CHARGING FOR LOCAL SOCIAL SERVICES: THE CASE OF ESTONIA[1]

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Abstract

Increasing fiscal pressure has forced local governments to seek new sources of autonomous revenues for financing public services. Charging users of social services has been modest, but with an aging society and growing social costs, this option needs to be reconsidered. This paper combines the results of the survey on the application of user charges on local social services in Estonian local governments (LGs) with the official financial and population statistics in order to discover trends and explore factors determining the application of user charges in a small, unitary, highly centralised, post-soviet country. We conclude that user charges are mainly considered as a source of information and additional income to partially cover service costs – the possibilities of increased efficiency and demand control have remained undervalued. The probability of charging users of social services tends to be greater if the income level of inhabitants is higher, reflecting the 'ability to pay' principle. Charging users is more probable in the municipalities where the social costs are higher in volume or in proportion to the budget's expenditures.

Keywords: public finance, municipalities, user charges, social services, Estonia

JEL Classification: H, I

Introduction

User charges may be defined as prices of publicly provided goods and services (Wagner, 1991; Bös 1986). In considering the public finance theory such charges could be levied on the majority of local government services which are not pure public goods. In this respect social services are good candidates for the application of user charges as they are individual-based, their consumption is rival and excludable.

In a global competitive environment, local governments are progressively experiencing difficulties in collecting their own revenues and are largely dependent

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on central government grants. The introduction of user charges may benefit the budgetary situation in *ceteris paribus* and increase the efficiency of service provision. As social services represent a large share of the public services offered by municipalities, and with the aging of societies, this burden is increasing; introducing at least partial cost coverage by users would help to reduce the budgetary burden of local governments. On the other hand, a growing focus on customer demand for public services and service quality, which are characteristic to the New Public Management, emphasise the need to interlink the financing and consumption of public services. User charges provide a good option for this by reflecting the consumers' willingness to pay. However, the introduction of new charges may not be easy: following the path dependency from the era of the Soviet Union these services are in general offered free of charge.

In this paper, we seek to identify the possibilities for introducing user charges in the case of social services in a small, unitary, highly centralised, post-soviet country. This requires an understanding of the determinants of charging the users of social services. We use the opportunity of combining a unique survey database with official financial and population data from Statistics Estonia to explore this question.

The paper is divided into four sections. The first part provides a theoretical overview of motivations and limitations for introducing user charges. The second part gives a short overview of the application of user charges in the Estonian context, including main revenue sources of Estonian local governments as well as their jurisdiction with respect to the provision of social services. Data and methodology of the empirical analysis are explained in the third part of the paper. The last part deals with the analysis of determinants of the user charging policies. Firstly, principles and preconditions from the viewpoint of the local governments' (LG) are explored. The trends are further tested with statistical data analysis.

1. Theoretical foundations of applying user charges

Although the term "user charges" is widely used by governments and scholarly discussions, there is no universal agreement about the exact meaning of this term. Most commonly, user charges are defined as prices that government requests from users of specific services provided by the public sector (see e.g. Bös, 1986; Wagner, 1991; Bohley, 2003). The application of user charges assumes that the goods and services in question possess some private good characteristic – the consumers who do not pay can be excluded from the consumption and the consumers are in rivalry for the consumption of goods and services. Nevertheless, user charges should be clearly distinguished from prices in the private sector and they differ in that they are collected by public bodies and thus their application follows the traditional aims, which are characteristic of the public sector (Bohley, 2003). Bailey (1999) explains that using the term "charge" instead of "price" reflects the administrative, rather than market based, determination of payments. However, many researchers and theories, especially in continental Europe, still use the term "public prices" to deal with publicly charged goods and services.

The discussion about public pricing has a long economic history. During the last 100 years there have been a number of outstanding publications forming the classics of public economics. Nevertheless, practical experience in the application of user charging has been rather diverse and inconsistent across countries, as well as across service fields. For example, public utilities such as electricity, water, traffic, and refuse collection are publicly priced in most Western Economies; social services, education, and health are less common candidates (Bös, 1986).

