe it as a dependence trap that the municipalities get caught in; they keep spending because they can afford it with grants. Rodden (2002) concluded that since net-recipient municipalities receive their grant from other jurisdictions they are less careful and more inefficient when spending the grant. Further, the fiscal illusion causes both local politicians and individual citizens to experience that expenditures are paid by someone else.

There is an on-going debate where it is stated that municipalities use tax revenues inefficient. Our findings clarify how the equalizations system affects this. We argue that the system generates increased spending in the net-receiving municipalities that is most likely due to inefficiency. Hence, the equalization system needs to be modified. We claim that redistribution among municipalities is necessary in Sweden as a consequence of large regional differences in demography combined with a high level of decentralization. It would, for example, be almost impossible for municipalities with low population density and a high share of elderly to maintain a sustainable level of welfare without grant. A feasible solution would be to decrease the level of decentralization. As a result, the municipal economy will shrink and so will the amount of needed redistribution. The major part of the welfare funding will then depend on a principal-agent relationship between the citizen and the central government directly. The money will then be transferred through fewer steps and the risk for agency problems and efficiency losses will then decrease.

Another solution would be to retain the decentralization but include incentives to reduce costs in the system. More research has to be done to determine how to implement a sustainable incentive system that creates equivalent welfare with minimized efficiency loss.

Summary

Earlier research states that intergovernmental transfers, such as the Swedish equalization system, increase the local government spending. This is often referred to as the flypaper effect. Dahlberg and Johansson's (1998) study of the years 1974-1987 found indications of

the existence of a flypaper effect in Sweden. We have in our study examined whether this conclusion is still accurate.

Further, we have analyzed the reason behind the increased spending by examining the spending pattern and the relationship between grant and quality of the municipal services. We analyzed our results through a principal-agent perspective and in addition connected to the on-going debate regarding inefficient use of tax revenue.

Our results are coherent with Dahlberg and Johansson (1998). The spending on most activities increases with statistical significance. There were some exceptions in our results, but we found logical explanations for these. We could not see any implications that politicians allocated revenues from grant after their own interest. The grant revenue did neither increase the quality of the municipal services. Hence, the increase in spending due to grant is a consequence of higher costs, either due to inefficiency or structural factors that were not included in our model.

There are indications of inefficient use of money in Swedish municipalities as stated in the on-going debate. We found that intergovernmental redistribution is likely to increase the inefficiency. Hence, we suggest that the equalization system should be modified. One modification could be to decrease the level of decentralization and another to retain the decentralization but increase the incentives for municipalities to reduce their costs. However, more research has to be done in order to understand how to implement these modifications.

References

André, B., Thorell, Y. and Nilsson, P. 2008. *Kostnad per brukare (KPB)- Jämförelser mellan kommuner utifrån brukarrelaterad information inom äldre- och handikappomsorg för 2008,* Stockholm: Swedish Association of Local Authorities and Regions in cooperation with Johansson, A., Ensolution AB, [online] Available at: <http://www.ensolution.se/upl/files/14747.pdf> [Accessed 2012-05-13].

Bae, S., and Feiock, R.C. 2004. The Flypaper Effect Revisited: Intergovernmental Grants and Local Governance. *International Journal of Public Administration,* Vol. 27, No. 8 & 9, pp. 577–596.

Berggren, H. and Hermansson, A. 2008. *Kommunalekonomisk utjämning: En informationsskrift om utjämningssystemet för kommuner och landsting år 2008,* Swedish Association of Local Authorities and Regions &Ministry of Finance, [online] Available at: <http://www.regeringen.se/sb/d/10244/a/108478> [Accessed 2012-05-14].

Berreti, C., Huber, B. and Lichtblau, K. (2002), A Tax on Tax Revenue: The Incentive Effects of Equalizing Transfers: Evidence from Germany, *International Tax and Public Finance,* Vol. 9, No.6, pp. 631-649.

Blais, A., Blake, D. and Dion, S. 1993. Do Parties Make a Difference? Parties and the Size of Government in Liberal Democracies. *American Journal of Political Science*, Vol. 37, No. 1, pp. 40-62.

