Political and Economical Determinants of Expenditure on Day Services for Persons with Intellectual Disabilities or Autism

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Abstract

This study investigates whether the Swedish national entitlement legislation, which is known to be one of the most developed in Europe for persons with intellectual disabilities or autism, accomplishes its aim to provide equal quality of day services independent of location. We estimated a reduced-form model of demand and supply side determinants of a latent quality variable for day-service programmes using panel data on expenditure per attendee for the 290 Swedish municipalities 2004-2012. We found that expenditure per attendee is among others affected by changes of the local tax-base and outcome in elections to the local assemblies. These results imply that rights of living of persons with intellectual disabilities with regard to equal quality of day services independent of where they live are not fully honoured in budget allocation decisions made by local governments.

Introduction

The UN Convention of the rights of persons with disabilities (CRPD) warrants rights to equality of opportunity as well as to full participation and inclusion in society. The CRPD also specifically recognises the right to work on an equal basis with others, as well as with equal opportunities and equality in remuneration as others (Article 27). Although there is a substantial lack of data and information regarding disability and employment (United Nations, 2016), it is safe to say that persons with disabilities are still at a considerable disadvantage at the labour markets in many countries. Within the European Union (EU) persons with disabilities "…experience considerable difficulties in entering and remaining in the labour market" (Greve 2009, p. 11). For example, it was recently concluded based on national data for Sweden that the human rights of many persons with disabilities were not met. The policy areas causing most concern were the labour market and education (Danermark & Larsson Tholén 2014).

Intellectual disabilities seems to pose greater difficulties than other disabilities when it comes to job opportunities (Greve 2009), which may lead to social exclusion, loneliness and in other ways reduce the quality of life.[1] Concerns about job opportunities relate not just to employment possibilities but also to whether adequate earning, motivating tasks and opportunities to promotion are held. Despite official ambitions among the EU countries that job opportunity policies should focus on work ability and integration into the labour market, people with disabilities more often than others have lower-skill employments, and sheltered

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[1] For instance, it was reported in England 2004 that only 24 percent of people with long-term mental health problems in England were in work, which was the lowest employment rate of any of the main groups of persons with disabilities (SEU 2004). Shephard-Jones (2003) in a study of quality of life for adults with developmental disabilities in Kentucky, US, reports that in a sample of respondents receiving services from the state developmental disability authority 50 percent wanted to work more, in contrast to a sample of the general population. She finds that adults with developmental disabilities are at a significant disadvantage with regard to quality of life, for instance feeling lonely.

employment is more common for persons with intellectual disabilities than mainstream employment (Greve ibid.). Also, not much is known about transitions between sheltered and mainstream employment or about how effective policies for enhancing such transitions are (Greve ibid.).

In addition to sheltered employment some European countries offer day programmes for persons with major and long-term functions impairments. These programmes provide so called day services for persons with intellectual disabilities by offering diverse activities adapted to individual and local circumstances. As the content of these services varies a lot and has to be adapted to local circumstances it is a major challenge to national policies to ascertain that basic quality standards are met everywhere. A general tendency towards greater individualisation of services for persons with intellectual disabilities is associated with increases in the diversity and complexity of service organisation that "may reduce the ease with which service equity and effectiveness can be monitored" (European Intellectual Disability Research Network 2003, p. 6).

Not very much is even known about the content and quality of such day-service programmes. Felce et al. (1999) did a study of the quality of residential and day service for adults with intellectual disabilities in eight local authorities in England and concluded that "developing consensus on the functions and goals of day services is required". Beyer et al. (2010) did a study on quality of life outcomes for people with intellectual disabilities in Wales that included ten day service attendees. Hartnett et al. (2008) interviewed parents and staff on quality of life of participant in day service programmes in Dublin for people with several intellectual disability. In Sweden, Socialstyrelsen (2007) and Lövgren et al. (2013) have observed a lack of research regarding daily activities, but several reports (e.g. Socialstyrelsen 2007, 2014)

have concluded that the day-service programmes are not very effective in fulfilling what originally was intended to be the main purpose, namely to provide vocational training. Few subjects go from these programmes to some kind of employment.

In Sweden, differences in quantity and quality of services for people with intellectual disabilities between locations have been a major concern in the policy debate. The national welfare system emerges out of voluntary poor relief organised by church parishes[2] that subsequently was taken over by the self-governed and self-funded municipalities that constitute the local government in Sweden. Realising that this resulted in large differences across different places, the Act Concerning Support and Service for Persons with Certain Functional Impairments (Lag om stöd och service till vissa funktionshindrade, SFS 1993:387) (henceforth referred to with the Swedish acronym LSS) was implemented in 1994 to give individuals with some specific major and long-term intellectual disabilities guaranteed equality in living conditions and participation in the community, independent of location. With this legislation, Sweden got a more coherent and integrated framework for intellectual disability policy than most other European countries at that time (European Intellectual Disability Research Network 2003, p. 5). As a complement to this legislation, Sweden in 2004 also launched an earmarked cost-equalisation programme, the LSS grant, with the purpose of giving municipalities equal means for upholding equity in provision of LSS services.