The general public finance theory suggests that, to the fullest extent possible, services that the government provides should be financed by user charges and fees to ensure the effective provision of goods and services (see e.g. Bös, 1986; Bailey, 1999). Charges should be levied on those who receive the benefits from services wherever the government can identify such beneficiaries. Local taxes and grants should only be used to part-finance those services which are subject to market failures fulfilling the assumptions of non-rivalry and non-excludability (Bailey, 1999; Bohley, 2003).

Charging users of services has many advantages. First, user charges allow residents and businesses to know how much they are paying for the services that they receive from local governments. Based on the services provided and the costs incurred, residents and businesses can therefore make efficient decisions about how much to consume. When consumers do not know the cost, they are likely to consume more or less than what is efficient leading to expansion and redistribution of the service (Wagner, 1976; Reddy, Vandemoortele, 1996; Bailey, 1999; Bird, Vaillancourt, 2006; Blöchliger, 2008). On the other hand, service-providers will only be made more responsive to service users if their revenues are directly dependent upon the volume of use of their services. The market mechanism is, in this respect, leading to a situation where the poor quality of services leads to a loss of revenues from sales and thereby forces the service provider to care about the production costs as well as the quality of the service (Bailey, 1999).

Second, if user charges are established following the equality principle, they may serve information purposes. They provide the government with information about the quantity and quality of goods and services that people want and thus, for what they are willing to pay. Without direct charging, citizens do not have a mechanism (except for voting every few years) to register their demand for local goods and services (Darby, Muscatelli, Roy, 2003; Bohley, 2003; Bird, Vaillancourt, 2006).

Third, user charges satisfy the equality principle when equity is based on benefits received. All individuals pay an amount that reflects the additional benefit they receive from a unit of the good or service (Bird, Vaillancourt, 2006). This benefit principle had already been emphasised by Oates in 1972. According to him public expenditures should be assigned in a way that provision of public services is made by the jurisdiction representing the smallest possible area over which the benefits are distributed.

Fourth, user charges may help to raise revenue in order to increase public service quality (Blöchliger, 2008).

User charges designed in accordance with the equality principle will, in general, reflect the marginal cost of providing the service (Bohley, 2003). However, the marginal cost of services may vary considerably in different municipalities, for example transport costs depend on the distances as well as population concentration within the municipality, availability of hospitals or care institutions and so on. In some cases this might lead to the situation where, if the marginal cost is charged, some people might not be able to pay it and would be likely to leave these communities if they are not subsidized. In other words, charging an amount that reflects the true marginal cost of providing services to remote areas could reduce the number of people living there (Bird, Vaillancourt, 2006). Hence, one could expect that user charges are applied less in remote areas and favoured more in urban areas and in more developed regions where the income level of inhabitants is higher.

Another problem with charging for services concerns the cost of administration. Both determining the appropriate amount of the charge and enforcing it can be costly. If the administrative costs exceed the revenues collected, user charges may not be worthwhile (Bird, Vaillancourt, 2006). This leads to the conclusion that charging users would assume a critical mass of users.

On the other hand it is a shared understanding that market mechanisms may jeopardise equal and universal access to public services (Reddy, Vandemoortele, 1996; Bailey, 1999; Blöchliger, 2008). Thus it is expected that local governments should make an exemption for those low-income households who are unable to pay the charges requested, that is to take into account the users' ability to pay. Darby, Muscatelli and Roy (2003) emphasise also that user charging will be viable only if the costs of collection and of compensation through the benefit system are low relative to the sums that can be levied and the efficiency gains that result. Countries that have tried to increase reliance on fees and charges have generally aimed at striking a balance between co-payment and maximum contribution to avoid imposing unduly high expenses on some households.

Based on the above, the following hypotheses were raised.
- Municipalities where the average income level of inhabitants is higher tend to employ user charges more because the ability to pay of potential service-users is presumably higher.
- Larger municipalities tend to apply user charges more as the efficiency gains expected from charging the users would be larger (as marginal costs for providing services are lower and thus the potential gain from introducing a user charge would be larger).

In addition, positive theories of fees point out several other factors that may influence fees. Friedrich et al. (2004) suggest indicators for success in competition such as market shares, outputs, indicators as employment, production, migration,

growth rates, budget sizes; political indicators such as number of votes; as well as objective functions of management and owners in fee-generating institutions.

