Analysis of Cost and Quality Indicators of Day-Service Programmes in Sweden

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(Preliminary draft 31 March 2016)

Abstract

Several countries provide day-service programmes for people with intellectual disabilities. Little is known about the quality of these programmes or about their effectiveness in providing vocational training. In this study, we analysed the distribution across Swedish municipalities of some programme quality indicators and how these are related to the cost per user. We observed that both the expenditure per attendee and the quality indicators vary considerably in spite of the entitlement legislation that gives eligible persons right to services of equal quality independent of location. Statistical analysis indicated that the expenditure is influenced by differences in the local tax bases and other economic and/or political circumstances. We found that municipalities that conduct regular user surveys find reasons to on average spend more per user. We also found that the probability for transitions to employment at a regular workplace is higher in municipalities where as a routine a review is made of whether each participant can be offered an internship or work.

Keywords: Day-activity programmes, intellectual disabilities, autism, regional differences

Introduction

Sweden, as several other European countries, gives people with intellectual disabilities legal entitlements to occupational and training activities in day-service programmes. The content of these services may vary considerably, from work-like structured occupation to social meeting places with few scheduled activities. Little is known about how the participants' quality of life is affected or about the effectiveness of these programmes in providing vocational training.[1] In this study, we analysed the variation and determinants of costs per user and some quality indicators across municipalities.

Using longitudinal data over the period 2004 – 2012, Hultkrantz, Värja and Larsson Tholén (2015) analysed economic and political determinants of the Swedish municipalities' expenditure per user for day activities (DAs henceforth). It was found that the intended equality of the quality of these services independent of location has not been achieved. The budget allocation decisions by municipalities were found to be, among others, positively related to changes in the local tax base and negative related to changes of the share of votes for socialist parties. The present study took the analysis some steps further by introducing some explicit quality indicators that are available for one year, 2012.

A common distinction of quality measures in health care is made between quality of, respectively, outcomes, structure, and processes (Mainz 2003).[2] In the case of DAs, the main

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[1] Socialstyrelsen (2007) and Lövgren et al. (2013) observe a lack of research regarding daily activities.
[2] Structure denotes the attribute of the setting in which care occurs. Process denotes what is actually done in giving and receiving care. Outcomes denote the effects of care on the patients (Mainz 2003, p. 525; Donabedian 1966/2005). This typology is discussed in relation to quality in social-work practice in Blom and Morén (2012).

outcomes would be first how well they contribute to the participants' quality of life,[3] second whether and how well they prepare for transition to (possibly sheltered and/or subsidised) employment. *Structure* indicators can concern how the programmes are organised, for instance whether specific routines are implemented, for instance a routine to regularly conduct user surveys among participants or for evaluation of possibilities to organise an internship or on-the-job training for each participant. *Process* indicators records performed activities.

Around fifty percent of the Swedish municipalities regularly conduct user surveys among day-service programme attendees. These surveys often focus on quality-of-life related aspects of the programmes as to whether they provide activities that are felt as meaningful, whether participants are treated respectfully, etc.[4] The survey designs vary a lot so it is not possible to compare results across municipalities. However, to improve the control of the quality of services efforts have been undertaken at the national level to develop quality indicators that are comparable (Socialstyrelsen & Sveriges kommuner och landsting, 2007). Comparisons based on such indicators have gradually evolved, and from 2012 indicators are available for support provided under LSS (Socialstyrelsen, 2013).

The structure and process features can, if effective, be expected to affect quality in two ways; either by raising outcome quality per unit of expenditure or by revealing outcome quality deficiencies that motivate additional spending. In the first case, when cost efficiency is improved, expenditure per user will stay constant or fall. In the second case, expenditure per

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[3] There is a large literature on how to measure quality of life for people with intellectual disability. Recent reviews are Bertelli and Brown [17] and Brown et al. [18]. In Sweden, Eklund [19] measures quality of life among participants in daily activities among persons with mental illness (most with schizophrenia).

[4] Some reported studies are from the municipalities of Karlskoga (Jonsson 2013); Kramfors, Sollefteå, Timrå, Örnsköldsvik and Ånge (Rönnbäck 2012); and Falköping (Gerhardsson, Magnusson and Balutia 2005).

user will rise. The purpose of this study was to analyse the cross-sectional variation of the municipality-level average cost per user and how it is related to some of these quality indicators. A further purpose was to investigate whether successful vocational training, measured as the probability of a transition to employment at a regular workplace, can be explained by economic factors and quality indicators.

For these aims we estimated two statistical cross-sectional models using data from 240 municipalities in 2012. The first is an OLS model of average expenditure per participant and the second a Probit model of the probability that there was at least one transition from a day programme to employment during a year. Explanatory variables in both models were the quality indicators. In addition, we used political and economic variables, including population size and county-level fixed effects, as covariates.

The outline of the paper is the following. The next section provides a background on the provision of day-service programmes for persons with intellectual disabilities in Sweden. The third section presents method and data with special consideration of the quality indicators and the econometric models. The final three sections report the results of the statistical analysis followed by a discussion and some conclusions.

Day-service programmes for persons with intellectual disabilities in Sweden

In this section we give some institutional background on DAs in Sweden, starting with the legislative framework and the cost-equalisation systems. We then provide some descriptive statistics and review previous work in order to evaluate and improve the quality of DAs.

Legislation and content

As part of a package of handicap and psychiatric reforms in the mid-1990s, the Act concerning Support and Service for Persons with Certain Functional Impairments, with the Swedish acronym LSS (Swedish Law 1993:387) was implemented in 1994. This is an entitlement law intended to secure equality in living conditions and community participation for individuals with major and long-term functional impairments. 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 impairment occurring from brain damage in adulthood are entitled to DAs. People with physical disabilities or mental illness are not.The municipalities are entrusted with the main responsibility for providing these services.