In this study we have investigated whether the intended levelling of quality between localities has been achieved for daily activities (DAs henceforth) in Sweden. A crucial issue in

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[2] It was funded by contributions (tithe) from the landowners in the parish and governed by the parish council which consisted of all landowners. In 1734 all parishes were required to have an almshouse.

analysing performance and equality in DAs is the ubiquitous lack of all sorts of quality indicators, and especially of outcome indicators. However, as will be explained below, if demand-side and supply-side factors can be distinguished, regularities that affect latent quality can be identified from data on expenditure per user. As will be shown in next section, there is a considerable spread in this variable across the 290 Swedish municipalities. Our basic research question was therefore whether this spread reflects differences in decision-makers demand for quality or in supply side factors (unit cost differences).

The outline of the paper is the following. The next section provides an institutional background on provision of day-service programmes for persons with intellectual disabilities in Sweden. The third section describes and discusses the empirical approach, the variables and data sources. The fourth section presents estimation results of the model. This is followed by discussion and conclusions in the fifth and sixth sections.

Background

Day-service programmes for persons with intellectual disabilities in Sweden

In this section we give some institutional background, in particular on the organisation of local government, the legislation framework for provision of day services, and the cost-equalisation system that is intended to make equal service quality possible. We also provide some descriptive statistics on day-service programmes in Sweden.

Most public welfare services in Sweden are produced by the 290 municipalities at the local level and the 20 counties at the regional level. The municipalities are responsible for care of children and education in preschool and schools, care of elderly, social services and many

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other duties, while the counties manage the public health care system, from primary health care to university hospitals. Both municipalities and counties are formally self-governed with separate elected assemblies and main funding from municipality and county income taxes that depend on tax rates that are determined by the respective assemblies. However, self-governance at both levels is restricted by a broad range of national stick and carrot policies, for instance through audits by national inspection authorities and ear-marked government grants.

The general legal framework governing the municipalities' responsibilities within social services is the Social Services Act (Socialtjänstlagen SFS 2001:453) (SSA henceforth). For social services that are governed by this act, the municipalities are given some discretion in decisions on content and distribution. Consequently, eligibility rules, compensation levels and other features of these services are within some limits allowed to vary across municipalities.

However, such discretion is not allowed for the specific social services that municipalities are obliged to provide under the LSS Act. The LSS Act contains ten action areas; the most important being housing with special services for adults and DAs. Individuals with an intellectual disability, autism or a condition resembling autism, and individuals with a significant and permanent intellectual disability occurring from brain damage in adulthood are entitled to DAs. All municipalities are therefore obliged to fulfill some specific rights of any of their citizens who belong to at least one of these three person circuits. Moreover, while the SSA just requires that citizens are supported to a 'reasonable' standard of living according to the LSS Act (SFS 1993:387) any individual eligible to LSS rights must be assured activities that promotes equality in living conditions a and full participation in society, suggesting a difference in the minimum quality of the services that has to be provided (Socialstyrelsen, 2011).

As the economic circumstances vary across the municipalities there is a specific national cost-equalisation scheme for making it possible for all municipalities to offer equal quality of the services that are provided under the LSS Act.

Economic equalisation across municipalities

There are in fact three national systems for levelling of income and cost differences across municipalities. Two are broad schemes, one for income and one for cost, mainly funded by the state.[3] On the top of these there is since 2004 a specific cost-equalisation scheme for LSS-related expenditure, the so called LSS grant. This grant is a self-funded cost equalization scheme in which some municipalities pay and others receive. The total turnover amounts to around 10 per cent of the total LSS costs.

Has equalisation been achieved?

Table 1 gives an overview of the number of users of the various LSS measures in October 2013. There were over 32 000 clients participating in DAs, which makes this the LSS measure with the highest number of users, closely followed by housing for adults. Most clients were in the ages 23-64, and there was a slight majority of male participants (Socialstyrelsen 2014b). There has been a steady inclination over the time period we study here of both LSS clients in general and of participants of DAs. The number of users of DAs has increased by 50 per cent

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[3] The income equalisation grants are given to municipalities with a weak tax base to guarantee a tax base of 115 percent of the countries mean tax base; municipalities with a higher tax base have to pay a fee. The cost equalisation grants are intended to equalise with respect to so called uncontrollable structural cost differences. Also here, municipalities with a more favorable cost structure pay a fee. There are also some other smaller grants but these two represent 97 per cent of the total equalisation grants. In the statistical analysis we estimated models including both these variables; however that did not affect the results of our variables of interest.

since 2004. As can be seen in Figure 1, showing this development in per capita terms, 0.8

percent of the population 18-64 was eligible to support under LSS in 2012 and half of that share

participated in DAs.