CMA research, 2011. *RF kommunundersökning 2011,* Swedish sport confederation, Available at:<http://www.rf.se/Forskningochfakta/ForskningFakta/Statistik/Kommunernasstodtillidrotten2010/> [Accessed 2012-05-14].

Cooper, E. and Malm, A. 2010. *Om SlösO,* Slöso, [online] Available at: <http://www.sloso.se/om/> [Accessed 2012-05-14].

Dahlberg, M. and Johansson, E. 1998. The revenues - expenditures nexus: panel data evidence from Swedish municipalities. ***Applied Economics***, Vol. 30 No. 10, pp. 1379-1386.

Dahlberg, M., Lundquist, H. and Mörk, E. 2008. *Intergovernmental Grants and Bureaucratic Power,* Uppsala: Uppsala University Press, CESIFO Working Paper No. 2430

Edwards, J.N.and Klemmack, D.L. 1973. Correlates of Life Satisfaction: A Re-examination. *Journal of Gerontology*, Vol. 28, No. 4, pp. 497-502.

Government Offices of Sweden 2012. *Kommuners och landstings uppgifter*,[online] Available at: < http://www.regeringen.se/sb/d/1906/a/152464> [Accessed 2012-05-14].

Government Offices of Sweden 2012. *Kommunala Utjämningssystemet*, ,[online] Available at: < http://regeringen.se/sb/d/13438/a/152468> [Accessed 2012-05-14].

Grossman, P.J. 1988. *The impact of federal and state grants on local government spending – An empirical test of the fiscal illusion theory,* Western Australia: University of western Australia Press.

Gustafsson, A. 2009. Kommuner redo bryta mot lagen, Svenska Dagbladet, [online] Available at: <http://www.svd.se/nyheter/inrikes/kommuner-redo-bryta-mot-lagen_3331627.svd> [Accessed 2012-05-14].

Inman, R.P. 2008. *The Flypaper Effect.* National Bureau of Economic Research, Working Paper No. 14579.

James R. Hines, J.R., and Thaler, R.H. 1995. Anomalies: The Flypaper Effect. *Journal of Economic Perspectives,* Vol. 9, No. 4, pp. 217-226.

Kornhall, P. 2012. *Principen om en bra skola för alla gäller inte längre,* Dagens Nyheter, [online] Available at: <http://www.dn.se/debatt/principen-om-en-bra-skola-for-alla-galler-inte-langre> [Accessed 2012-05-13].

Laffont, J-J., and Martimor, D. 2001. *The Theory of Incentives: the Principal-agent Model*. [e-book] Princeton: Princeton University Press, [online] Available at: <http://219.219.191.244:1980/upload/chanjing/200811113173553049.pdf> [Accessed 2012-05-13].

Larsson, B. 2008. *Ungdomarna och idrotten - ton åringars idrottande i fyra skilda miljöer*, Stockholm: Diss., Stockholm University Press. [online] Available at: <http://www.avhandlingar.se/avhandling/58475ad07b/> [Accessed 2012-05-14].

Löfgren, I. 2009. *Så styrs en kommun*, Association of Local Authorities and Regions,[online] Available at: <http://www.skl.se/kommuner_och_landsting/om_kommuner/sa_styrs_en_kommun> [Accessed 2012-05-14].

Massimo Bordignon, M., Manasse, P. and Tabellini, G 2001. Optimal regional redistribution under asymmetric information. *The American Economic Review,* Vol. 91, No. 3, pg. 15 and 709.

Regeringsformen (1974:152), Law(2010:1408)

Rodden, J. 2002. The Dilemma of Fiscal Federalism: Grants and Fiscal Performance around the World. *American Journal of Political Science*, Vol. 46, No. 3, pp. 670-687.

Slöso 2012. Lokalpressen granskar arenafeber, Slöso, [online] Available at: <http://www.sloso.se/category/sloseri/> [Accessed 2012-05-14].