DAs vary from basic chores in groups to individual placements. The basis is traditional activities conducted in groups at special premises for instance doing simpler contract work, textile and wooden handicrafts, café or restaurant activities; and work in gardens, agriculture or forestry. The DAs may also include training and rehabilitation activities. Some group activities, for instance theater performances, target different client categories (e.g., persons with intellectual disabilities, young persons with Asperger's syndrome or other conditions resembling autism, etc.). Activities in small groups are sometimes located at other municipal or private workplaces, such as in cafés, shops or daycare centers for dogs, etc. There are also individual placements, in which a person has his or her activity located at an external workplace. All but a few municipalities offer activities at least 6 hours a day on all weekdays (Socialstyrelsen 2008).

DAs are supposed to provide individuals working life participation both directly and indirectly as vocational. However, in spite of quite generous subsidies for employers that hire persons with intellectual impairment, transitions from DAs to employment at a regular or even sheltered workplace are rare (Socialstyrelsen 2008).[5]

Quantity, Cost and Quality

There were over 32 000 clients participating in DAs in all Swedish municipalities, which makes this the LSS measure with the highest number of users. The lion's share of the clients (>30 000) were individuals with an intellectual disability, autism or a condition resembling autism. Most were in the ages 23-64, and there was a slight majority of male participants. The number of users of DAs has increased by 50 per cent since 2004. (Socialstyrelsen 2014b).

The total cost of DAs in 2013 was 6.41 billion SEK (0.68 billion Euros). The annual cost of DAs per user was 196 489 SEK (20 723 Euros). Figure 1 shows the distribution of this average across municipalities. The spread is quite large from less than 100 000 SEK up to close to 400 000 SEK. As can be seen, the distribution is skewed with a "fat" right tail.

Figure 1 here.

LSS services are part of a broad set of social services provided by the 290 formally self-governed and self-funded municipalities. LSS makes all municipalities obliged to fulfil specific rights of any of their citizens who belong to at least one of three previously mentioned person circuits. However, the National Board of Health and Welfare has noticed a range of quality-

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[5] These difficulties for people with intellectual disabilities to obtain paid work are internationally recognized (Campbell, 2013; Lövgren, Markström & Sauer, 2013; McGlinchey, McCallion, Burke, Carroll, & McCarron, 2013).

related issues in the provision of DAs (Socialstyrelsen/National Board of Health and Welfare, 2011). To improve the control of the quality of municipality social services, efforts have been undertaken at the national level to develop valid and reliable quality indicators that are comparable across municipalities (Socialstyrelsen and Sveriges kommuner och landsting, 2007).[6] 81 indicators of various "prerequisites for good quality" in provision of LSS-services were developed (Socialstyrelsen 2013). 31 of these are based on an authority (i.e., municipality-wide) perspective and can therefore be used for comparisons across municipalities.

Method

In the statistical analysis we investigated correlations between some of these quality indicators and cost. There were several reasons for expecting a positive relation between cost and overall quality. For instance individual placements with activities that are adapted to meet individual capabilities and preferences will normally require more assistance and supervision than a common meeting place with few organized activities. However, costs per user may also vary for many other reasons, for instance because of economies of scale. Hence, confounding and/or reverse causality issues may arise. Given that quality indicators are available only for one year, our empirical strategy was to do regression analysis with the economic and political variables that were included in the panel-data study of Hultkrantz et al. (2015). In addition we included municipality population size and county-level fixed effects to further control for structural differences between the municipalities that may affect cost. The results from this

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[6] For validity, the indicators were selected based on a model developed for measurement of quality of social services in Socialstyrelsen & SKL (2007). Representatives of providers and users of the services were involved in the workt and have probably assessed the relevance of the chosen indicators. The reliability has been controlled in various ways. An initial check was made for extreme values and if such were found contact was made with the respondent for clarification. The respondents were invited to make a comment on every question and all such comments were examined to see whether there was any ambiguity. In fact, one such problem was found but it was not related to the indicators that were selected for this study

analysis was interpreted as a reduced-form equation that, as explained below, can be derived from a simple model of demand and supply for a latent comprehensive quality variable.

As already stated there was one direct indicator of outcome quality related to transitions to employment at a regular work place. We did a separate Probit model analysis for this variable to determine to what extent the other quality indicators are associated with the probability for such a transition.

Basic Economic Model

Suppressing time indices, let the latent demand and supply for the quality, in terms of quality-of-life enjoyed by LSS clients, 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 $D_i(Cost_i, x_i^D) = S_i(Cost_i, x_i^S)$, where $Cost_i$ is the "equilibrium" expenditure per user, x_i^D and z_i^S are demand and supply shifters, respectively.

Now, assuming that all demand and supply shifters are known (i.e., there are no confounding variables), we get the following basic reduced- form expression for the equilibrium expenditure per user for municipality *i* at time *t*:

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

One way to control for unknown demand and supply shifters is to, as in Hultkrantz et al. (2015), estimate a fixed-effects model with panel data. However since the quality indicators that were the focus of the present study were only available for one year this was not feasible here. Instead we used county-level fixed effects and municipality population size to capture such potential confounders.

Quality Indicators

By introducing quality indicators in equation (1) we investigated how expenditure per user is affected by the various quality features. This would reveal whether there is a cost-quality tradeoff to the introduction of processes that have been identified as potentially quality improving. A higher level of a structure quality indicator could be expected to be associated with either a higher expenditure per user (higher quality is more costly) or a lower expenditure per user (higher process quality is more cost efficient). The latter case is clearly a win-win given that the structure is effective in giving higher quality. Also, it is of interest to see whether measures, such as user surveys, that are not likely to be very costly *per se* have a substantial cost effects, which then may indicate that this measure have indirect quality enhancing effects, for instance by being followed by specific programmes or adaptions for individual clients that raise total cost.