Table 1 here

Figure 1 here

Turning to the economic perspective, the official statistics show that the total cost (net

of user charges)[4] of LSS activities in 2013 was 3.81 billion Euro (36.16 billion SEK), whereof

housing cost was 2.25 billion Euro (21.36 billion SEK). The total cost of DAs was 0.68 billion

Euros (6.41 billion SE). For comparison, this is equal in per capita terms to the total cost of day

and domiciliary services for adults 18-64 with learning disabilities in England 2013-14.[5] The

average annual cost of DAs per user was 20 723 Euro (196 489 SEK) (Socialstyrelsen 2014b).

However, as can be seen in Figure 2 showing the distributions of expenditure per user and per

capita, respectively, over municipalities these distributions are rather wide with a long right tail.

Around 20 municipalities spend less than 50 per cent per DAs user than the national average.

Thus it is not clear from immediate inspection of the cost data that there is a high degree of

equality across the country in the service-quality of DAs. We therefore now turn to the

statistical analysis.

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[4] A person entitled to assistance benefit from the Social Insurance Administration must pay the equivalent amount to the municipality if the municipality provides the assistance.

[5] The total cost of these services in England was 3 030 million GBP (Health and Social Care Information Centre 2014). Curiously, our calculation of the per capita cost in both countries using the current exchange rate resulted in precisely the same number, 80 Euro (SEK 657).

Method

In this section we first provide a theoretical motivation for the main approach of this study. We then derive the basic model that will be used in the analysis and describe how it has been estimated with municipality-level panel data. Finally, we describe the variables in more detail and the data sources. Readers not so interested in the economic and statistical aspects of our analysis can skip this section and go directly to the results.

Economic Models of Local Public Good Provision

Most empirical studies of determinants of local government expenditure use the median-voter approach of Bergström and Goodman (1973). This presumes that the level of public expenditure reflects the demand for public goods by the median voter, and therefore depends on demand-side factors such as the income and preferences of the median-voter.[6] These studies set out to explain variation of local public expenditure across local governments from differences in composition and income of voters in local elections. Some studies also account for deviations from the median-voter outcome due to politico-economic factors such as influence of strong interest groups, rent-seeking behaviour etc.[7]

Few studies explicitly account for supply-side factors, for instance differences in unit costs, that may vary across communities, i.e., it is implicitly assumed that production technologies, wages, etc. are equal across localities. However, most studies do implicitly account for possible supply-side variation either by introducing explanatory variables that reflect both demand-side and supply side heterogeneity, such as population size and/or density, regional location, etc., or

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[6] See e.g. Henderson (1968), Aronsson and Wikström (1995), Josselin et al. (2009).
[7] See Hindriks & Myles (2013) for an advanced textbook treatment. Josselin et al. (2009) find, based on French data that the "pure" median-voter model works best for small communities.

indirectly by using statistical approaches (e.g., fix-effect models) that can capture such heterogeneity.

For the case of our study, we want to as far as possible distinguish between the roles of demand- and supply-side factors. Our econometric model is therefore based on an explicit derivation of a model of expenditure per user for DAs from models of both demand and supply. The resulting DAs expenditure per user equation is interpreted as a reduced-form equation.[8] The basic idea of our approach is that the quality of DAs services, which here is a latent variable for which we lack a comprehensive measure, is determined in a local-government decision-making process that considers both demand- and supply side factors and where the resulting expenditure level can be seen as an equilibrium outcome. In the econometric model we include explanatory variables that are thought to affect demand, supply, or both demand and supply of the latent quality.

Figure 3 illustrates this idea. The observed expenditure per user (P) reflects the level of the (latent) quality (Q) for which the marginal cost of increasing quality (the supply curve) is equal to the marginal willingness to pay for enhanced quality (the demand curve). This means that if an increase of a demand shift variable leads to a higher expenditure per user (from point A to point B in the figure) we can also infer that it improves quality. However, if a variable is both a demand and supply shifter we cannot be sure of that (expenditure per user is higher at point C

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[8] In analogy with the standard two-stage (2SLS) approach used for market goods where, in a first stage, a reduced-form price equation is estimated on exogenous demand- and supply-side variables (which in a second stage is used to create an instrument variable for estimation of the demand and supply equations).

than at point A, but quality is equal). This is why it is desirable to separate demand and supply shifters.

Econometric Model

Suppressing time indices, let the latent demand and supply for the quality, in terms of quality-of-life enjoyed by clients under the LSS Act, of DAs per user in municipality *i* be D_i and S_i. In equilibrium (i.e., after adjustment to exogenous shocks) quality demanded and quality supplied will be equal, so then we have $D_i(Cost_i, x_i^D, z_i^D) = S_i(Cost_i, x_i^S, z_i^S)$, where $Cost_i$ is the 'equilibrium' expenditure per user, x_i^D and z_i^D are known and unknown demand shifters, respectively, and x_i^S and z_i^S are known and unknown supply shifters, respectively.