2. Framework of LG financing and of social service provision in Estonia
2.1. Position of user charges in financing Estonian local governments

As the legal, statistical and financial definition of user charges may be very nation-specific, it is quite difficult to estimate the share of user charges in an international perspective. According to Blöchliger (2008) user charges make up a considerable part of public sector revenue in some countries, accounting for 2.3% of GDP. Finland, New Zealand and Sweden have the highest charge-to-GDP ratio. In a few countries revenue from user charges even exceeds revenue from local taxes (Greece, Ireland, and the Netherlands). Tax and revenues from user charges are positively correlated, that is sub-central governments with a higher tax share tend to have higher user charges. Whilst user charge structure across government function is not available, questionnaire responses suggest that most user charges at the sub-central level are levied for technical services such as public transport, water, and waste collection. For a more detailed overview please consult Blöchliger (2008). The increasing importance of fees is also predicted by Friedrich et al. (2004) in Britain, Germany, Switzerland, and Poland.

In Estonia the term "user charges" is not explicitly used in governmental accounts. Instead, the accounting system provides information on public sector sales of goods and services for markets − market output[4]. The share of the market output in Estonian LG revenues is about 11%, being the third largest source of local revenues.

The major part of LG revenues in Estonia comes mainly from personal income tax (see Graph 1), which in 2010 reached 46% of total LG revenues. Personal income tax is a centrally administered tax, central government determines the tax base, tax rates, and tax benefits. Local governments are granted a fixed share of residents' income. The share was reduced in 2009 from 11,8% to 11,4% whereas the income tax rate is 21%. The costs of tax threshold and tax exemptions are borne by central government.

The second largest income of LGs is state grants (34% of total revenues), which are divided between conditional and unconditional transfers. Conditional transfers are allocations in the form of block grants as well as transfers from different ministries to perform state functions at the local level. These funds include transfers for teachers' salaries, subsistence benefits, and so on. Unconditional transfers are allocated to the local governments as equalisation grants to balance excessive differences among the revenue bases of different local authorities and to provide

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[4] Market output — general government receipts from the sale of goods and services sold at economically significant prices. This means that more than 50% of the production cost is covered by sales. The data also includes output for a LGs own final use and payments for other non-market output. (Statistics Estonia).

also the weakest municipalities with the possibility of rendering adequate public services to their inhabitants.

Local taxes as a traditional source of LG own revenues play only a minor role in Estonian LG revenues accounting for approximately 1% of total revenues.
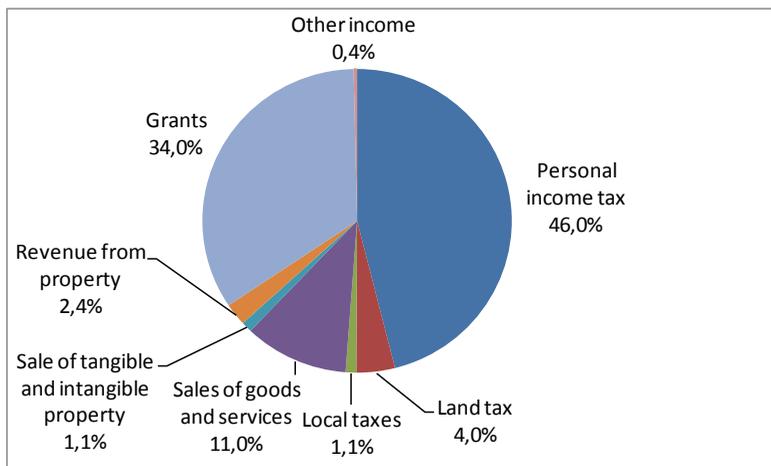
Graph 1. Local government revenues in Estonia, 2010 (own calculations, data from Statistics Estonia).

Consequently, revenues of local governments in Estonia are in large part controlled by central government. More extensive employment of user charges could *ceteris paribus* allow an increase in the revenue autonomy of the LGs and improve the quality as well as adequacy of public services provided at the local level.