The quality indicators available were collected by the National Board of Health and Welfare in a survey among all municipalities regarding the situation in 2012 (Socialstyrelsen, 2013).[7] There were totally 31 indicators covering structure, process and outcome quality features, as presented in Table 1.

Table 1 here

Based on relevance and statistical properties (some variables take the value of either zero or unity for almost all municipalities) we selected the five process variable and one outcome variable that are marked by bold letters for our analysis.[8] These are whether (i) there

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[7] The measurement date was November 21, 2012. Some indicators refer to the 12-month period preceding this date.
[8] All 13 indicators for *Coordination* and all 7 indicators for *Information about LSS* (see Table 1) were skipped as results for these were considered to be difficult to interpret. Also, formal routines for internal coordination are not

is a written and managerial determined routine to offer every participant an individual plan (the variable *Individual plan* below), (ii) there has been made at least one study on the participants' perception of the LSS activities in the municipality/district during a period of two years (*User survey*); (iii) there has been made a follow-up of all who have received a decision on eligibility to daily activities (*Monitoring*); (iv) there is an overall plan for staff development (*Competence plan*); and (v) there is a written and managerially determined routine for doing (at least annually) reviews of possibilities for job or internship to persons involved in daily activities (*Job routine*). Finally we had an outcome indicator, which denotes whether there was any transition to work during a one-year period (*Work*).[9]

Figure 2 shows the shares of municipalities having these routines. Individual plans for the participants are made in two thirds of the municipalities and more than half make regular user surveys. However, just around 15 percent have a routine for doing regular reviews of possibilities for a job or internship and a similar low share have done a follow-up of eligibility decisions.

Figure 2here

Econometric Models

All variables that were used in the empirical analysis are presented in Table 2. As demand-side shifters in our statistical analysis we used the LSS cost equalization grant/payment

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always needed when, as in especially small municipalities, the same administrator is responsible for multiple action areas. For *Individual Plans* we used the main question; most municipalities that have an individual plan routine also have a routine for documenting that such a plan has been offered. The indicator variable on payment of habilitation fees was skipped since 89 percent of all municipalities make such payments. The variable on case workers with a university degree was likewise deemed to be statistically uninformative as 95 percent responded yes.

[9] "Work" is defined as employment on the open labour market, employment with state grants ("lönebidragsanställning"), internship or sheltered employment (not funded as a LSS activity). Transitions to education are not included.

($Grant_i$), average taxable income of residents ($Tax\ base_i$), the municipality income tax rate[10]

($Tax\ rate_i$) 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 ($Left_i$). As potential supply

shifters we used the total number of DAs users in the municipality ($No.\ of\ users_i$) and the local

unemployment rate ($Unempl_i$). For further motivation and discussion of these variables, see

Hultkrantz et al. (2015). As we could not as in that study use municipality fixed effects to control

for omitted variables we instead used county-level fixed effects and the size of the municipality

population (Pop_i).

Thus, disregarding the county level fixed effects, we had

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\begin{aligned}
Cost_i = \alpha &+ \delta_1 * Individual\ plan_i + \delta_2 * User\ survey_i + \delta_3 \\
&* Monitoring_i + \delta_4 * Competence\ plan_i + \delta_5 \\
&* Job\ routine_i + \beta_1 * Income_i + \beta_2 * Tax\ base_i + \beta_3 \qquad (3) \\
&* Tax\ rate_i + 4 * Grant_i + \beta_5 * Unempl_i + \beta_6 \\
&* No.\ of\ users_i + \beta_7 * Left_i + \beta_8 * Pop_i + \varepsilon_i
\end{aligned}
$$

We used a Probit model to estimate the probability that a municipality reports at least

one transition during a year from DAs to employment. In the same manner, we had

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

$$Prob\ (Work_i = 1)$$
$$= \alpha + \delta_1 * Individual\ plan_i + \delta_2 * User\ survey_i + \delta_3$$
$$* Monitoring_i + \delta_4 * Competence\ plan_i + \delta_5$$
$$* Job\ routine_i + \beta_1 * Income_i + \beta_2 * Tax\ base_i + \beta_3 \quad (4)$$
$$* Tax\ rate_i + 4 * Grant_i + \beta_5 * Unempl_i + \beta_6$$
$$* No.of\ users_i + \beta_7 * Left_i + \beta_8 * Pop_i + \varepsilon_i$$

Data

The data was based on official statistical sources and from a survey to all municipalities

on quality indicators. The variables and their sources are listed in Table 2. Descriptive statistics

are displayed in Table 3.

Tables 2 and 3 here

There are 290 municipalities in Sweden. However, for the quality indicators collected by

a survey to all municipalities the three metropolitan cities in Sweden (Stockholm, Göteborg and

Malmö) were asked to submit data on district level. Since we did not have data on the

covariates at this level for these three municipalities we could not include them in the

regressions. Further, due to non-responses in this survey there were missing values on the

quality measures, leaving us with 241 to 242 observations. Two municipalities were also

excluded from the sample because of misspecification of the cost per user[11].

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[11] When these municipalities where contacted because they had stated very low costs they acknowledged that something was wrong.

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

We used county-level fixed-effect dummy variables. There are 21 counties in Sweden.The reason for including county effects was the finding by Birkelöf (2008) that total LSS expenditure per user is influenced by interaction between municipalities within a county.

Results

How is expenditure per user related to structure and process quality?

Figure 3 shows the average cost per users of the municipalities with one of the five structure or process features. There are marked differences in the average cost per user between municipalities with and without User Survey, Competence Plan, and Job Routine. However, to draw conclusions on the relation between costs and these quality indicators we need to account for the influence of other cost determinants, which was done in the regression analysis.