Now, assuming that unknown demand and supply shifters (i.e., corresponding to confounding variables that are omitted in our statistical estimations) are constant over time and therefore can be captured by municipality level fixed effects, we get the following basic reduced-form expression for the equilibrium expenditure per user for municipality *i* at time *t*:

$$Cost_{it} = p(x_i^D, x_i^S) \qquad (1)$$

All variables that are used in the empirical analysis are presented in Table 2. As demand-side shifters in our statistical analysis we use the LSS cost equalization grant/payment ($Grant_i$), average taxable income of residents ($Tax\ base_i$), the municipality income tax rate[9]

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[9] More precisely, the sum of the county and municipality tax rates.

($Tax\ rate_i$).and the share of voters voting for the two socialist parties (the Social Democrats

and the Left Party) in the elections for the municipality assembly ($Left_i$).

The *LSS grant* payments are determined annually by Statistics Sweden based on two-

years lagged differences of a standard-cost measure of the total LSS cost of a municipality and

the national average cost. Municipalities with a lower standard cost than the average pay the

difference and vice versa. Thus municipalities are, with a two years lag, charged or

compensated for differences in their per capita magnitude and composition of LSS users relative

to the national average cost burden.

The basic parameters of the cost equalisation scheme are the annual standard costs per

adult that are provided housing and daily activities, respectively. The current (2015) standard

cost levels are around 89 000 Euro (SEK 823 74) and 19 000 Euro (SEK 171 655), respectively

(SKL 2014b). These magnitudes mean that the total LSS grant (or fee) will strongly depend on

the number of adults that are provided housing. The various components of the grant are

strictly proportional to the number of users of each type of service so it is not clear that a

change in the grant should have any effect on the level of expenditure per DAs users.

Intergovernmental grants such as the national equalisation schemes in Sweden are used

to counterbalance regional differences. However, the early literature on the effects of federal

grants on spending at the sub-governmental level (Scott 1952, Bradford and Oates 1971a, b)

suggests that grants crowd out local spending, that is, are used to lower taxes instead.

Subsequent empirical research did largely reject this, although it was, as noticed by Dahlberg et

al. (2008), hampered by serious endogeneity problems. Using a discontinuity in the Swedish

general cost and income equalization system these authors were able to bypass these issues, finding that there is indeed a positive effect of these general grants on spending. Birkelöf (2008) on the other hand in a study of services under the LSS Act found no effect of the LSS cost equalisation scheme on total LSS expenditure per user and, [10] as just mentioned, from its construction (grant or payment strictly proportional to the number of people eligible to DAs) one can conjecture that there neither should be any effect on the DAs expenditure per user. However, if for example budgets for housing and DAs expenditure are not separated it could be that a change of *Grant* because of a change of the number of users of housing services has a positive (income) effect on the DAs expenditure.

We further expected that *Tax base* and *Tax rate* have positive (income) effects. Political preferences were captured by the *Left* variable. An increase of this variable could represent an expression of preferences for increased public spending (positive effect), or for redistribution towards broad low-income groups, which possibly could displace expenditure for this specific category (negative effect). The sign of the expected effect is thus indeterminate.

As potential supply shifters we used the total number of DAs users in the municipality ($No.\,of\,users_i$) and the local unemployment rate ($Unempl_i$). The number of users was expected to reduce the cost for providing a given 'quality-of-life' level because of economies of scale (expected negative effect). The unemployment rate was thought to affect opportunities

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[10] This was a cross-sectional spatial-econometrics analysis to investigate to what extent nearby municipalities influence each other in decision on total LSS expenditure. It did not exploit the panel structure of the data.

for finding and providing simple-task job opportunities for DA clients (expected positive effect), because of stronger competition with labor-market programmes for unemployed.[11]

The *Tax base* variable was considered to be affecting demand. However, it might be that salaries of the personnel involved in DAs to some extent are correlated with the average municipality income, so that the estimated coefficient for this variable also catches supply side variation. To distinguish between demand and supply side effects we used a couple of instrument variables for average taxable income. Another variable that may have two-sided effects is the unemployment rate that may have demand-side effects through effects on the municipality budget. We have however not investigated further whether that is the case[12].

Another issue related to this is that overall real wage increases may affect both the dependent variable (*Cost*) and some of the explanatory variables (*Tax base* and *Grant*) of the panel data model. As we were interested in changes of the real quality level we deflated the expenditure per user with a cost index for 'disability services' that is part of a cost index for municipality services that mainly reflects wage changes (Arnek 2014, pp. 66-67, 137), while other economic variables were deflated with the Consumer Price Index. In this model we also used annual dummy variables. The coefficients of these dummies measure the common annual changes of quality (interpretation from the demand side) and/or of productivity (interpretation from the supply side).