Statistics Sweden 2012. *Citizen survey* 2005-2010. Stockholm. [online] Available at: <http://www.scb.se/Pages/List____250932.aspx> [Accessed: 2012-05-12].

Stehn, S.J. and Fedelino, A. 2009. Fiscal Incentive Effects of the German Equalization system. *International Monetary Fund Working Paper,* [online] Available at: <http://www.imf.org/external/pubs/ft/wp/2009/wp09124.pdf> [Accessed 2012-05-14].

Swedish Association of Local Authorities and Regions 2011. *Kunskapöversikt: Nutida samhällsrelaterad idrottsforskning i Sverige och några jämförbara länder,* Stockholm: Swedish Association of Local Authorities and Regions

Appendix A. Calculation of the income equalization grant

Tabel 1. Calculation of the income equalization grant/fare[5]
L =((G-A) * (95% or 85% * I + J))/ B
A = Counted tax income in municipality
B = Population in the municipality
C = Counted tax income in municipality, per citizen (A/B)
D = Counted average tax income per citizen in the country
E = Taxpaying power of the municipality, in share of the average in the country (C/D)
F = Tax equalization base in percent, country, 115%
G = Municipality's tax equalization base (B*D*F)
H = Base for equalization grant (B*D*F) – A
I = Tax-switching policies in % above the level in the country
J = Country average tax rate
K = County tax rate (95% or 85% * I + J)
L = Municipality's income equalization grant/fare, SEK per citizen (H*I/B)

[5] Kommunalekonomisk utjämning (http://www.regeringen.se/content/1/c6/10/84/78/2bdc19f1.pdf)

Appendix B. Data sources

Source	Subject, Table and sublevel	Selection
Statistics Sweden	Public finances, Gross and net costs, SEK per capita, for operations in municipalities by municipality and fields of operation. Year 1998-2011, Gross and net costs for municipalities operations, SEK per capita	All municipalities, gross costs (adjusted), year 2005-2010, political activity, special activities, infrastructure, recreation, culture
Statistics Sweden	Public finances, Economic equalization for municipalities, Year 2005-2012	Income equalization, SEK/resident, Economic equalization, SEK/resident, All municipalities, year 2005-2010
Statistics Sweden	Population, Population density per sq. km, population and land area by municipality and sex. Year 1991-2011	Population by sq. km, Population, All municipalities, total, year 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, SCB:s medborgarundersökning, Nöjd-medborgarindex-NMI	NMI förskola, NMI helheten, NMI renhållning, NMI idrott, NMI kultur, NMI gator och vägar, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, SCB:s medborgarundersökning, Nöjd-regionindex-NRI	NRI kommunikation, NRI fritid, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, öppna jämförelser, grundskola, resultatindikatorer	Elever i åk. 9 som uppnått målen i alla ämnen, kommunala skolor, andel (%), Meritvärde i åk. 9 i kommunala skolor, modellberäknat genomsnittligt värde, Meritvärde i åk. 9 i kommunala skolor, modellberäknat genomsnittligt värde, Meritvärde i åk. 9 i kommunala skolor, genomsnitt, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, öppna jämförelser, grundskola, resursindikatorer	Nettokostnad, 5års- m, hemkommun, totalt, kr per elev, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, socialstyrelsen brukarundersökning för äldreomsorgen	Nöjd-kund-index, äldreboende helhet, Nöjd-kund-index, hemtjänst helhet, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, öppna jämförelser, vår och omsorg om äldre,	Kostnad hemtjänst äldreomsorg, kr/brukare, Kostnad särskilt boende äldreomsorg, kr/brukare, Alla kommuner, år 2005-2010
http://kolada.se/	Fri sökning, särskilda nyckeltalssamlingar kommun, vad kostar verksamheten i din kommun (vkv), tabell 7 nyckeltal för förskola och skolbarnomsorg, förskola	Kostnad förskola kr/inskrivet barn, Alla kommuner, år 2005-2010
www.skl.se	Vi arbetar med, demokrati och styrning, demokrati, 310 val	Valresultat 2002, Valresultat 2006