Figure 3 here

In the first statistical analysis we have estimated an equation of determinants of the DAs expenditure per user. The results from OLS estimation of this model with all five quality-indicator variables or just some of them are reported in Table 4.[12] There was no indication of

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[12] Instruments for *Tax base* were used in the panel-data study. However, as our interest here is the quality indicators and the results are similar with instruments we do not show results from such estimations here.

high multicollinearity between these variables,[13] but still it turned out that one of the variables (*Competence plan*) was significant only when some other indicator variable was not present.

Table 4 here

The results for the economic explanatory variables were mainly the same as in the panel data study of Hultkrantz et al. (2015). *Tax base* and *Grant* got significantly positive coefficients, supporting the conclusion of the previous study that the variation of expenditure per user to some extent can be explained by income variation. Also, the per capita *No. of users* reduces cost, suggesting presence of economies of scale. Unlike in the panel-data model, *Unemployment* got significantly negative coefficients. Finally, *Population* received significantly positive coefficients.

For the quality indicator variables, the results showed that municipalities that regularly conduct *User surveys* have on average higher cost per user. Also having a *Competence plan* seems to raise costs, significantly so when either *User survey* or *Job routine* were excluded. For the *Individual plan* and *Monitoring variables* we found no evidence that they increase costs, in fact, the coefficients were negative but insignificant. Finally, it was not clear that municipalities with a *Job routine* get a higher cost.

What affects the probability to leave for an employment?

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[13] The VIF test is under 1.5 for all the indicator variables.

The Probit model results are shown in Table 5. Due to internal non-responses we estimated five versions with different combinations of the structure and process quality indicator variables, with the number of observations ranging from 233 to 244.

The results can easily be summarized. The *Job routine* variable had significant positive coefficients, while coefficients of other indicator variables were not significant.

Table 5 here

Discussion

Detailed information regarding for example the level of intellectual disabilities and the presence of behavioural problems about the users is mainly lacking. However, it has been concluded that the costs of DAs is related to the type of DA (Socialstyrelsen 2011). These types vary from basic chores in groups to individual placements, and individual external placements are, compared to group activities, lower cost-activities. It has also been recognised that the younger generation DA-users has higher demands and expectations regarding the DA content. To meet this higher expectations the activities need to be individualised which leads to higher costs (Socialstyrelsen, 2011). In the younger generation there is also, compared to the older generation, a new group of disorders, the neuropsychiatric disorders, which also demand other types of content, organisation and support (Socialstyrelsen, 2011). Some differences between municipality costs may be due to such reasons. However, although there may be much variation in individual characteristics that affects the expenditure needs for each individual user it can be noticed that close to half of the variation of the average cost per user across municipalities was explained by the variables of the estimated models shown in Table 4.

Equity of quality of services, independent of location, for persons eligible to DA programmes is explicitly required by the LSS legislation. However, we have found in this study that expenditure per user is correlated across municipalities with differences in the local tax bases[14] and other local economic and/or political circumstances. This result is with some exceptions similar to the results of the panel-data analysis conducted in a companion paper (Hultkrantz et al. 2015). It is clear from both approaches that variables that reflect differences in local government revenues (*Tax base* and *LSS grant*) are positive determinants of expenditure per user. Also, there are economies of scale, which therefore leaves municipalities with few users per capita at disadvantage. The reason for the negative correlation with *Unemployment* is unclear, one possibility being that municipality-provided labour market programmes for unemployed may crowd out work-like individual placements of LSS clients.

Turning to the quality indicators, we found that the 56 percent share of municipalities that regularly make user surveys on average spends more per user. Since it is unlikely that the cost of making a user survey per se is high, we conjecture that the reason for the higher average cost per user is that these surveys are used to improve the quality of DAs . Measurement of user (client/customer) satisfaction by user surveys is a core ingredient in most modern quality management systems and there is a reason for that[15].

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[14] The analysis in our companion paper Hultkrantz et al. (2015) suggests, using panel data and instrument variables that this is mainly a demand-side effect, i.e., not just a reflection of cost-side variation due to regional wage differences.

[15] For instance, Samson and Terziovski (1999) in a study of 1200 Australian and New Zealand manufacturing organisations found "customer focus" to be one of three Total Quality Management factors that proved to be strongly and positively related to performance.

We also found that having a competence plan, i.e., a plan for development of the competence of all staff, based on the needs and targets of the organisation and a review of the individuals' education and competence, is associated with a higher cost. This implies that this indicator measures process-quality features with real effects, i.e. not just fulfilment of a formal requirement. Municipalities with a comprehensive plan for all staff also spend more on competence-enhancing activities.

Anyone who has been granted a LSS service may request an individual plan that presents the approved and planned measures. This plan shall be formulated in consultation with the individual who is to receive support. A survey conducted among all municipalities in 2003 (Socialstyrelsen 2003) showed that just 6.5 percent of all LSS clients had such an individual plan. However, it was also found that most users still had some kind of habilitation plan initiated by the professional administrators. Thus, having a routine for offering an individual plan is a means for clients' participation but may not necessarily affect the number of habilitation plans made. Whatever the effects are, our results show that having such a routine is not raising costs. The reason could be either that such a routine does not substantially increase the share of users that request an individual plan or that user participation in the habilitation planning does not lead to substantially more expensive DAs.

Finally, the results show a significantly positive effect of the *Job routine* variable in the Probit equation. This is important as only 39 percent of the municipalities had experienced any such transition during the most recent 12-month period. [16] It is therefore encouraging that

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[16] From a previous survey to all municipalities, Socialstyrelsen (2008) reported that more than half of the municipalities had not had any such transition during a five-year period. Also, in most cases where there had been

there are effective routines that improve the likelihood of transitions.[17] Also, it is not clear from the statistical analysis that such routines raise the cost per user.