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[11] Such programmes are provided both as state-funded labour-market programmes and as municipality-funded programmes for persons living on welfare, youth in need of internships etc.

[12] As with *Tax base*, it would be interesting to separate the demand from the supply effect, but we have not been able to find an instrument that effect the unemployment rate in a municipality but not the opportunities of finding simple-task jobs; as the variable is not endogenous it will not affect the results.

Equation (1) was estimated with a fixed-effect OLS model with fixed effects for municipalities (index i). Thus the econometric model is

$$Cost_{i,t} = \alpha + \beta_1 * Tax\ base_{i,t} + \beta_2 * Tax\ rate_{i,t} + \beta_3 * Grant_{i,t} +$$
$$\beta_4 * Unempl_{i,t} + \beta_5 * No.\ of\ users_{i,t} + \beta_6 * Left_i + \varepsilon_{i,t} \quad (2)$$

This model was also estimated with instrument variables replacing the *Tax base* variable and, as a robustness check, as a random-effects model.

Data

The panel data is based on official statistical sources, The variables and their sources are listed in Table 2.[13] Descriptive statistics are displayed in Table 3.

Tables 2, 3 here.

There are 290 municipalities in Sweden. There is missing information about the cost and the number of users of the daily activities in some municipalities so the panel is unbalanced[14]. The total number of observations is 2380, which means that 230 observations, or 8.8%, are missing.

As can be seen in Table 3, there is a considerable variation in the *Cost* variable. The *Tax base* variable varies by a factor of two between the minimum and the maximum. The Left variable ranges from less than 10 percent to 80 percent.

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[13] All data is available on request from the corresponding author.

[14] We have observations on all years for 209 municipalities. Among the municipalities with missing observations 26 is missing one year, 35 has two missing years, four municipalities has three missing years, one has four, three has five and one has six and seven, ending up with 2380 observations.

We estimated the model both with municipality fixed effects and with random effects. The Hausman test for choosing between fixed and random effects supports choice of the fixed-effects model (see Table 5).

Results

The results from estimation of the fixed-effect OLS model are shown in in the first column of Table 4, while the second column shows IV results. In the IV model we used two instrument variables that were expected to correlate with the average taxable income level but not salaries of municipality personnel working with DAs. These two instruments are the share of residents with a university education of at least three years and the share of children between zero and four years[15]. The first of these variables was expected to affect average taxable income by increasing the share of high-income earners among the residents. We did not expect this to be closely correlated with the salaries of personnel working with DAs. The second variable was expected to increase the share of employees that are on parental leave[16] or are working part time and therefore have a lower income. Parental leave compensation is paid from a national social insurance system and do not increase the cost of DAs. The results reported in Table 4 are based on both instruments; other instruments have also been tried and yield similar results.[17] For the variables *Cost, Tax base and Grant*[18] we used logarithms.

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[15] Using only new born children or children in other age groups does not alter the results.

[16] Parents that are qualified for parental leave payment can get such payment for 480 days, of which 390 days with full payment. "Full payment" corresponds to 80% of the monthly salary, but is capped at a certain level (around 4000 Euro/month). For the remaining 90 days and for parents that have not qualified (for instance by not have being working during the whole qualification period of 270 days, the payment is considerably lower.

[17] These results are available on request from the corresponding author.

[18] Because *Grant* can take negative values for municipalities that pay a fee instead of receiving a grant, we have divided this variable by 100 000 and then added 1 before taking the logarithm,

Table 4 here

The Hausman test points to the OLS model. As income is not an endogenous variable in these models, both OLS and IV estimations give consistent results, however IV is inefficient so we did expect the standard errors to be greater. The F-tests for excluded instrument are all significant and indicate that instruments are relevant. From the Hansen J statistic we could not reject the null hypothesis that the instruments are valid. This does not mean that the instruments are valid, but we argue that the share of population with a university education of more than three years does not affect the costs for DAs.

The Breusch-Pagan/Cook-Weisberg's test for heteroscedasticity rejects the null hypothesis and robust standard errors are needed. In the panel model standard errors were also clustered at the municipal level. The municipality fixed-effect variables were excluded from the tables.

Turning to the estimated models, we first notice that the coefficients of the *Tax rate* and *Unemployment* variables are not statistically significant.

Importantly, for the main focus of this study, we find a positive effect of *Tax base*, implying that the budget for DAs is sensitive to changes of the total budget frame of the municipality. This result is robust to IV estimation.[19] The coefficient of the *Grant* variable is also significant and positive, which also indicates that expenditure on DAs is sensitive to local budget constraints. Further on the demand side the political preferences variable *Left* received a

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[19] Similar results were held with other sets of plausible instrument variables. These can be held on request to the corresponding author.

significant negative coefficient. On the supply side, the coefficient for *No. of users* indicates presence of economies of scale. Finally, all annual dummies are significantly negative. The magnitudes of these coefficients indicate a declining common trend in the real-valued (after deflation with the cost index) expenditure per user from 2004 – 2012, reaching 85 percent of the initial level at the end of the period. From this study we cannot tell whether this is due to demand-side (reduced quality) or supply-side (improved productivity) changes.