Conclusions

The results for the economic and political variables were with some exception in accordance with those found in a previous panel data study, demonstrating that equalisation has not yet been achieved of the quality-of-life enhancing activities for persons with intellectual disabilities that are provided under the LSS act. These results therefore confirm that such equalisation is difficult to achieve even with designated legislation and cost-equalisation measures.

However, a reason that differences between localities are sustained could be the lack of common indicators that make the quality of services provided by 290 self-governed municipalities commensurable. Such indicators, aiming for measurement of "prerequisites for good quality", have recently been collected by the Swedish National Board of Health and Welfare. The main focus of this study is on how some of these indicators are related to the expenditure per user and to the probability for transitions of DA users to employment. Our main findings from the statistical analysis were that regular user surveys seem to raise service quality and that having a routine that annually examines whether each participant can be offered an

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such transitions they involved only one or a few persons. In 40 percent of the municipalities the respondents assessed that there were DA participants who could and wanted to get a salaried employment. The share of such participants in these municipalities was on average estimated to 10 percent.

[17] The marginal effect from *Job routine* is 0.179 with standard error 0.08 and p-value 0.026. Some examples of practices that seem to work (mostly based on "supported employment" models) are presented in Socialstyrelsen (2010).

internship or work is associated with higher probabilities for transitions from the day-service

programme to employment at a regular workplace.

References

Arbetsförmedlingen, & Försäkringskassan. (2014). Effektutvärdering av insatser för unga med

aktivitetsersättning.

Arnek, M. (2014). Med nya mått mätt – en ESO-rapport om indikationer på

produktivitetsutveckling i offentlig sektor. Swedish Ministry of Finance ESO 2014:7.

Baum, C. (2006). *An introduction to modern econometrics using Stata*. United States of America:

Stata Press. pp. 185-218.

Bertelli M. Brown I. (2006). Quality of life for people with intellectual disabilities. Current

Opinion in Psychiatry 19(5):508-513.

Beyer, S., Brown, T., Akandi, R., Rapley, M. (2010). A Comparison of Quality of Life Outcomes for

People with Intellectual Disabilities in Supported Employment, Day Services and Employment

Enterprises. Journal of Applied Research in Intellectual Disabilities 23:290-295.

Birkelöf, L.C. (2010). Exploring differences in expenditure for the functionally impaired:

Neighbourhood interaction and the federal structure. Annals of Regional Science 44:185-204.

Bradford, D., Oates, W.E. (1971a). The Analysis of Revenue Sharing in a New Approach to

Collective Fiscal Decisions, Quarterly Journal of Economics, Vol. 85, No. 3.

Bradford, D., Oates, W.E. (1971b). Towards a Predictive Theory of Intergovernmental Grants, American Economic Review, Vol. 6, No. 2.

Browns, I., Hatton C., Emerson, E. (2013). Quality of Life Indicators for Individuals with Intellectual Disabilities: Extending Current Practice. Intellectual and Developmental Disabilities 51(5):316-332.

Campbell, M. (2013). Changing day services: Do you agree? *Journal of Intellectual Disabilities, 16*(3), 205-215.

Dahlberg,M. , Mörk, E., Rattsø, J., Ågren, H. (2008). Using a Discontinuous Grant Rule to Identify the Effect of Grants on Local Taxes and Spending, Journal of Public Economics 92: 2320-2335.

Donabedian, A (1966/2005)."Evaluating the quality of medical care. *The Milbank quarterly* 83 (4): 691–729. A reprint from The Milbank Memorial Fund Quarterly 44 (3): 166- 203.

Edlund, J., Holmström, M. (2010). Det kommunalekonomiska utjämningssystemet. Effekter för Västerbotten. Norrbotten och Sveriges funktionella arbetsmarknader. Umeå University, CERUM Report NR23/2010,

Eklund, M. (2009). Work status, daily activities and quality of life among people with severe mental illness. Quality of Life Research 18:163-170.

Felce, D., Lowe, K., Beecham, J., Hallam, A. (2000). Exploring the relationships between costs and quality of services for adults with severe intellectual disabilities and the most severe challenging behaviours in Wales: A multivariate regression analysis. Journal of Intellectual and Developmental Disability 25:307-326.

Hartnett, E., Gallagher, P., Kiernan G., Poulsen, C., Gilligan E., Reynolds, M. (2008). Day service programmes for people with a severe intellectual disability and quality of life: Parent and staff perspectives. Journal of Intellectual Disability 12(2):153-172.

Hines, J. R., Thaler, R.H. (1995). Anomalies: the flypaper effect. Journal of Economic Perspectives 9 (4): 217-26.

Hultkrantz, L., Värja, E., Larsson Tholén, S. (2015). Equal-Rights vs. Local Politics: What Determines Quality of Day-Service Programs in Sweden? Örebro University, Dept. of Economics, Working Paper.

Lövgren, V., Markström, U., Sauer, L. (2013). Från sysselsättning till arbete. Kunskapssammanställning om stöd till arbete för personer med funktionsnedsättning. Umeå universitet, Institutionen för socialt arbete.

Mainz, J. (2003). Methodology Matters. Defining and classifying clinical indicators for quality improvement. International Journal for Quality in Health Care 15(6): 523-530.

McGlinchey, E., McCallion, P., Burke, E., Carroll, R., & McCarron, M. (2013). Exploring the Issue of Employment for Adults with an Intellectual Disability in Ireland. Journal of Applied Research in Intellectual Disabilities, 26(4), 335-343.

Melke, A. (2010). Mental health policy and the welfare state. A study on how Sweden, France and England have addressed target groups at the margins. School of Public Administration, University of Gothenburg (diss.).

Samson, D. & Terziovski, M. (1999). The relationship between total quality management practices and operational performance. Journal of Operations Management 17:393-409.

Scott, A.D. (1952). Federal Grants and Resource Allocation." Journal of Political Economy 60:534-536.

SEU (2004). Mental health and social exclusion. Social exclusion unit report. The office of the deputy Prime Minister. London, June 2004.

Sheppard-Jones, K. (2002). Quality of life dimensions for adults with developmental disabilities. College of Education, University of Kentucky (diss.).

Skinner, J. (2012). Causes and Consequences of Regional Variations in Health Care. Ch. 2 in M. V. Pauly, T. G. McGuire, P.P. Barros, Handbook of Health Economics, Volume 2. Elsevier.

Socialstyrelsen (2003), Hur många har en individuell plan enligt LSS? Resultat av en enkät till kommunerna år 2003. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2007a). Resursfördelning och prioriteringar inom socialtjänsten. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2008). Daglig verksamhet enligt LSS. En kartläggning. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2010). På tröskeln. Daglig verksamhet med inriktning på arbete. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2011). Bostad med särskild service och daglig verksamhet. En forskningsöversikt. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2013). Öppna jämförelser av stöd till personer med funktionsnedsättning 2013 – resultat och metod. www.socialstyrelsen.se.

Socialstyrelsen (2014a). Tillståndet och utvecklingen inom hälso- och sjukvård och socialtjänst – Lägesrapport 2014. Stockholm, National Board of Health and Welfare (Socialstyrelsen).

Socialstyrelsen (2014b). Personer med funktionsnedsättning – insatser enligt LSS år 2013. Official statistics of Sweden.

Socialstyrelsen & SKL (2007). Modell för utveckling av kvalitetsindikatorer i socialtjänsten. Stockholm, National Board of Health and Welfare (Socialstyrelsen) and the Swedish Association of Local and Regional Governments (SKL).

SKL (2014a). Kostnad per brukare. Jämförelser inom omsorg om äldre och personer med funktionsnedsättning – utfall 2013. Stockholm: Sveriges Kommuner och Landsting SKL.

SKL (2014b). Preliminär kostnadsutjämning för LSS år 2015. Stockholm: Sveriges Kommuner och Landsting SKL.

Stancliffe, R. J., Lakin, K. C. (eds.) (2004). Costs and Outcomes of Community Services for People with Intellectual Disabilities.

Sutton, M., Lock, P. (2000). Regional differences in health care delivery: implications for a national resource allocation formula. Health Economics 9(6):547-59.
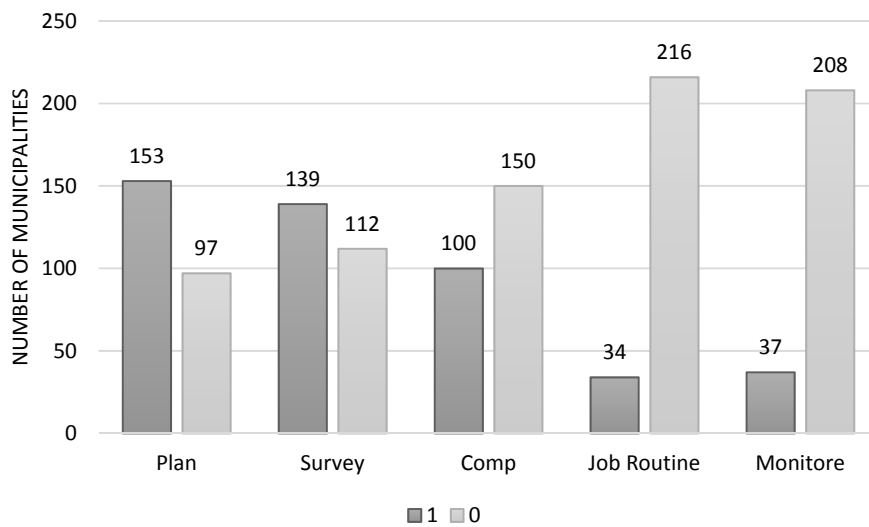
Appendix