As a robustness check, results from random-effects estimation are reported in Table 5. As already mentioned, the Hausman test favours the fixed-effects model. Anyhow, the results are qualitative similar with one exception, which is that *Tax rate* gets significant positive coefficients. Also, *Tax base* is not significant (but still positive) in the IV version.

Table 5 here

Discussion

In this study we have shown how expenditure per user for DAs services under some circumstances can be used as a measure for the overall quality of these services. We have found that the expenditure per user seems to vary across municipalities according to local public budget circumstances, in particular by the local tax base and by the grant of the LSS Act. While for many other public spending items this would be a natural consequence of local government self-governance, LSS services are an explicit exception. The LSS Act ensures equality in standards disregarding of location and the cost-equalisation scheme is intended to make that possible. Nevertheless, it seems that there is a variation in expenditure per user that can be associated with taxable income. The IV estimations for this variable makes it possible to conclude that this

effect is a demand-shifting effect and therefore an effect that relates to variation of the overall quality of DAs services.

Further, it seems that local political preferences, or at least changes of them, also affect this spending. We speculate that the negative sign of the *Left* variable in the panel data model reflects reallocation within the local public budget in favour of other policy areas. Whatever the reason for this result, it further accentuates that equality in quality of services across locations has not been fully accomplished.

Conclusions

After the closing down of institutions the overarching principle of the national policies towards people with intellectual disabilities in Sweden as well as in many other countries is that everyone should be given, as far as possible, means for living a good life, which among others include a meaningful daily occupation. DAs services are in Sweden provided by the local governments. These municipalities are self-governed and self-funded. However, all individuals entitled to DAs services are by national legislation guaranteed an equal standard, independent of in what part of the country they live.

In this paper we have investigated the determinants of expenditures for the DAs, and if the intendent equalisation of quality of DAs with respect to location has been achieved. It should be observed that we have not studied whether quality is high or low, sufficient, efficient or whatever could be said about quality in an absolute sense; the focus has been on the equity dimension. The main reason for that is that equity was one of the main motivations for the Swedish LSS Act. This legislation is often seen as a cornerstone of the Swedish welfare state and

one of the most advanced in Europe when it comes to disability policy. However, persons with intellectual disabilities seldom have strong political influence. In fact, this group of people has been described as one of the most neglected groups of citizens at all times (Melke 2010, p. 16). In particular, this means that public spending on services that are important to their quality of life is likely to be more vulnerable in times when budgets are strained than spending on items that are defended by stronger interest groups. The extent to which equality in quality level across municipalities is achieved is telling something about to which degree the DAs services are provided on rights-based terms instead of being dependent on discretionary decisions by local politicians and civil servants.

The LSS Act has been effective for over two decades. Our main result that the local spending on DAs is strongly influenced by changes of local political preferences and the local tax base is perhaps not surprising but still disappointing.

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Table 1. Total number of persons in LSS measures October 1, 2013 (Socialstyrelsen,2014b).

LSS Measure	Number of persons in LSS measures											
	0–22 years			23–64 years			65– years			All		
	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male	All
1. Consultation	479	836	1 315	1 321	1 445	2 766	86	103	189	1 886	2 384	4 270
2. Individual assistans	400	577	977	1 126	1 187	2 313	299	307	606	1 825	2 071	3 896
3. Attendant	1 273	2 167	3 440	1 852	2 177	4 029	547	441	988	3 672	4 785	8 457
4. Contact person	1 587	2 331	3 918	6 260	7 347	13 607	954	888	1 842	8 801	10 566	19 367
5. Fill-in service	1 069	2 220	3 289	75	92	167	26	25	51	1 170	2 337	3 507
6. Short-term stay	3 031	5 369	8 400	470	682	1 152	15	34	49	3 516	6 085	9 601
7. Short-term surveill.	1 640	2 879	4 519	2	0	2	0	0	0	1 642	2 879	4 521
8. Accom., children	411	686	1 097	0	6	6	0	0	0	411	692	1 103
9. Accom., adult	518	814	1 332	8 606	11 779	20 385	1 554	1 773	3 327	10 678	14 366	25 044
10. Daily activities	1 225	1 780	3 005	12 254	16 084	28 338	475	550	1 025	13 954	18 414	32 368
Total number of actions	11 633	19 659	31 292	31 966	40 799	72 765	3 956	4 121	8 077	47 555	64 579	112 134

Table 2. Variable description (index *i* refers to municipality, time-indices suppressed).