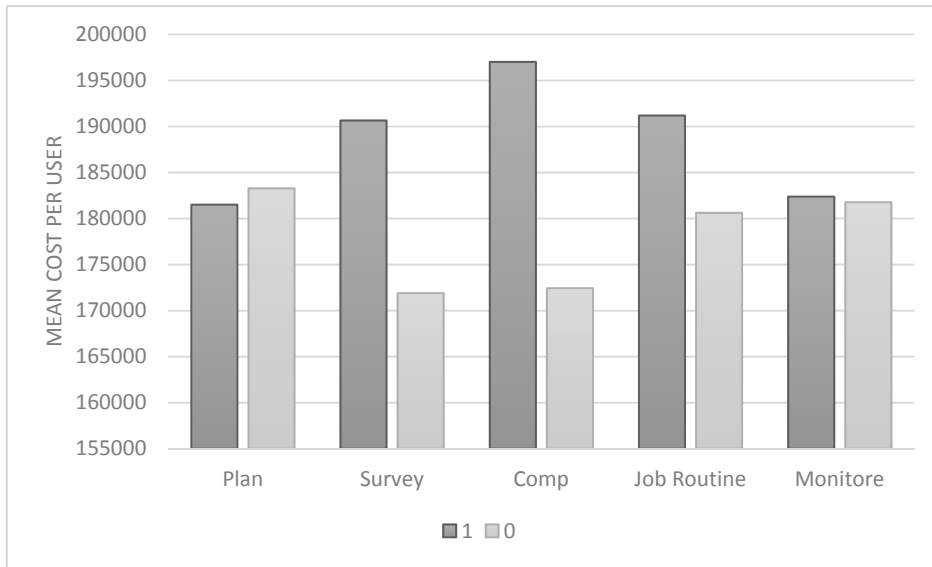Figure 1. Distribution of cost per user over number of municipalities
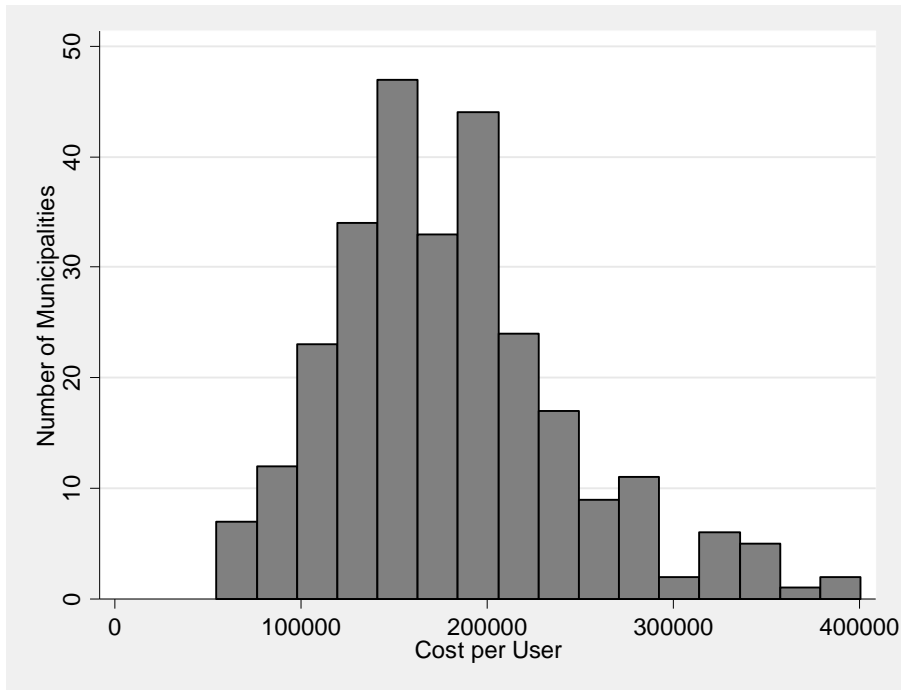
Source: Socialstyrelsen (2013)

Figure 2. The distribution of indicators

Figure 3. Mean cost per user by indicator

Table 1 Quality indicators surveyed in Socialstyrelsen (2013)

Coherence and coordination

- Internal coordination: Updated routines for coordination with social work units for Children & youth, Welfare support, Homeless, Addiction treatment, Social psychiatry, Violence in close relationships, Care of elderly, respectively.
- External coordination: Agreements for cooperation with: Job centre, Social insurance board, County council Departments of Children habilitation, Adult habilitation, Children psychiatry, Adult psychiatry, respectively.

Individual plans

- **There is a routine for offering individual plans.**
- There is a routine for documenting that an individual plan has been offered.

Information on LSS is available in alternative formats

- Information on the web: In "easy language", sign language, audio, text file, respectively.
- Information at the social work department: Audio, Daisy, sign language, respectively.

Control

- Decisions on housing are followed up.
- **Decisions on DAs are followed up.**

Self-determination and integrity

- **User surveys are conducted.**
- Habilitation fees are paid to the clients.
- **At least one previous user has started to work at a regular or sheltered work place during the last year.**
- **There is routine for reviewing users' possibilities for a job or internshi**p.

Competence of case workers

- Proportion of LSS administration time conducted by case workers with a university degree.
- Proportion of LSS administration time conducted by case workers with an updated developmental plan.
- **There is an overall plan for development of staff's competence.**

Table 2. Variable description (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 income in municipality I, thousands SEK.	Statistics Sweden
$Grant_i$	The logarithm of LSS Grants for cost equalization, thousands SEK per capita, for municipality i. Grants per capita is divided by 10 000 and then adding the number one to be able to take the log.	Statistics Sweden
$Left_i$	Dummy variable that takes the value one if the municipality is governed by the left (Social Democratic Party and/or the Left Party) or a collaboration and zero if liberal and/or conservative parties are in majority	Swedish Association of Local Authorities and Regions
Pop_i	The logarithm of total population for municipality i	Statistics Sweden
$Tax\ rate_i$	The municipality income tax rate (the sum of the municipality and county council tax rates) for municipality I, percent	Statistics Sweden
$Unempl_i$	Average annual unemployment rate for municipality i	Swedish public employment service
$No\ of\ users_i$	Share of the population that has LSS support in municipality i	The National Board of Health and Welfare
$Job\ Routine_i$	Dummy variable that takes the value one if municipality i has a written and managerially determined routine for at least annually reviewing possibilities for job or internship to persons involved in daily activities. This routine should have been effective on 21 November 2012 .The value is zero otherwise	The National Board of Health and Welfare

$Individual\ plan_i$	A dummy variable equal to one if municipality i has a written and managerial determined routine to offer every participant an individual plan. This routine should have been effective on 21 November 2012. The value is zero otherwise	The National Board of Health and Welfare
$User\ survey_i$	A dummy variable equal to one if municipality i has made at least one study on the participants' perception of the LSS activities in the municipality/district, during the period 21 November 2010 - November 21, 2012. The value is zero otherwise	The National Board of Health and Welfare
$Monitoring_i$	A dummy variable equal to one if municipality i has followed up all who have received a decision on eligibility to daily activities during the period 21 November 2011 - 21 November 2012. The monitoring must have been recorded in the medical record / personal file. The value is zero otherwise.	The National Board of Health and Welfare
$Competence\ plan_i$	A dummy variable equal to one if municipality i have an overall plan for staff development? The plan should have been effective 1 October 2012. The value is zero otherwise.	The National Board of Health and Welfare
$Work_i$	A dummy variable equal to one if the municipality has had at least one person that has gone from daily activities to work during the period 21 November 2011 - 21 November 2012. (The decision on daily activities has ceased). The value is zero otherwise.	The National Board of Health and Welfare
$County_i$	21 dummy variables controlling for what county council municipality i belongs to.	The National Board of Health and Welfare

Table 3. Summary statistics 2012: Means, min, max and standard deviations.

Variables	(1) N	(2) mean	(3) sd	(4) median	(5) min	(6) max
Individual plan	246	0.610	0.489	1	0	1
User Survey	247	0.551	0.498	1	0	1
Work	248	0.423	0.495	0	0	1
Job Routine	246	0.138	0.346	0	0	1
Competence plan	246	0.402	0.491	0	0	1
Monitoring	241	0.149	0.357	0	0	1
Cost	273	181,192	63,699	175,034	54,567	400,404
Tax base	273	5.421	0.115	5.401	5.231	6.077
Tax rate	273	0.323	0.0107	0.324	0.289	0.343
Grant	273	0.00112	0.00948	0.000489	-0.0256	0.0404
No. of users	273	4.163	1.022	4.025	1.609	7.708
Unempl.	273	0.0706	0.0219	0.0695	0.0225	0.148
Population	273	9.878	0.938	9.673	7.935	13.69
Left	273	0.408	0.120	0.393	0.0720	0.795

Table 4. OLS results.

Dependent variable: Expenditure for LSS daily activities per person					
	(1)	(2)	(3)	(4)	(5)
Individual plan	-0.059	-0.053	-0.052	-0.059	-0.041
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
User Survey	0.078[*]	0.089[**]		0.078[*]	
	(0.04)	(0.04)		(0.04)	
Competence plan	0.055		0.075[**]	0.058[*]	
	(0.04)		(0.03)	(0.03)	
Monitoring	-0.080	-0.088	-0.057	-0.077	-0.065
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Job routine	0.055	0.065	0.056		0.070[*]
	(0.04)	(0.04)	(0.04)		(0.04)
Tax base	0.477[**]	0.471[*]	0.440[*]	0.528[**]	0.432[*]
	(0.24)	(0.24)	(0.25)	(0.24)	(0.25)
Tax rate	1.477	1.257	0.781	1.957	0.549
	(3.29)	(3.19)	(3.27)	(3.27)	(3.18)
Grant	14.445[***]	14.935[***]	14.934[***]	13.964[***]	15.719[***]
	(4.23)	(4.26)	(4.08)	(4.18)	(4.11)
No. of users	-0.367[***]	-0.381[***]	-0.363[***]	-0.354[***]	-0.382[***]
	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)
Unempl.	-3.198[**]	-3.244[**]	-3.104[**]	-3.008[**]	-3.126[**]
	(1.43)	(1.43)	(1.42)	(1.41)	(1.41)
Left	-0.214	-0.199	-0.219	-0.223	-0.203
	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)
Population	0.389[***]	0.407[***]	0.391[***]	0.379[***]	0.417[***]
	(0.14)	(0.13)	(0.14)	(0.13)	(0.14)
Constant	6.936[***]	6.929[***]	7.353[***]	6.541[***]	7.308[***]
	(1.99)	(1.98)	(2.05)	(1.99)	(2.04)
County FE	Yes	Yes	Yes	Yes	Yes
N	240	241	241	241	242
R^2	0.470	0.465	0.459	0.466	0.450
Adj. R^2	0.391	0.389	0.381	0.389	0.375

Robust standard errors

[*] $p < 0.10$, [**] $p < 0.05$, [***] $p < 0.01$

Table 5. Probit-model results

Dependent variable: Transition to work					
	(1)	(2)	(3)	(4)	(5)
Individual plan	-0.053	-0.023	-0.071	-0.043	-0.044
	(0.80)	(0.91)	(0.72)	(0.83)	(0.82)
User survey	0.078	0.040		0.076	
	(0.72)	(0.85)		(0.73)	
Competence plan	0.092		0.124	0.140	
	(0.65)		(0.54)	(0.49)	
Monitoring	0.016	-0.007	0.096	0.042	0.063
	(0.96)	(0.98)	(0.73)	(0.88)	(0.82)
Job routine	0.617**	0.656**	0.609**		0.655**
	(0.03)	(0.02)	(0.03)		(0.02)
Tax base	-0.901	-1.145	-1.010	-0.317	-1.260
	(0.56)	(0.45)	(0.52)	(0.83)	(0.41)
Tax rate	11.282	1.469	8.925	16.467	-0.641
	(0.55)	(0.94)	(0.64)	(0.38)	(0.97)
Grant	-18.009	-15.556	-18.403	-22.649	-16.290
	(0.35)	(0.41)	(0.34)	(0.23)	(0.38)
No. of users	0.464	0.405	0.504	0.616	0.448
	(0.31)	(0.35)	(0.26)	(0.17)	(0.30)
Unempl.	-3.906	-4.739	-3.795	-1.974	-4.788
	(0.61)	(0.53)	(0.62)	(0.79)	(0.52)
Policy	0.059	0.363	0.050	0.022	0.358
	(0.96)	(0.77)	(0.97)	(0.99)	(0.78)
Population	0.124	0.157	0.083	-0.022	0.114
	(0.80)	(0.74)	(0.86)	(0.96)	(0.81)
Constant	-1.528	2.854	0.095	-5.717	4.445
	(0.90)	(0.81)	(0.99)	(0.61)	(0.70)
N	233	243	234	234	244
Log pseudolikelihood	-119.98601	-123.6731	-120.81117	-123.51999	-124.47998
Wald chi2	79.43	85.06	81.27	74.51	86.39
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$