Variable	Description	Source
p_i	The logarithm of expenditure for LSS daily activities per user, SEK per year	The National Board of Health and Welfare
$Tax\ base_i$	The logarithm of mean taxable income, thousands SEK.	Statistics Sweden
$Grant_i$	The logarithm of LSS Grants for cost equalization, thousands SEK per capita. Grants per capita is divided by 10 000 and then adding the number one to be able to take the log in the estimations.	Statistics Sweden
$Left_i$	Dummy variable that takes the value one if the municipality is governed by a coalition that includes at least one of the left-wing parties (Social Democratic Party and/or the Left Party) and zero if liberal and/or conservative parties have majority	Swedish Association of Local Authorities and Regions
$Tax\ rate_i$	The municipality income tax rate (the sum of the municipality and county council tax rates), percent	Statistics Sweden
$Unempl_i$	Average annual unemployment rate	Swedish public employment service
$No.of\ users_i$	Total number of DAs users	The National Board of Health and Welfare

Table 3. Summary statistics: Means, min, max and standard deviations.

Variables	(1) N	(2) mean	(3) sd	(4) median	(5) min	(6) max
Cost	2380	169,710	63,269	161,015	32,000	905,224
Tax base	2380	233.3	33.74	227.8	176.9	490.5
Tax rate	2380	0.320	0.0101	0.321	0.289	0.343
Grant	2380	85.86	916.1	-12.50	-2,843	4,945
No. of users	2380	95.19	154.7	49.10	3.190	2,068
Unempl.	2380	0.0611	0.0242	0.0586	0.0106	0.178
Left	2380	0.433	0.115	0.426	0.0720	0.823

Table 4. Results from estimation of the fixed-effect panel model (2004 – 2012)

Depended variable: Cost for LSS daily activities per person		
	OLS b/se	IV b/se
Tax base	1.364**	2.523*
	(0.56)	(1.39)
Tax rate	-0.788	-0.649
	(2.46)	(2.44)
Grant	8.267***	8.334***
	(2.44)	(2.44)
No. of users	-0.498***	-0.499***
	(0.08)	(0.08)
Unempl.	0.486	1.078
	(0.81)	(0.98)
Left	-0.991***	-0.969***
	(0.25)	(0.25)
Year 2005	-0.054***	-0.084**
	(0.02)	(0.04)
Year 2006	-0.066**	-0.115*
	(0.03)	(0.06)
Year 2007	-0.120***	-0.178**
	(0.04)	(0.08)
Year 2008	-0.097**	-0.154*
	(0.05)	(0.08)

Year 2009	-0.151**	-0.242**
	(0.06)	(0.12)
Year 2010	-0.156**	-0.257**
	(0.07)	(0.13)
Year 2011	-0.147**	-0.238**
	(0.06)	(0.12)
Year 2012	-0.168**	-0.284*
	(0.07)	(0.15)
Constant	7.256**	
	(3.36)	
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Instrument	-	Share of high educated
		Share of children
F-test for excluded		F(2,279)= 43.56
instruments		Prob > F = 0.000
Hansens J Statistic		0.046
		P-value 0.8306
Hausman		1.76
		Prob>chi2 = 0.1847
N	2380	2380
R^2	0.187	0.183
AIC	-2089.8	-2079.2
BIC	-2009.0	-1998.4

Standard errors are clustered at the municipal level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5. Results from estimation of the random-effect panel model (2004 – 2012)

Depended variable: Cost for LSS daily activities per person		
	OLS	IV
	b/se	b/se
Tax base	0.814***	0.255
	(0.18)	(0.26)
Tax rate	2.981**	2.614**
	(1.52)	(1.24)
Grant	13.684***	13.593***
	(2.05)	(1.26)
No. of users	-0.420***	-0.431***
	(0.07)	(0.03)
Unempl.	-0.075	-0.651

|		
	(0.69)	(0.49)
Left	-0.744***	-0.798***
	(0.17)	(0.10)
Population	0.536***	0.574***
	(0.08)	(0.04)
Year 2005	-0.043***	-0.026
	(0.01)	(0.02)
Year 2006	-0.051***	-0.026
	(0.02)	(0.02)
Year 2007	-0.101***	-0.077***
	(0.02)	(0.02)
Year 2008	-0.091***	-0.070***
	(0.03)	(0.02)
Year 2009	-0.122***	-0.077***
	(0.03)	(0.03)
Year 2010	-0.125***	-0.069**
	(0.04)	(0.03)
Year 2011	-0.121***	-0.072**
	(0.03)	(0.03)
Year 2012	-0.137***	-0.077**
	(0.04)	(0.03)
Constant	3.292***	6.114***
	(0.98)	(1.38)
Municipal FE	No	No
Year FE	Yes	Yes
Hausman	240.66	18.62
Prob>chi2	0.0000	0.1802
N	2381	2381
R^2	0.3339	0.3156

Standard errors are clustered at the municipal level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1. Share of LSS and DA user in relation to population aged 0-64 years old.
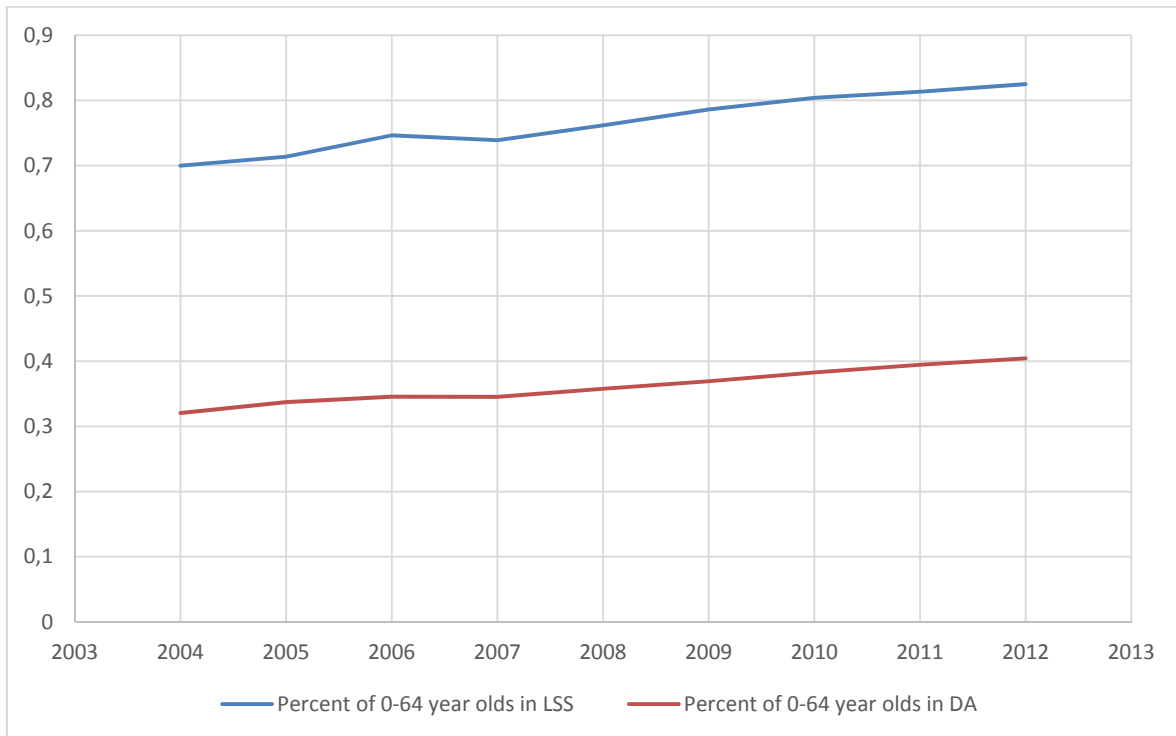
Source: Socialstyrelsen (2014b).

Figure 2. Distribution of cost per user and cost per capital, respectively, of DA services over number of municipalities (in EURO in year 2012).
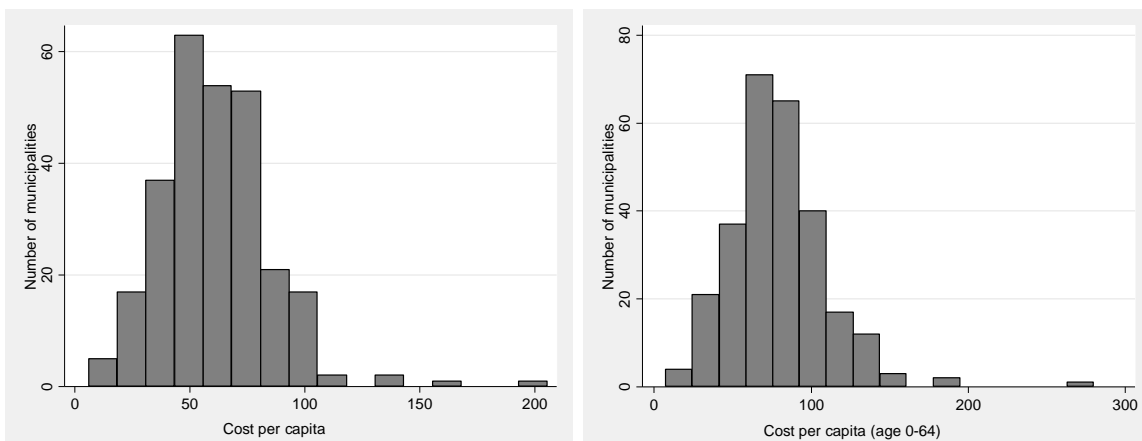
Source: Socialstyrelsen (2014b)

Figure 3. Demand and supply determination of expenditure per user (P) and quality (Q) of DAs services. Initial equilibrium (A), equilibrium after a shift of the demand function (B), and equilibrium after a shift of both the supply and demand functions (C).