The application of user charges is also unequal – there are services where the application of charges is a norm (for example water and sewerage), but there are fields like social services where the share of revenues remains well below the expenditure levels. The largest part of market output consists mainly of revenues from education (including kindergarten fees, fees for kindergarten and school food) as well as technical services such as sewerage, waste collection and other utilities (see Graph 3).
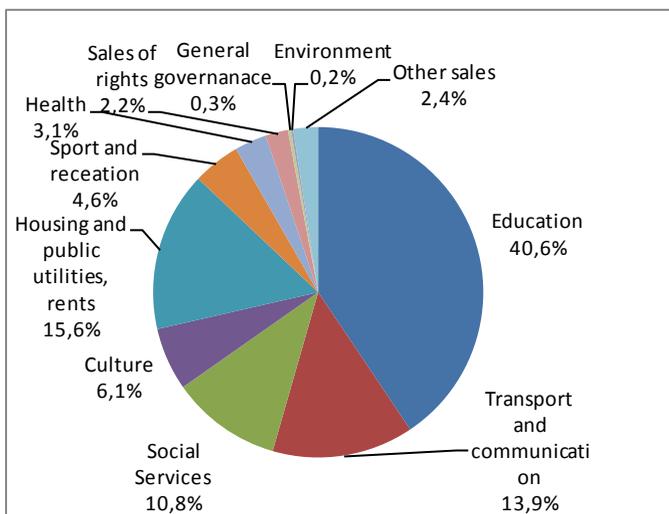
Graph 2. Division of sales revenues between the service areas, 2010 (Ministry of Finance of Estonia, own calculations).

2.2. Overview of the framework of social service provision by local governments in Estonia

Provision of social services by local governments is regulated by the Local Government Organisation Act (LGOA) and the Law of Social Welfare (LSW). LGOA determines the functions, responsibilities, and organisation of local authorities and the relations of local authorities with one another and with central governmental institutions. In addition, the Act provides the basis for the participation of local governments in economic activities, the procedure of the formation of municipal districts, the general structure of the local council, and so on, thus creating a basis for different forms of service provision.

Responsibilities of local governments within the area of social welfare include taking care of the elderly and disabled as well as other persons in need of assistance. The law indicates the following services (LSW, www.riik.ee) that LGs are obliged to offer and finance:
- social counselling – advising persons on their social rights and assistance in resolving specific problems;
- elderly day care centres – intended as a social meeting point for the elderly where recreational activities and different social services are provided;
- home care – includes home assistance and nursing assistance in the home environment, which helps the person in need to cope in his or her familiar, accustomed environment;

- home child care – service supporting the parent's employment, studying or coping (it does not include municipal kindergartens which are regulated by a separate law);
- personal assistant – for assisting a disabled person and reducing the care-giving workload on his or her family members;
- social housing – providing housing for individuals and families who are not capable or able to procure it themselves;
- adapting a dwelling – for those who have difficulties moving around in their dwelling or coping;
- nursing home care – for those who need auxiliary assistance and nursing care service in a social welfare institution.

Of course, municipalities may also provide supplementary social services at their discretion in addition to the aforementioned.

LGOA allows for a significant variation of juridical forms of service provision. LGs might offer the services themselves either by employing specialists directly or creating institutions such as foundations, non-profit or profit organisations owned by LGs to provide the service on behalf of the LG. This is mostly used in the case of home care services, social transport, and elderly day-care services. At the same time, the LGs have the option of delegating the service provision to non-governmental bodies. This is used for example in the case of shelters or child care. LGs can also outsource the service to the private sector. This is used for example in the case of personal assistant services. But local governments can also buy the service either from other municipalities or from the private sector at market prices. This is most common in the case of nursing homes, which might be either private or municipal. The variety in types of service provided makes it difficult to find an appropriate way of introducing charges. However, nursing homes provide a good example of a fee-based service. In general the nursing homes, either municipal or privately owned, charge up to 85-95% of the service user's income for the service they provide. The rest of the user charge is either covered by the family of the service-user or by the LG.

In general, and characteristic of a post-soviet country, fee setting is still very vague and unregulated as the attempts of fee application have such a short history. The right to set fees relies on the municipal government, who may delegate the the fee setting right to municipal agencies (LGOA,§31). In some cases, like kindergarten participation fees, the fees are partially regulated by central laws. There are also services which operate under a cost coverage rule such as public utilities. In the case of social services there is no central regulation on fee setting. This results in divergent practises of fee setting even within municipalities – in the case of some services fees are determined by the local enterprises or set by the municipal government, in other cases they are determined by the private or non-governmental institutions providing the services.

3. Data and methodology

The data used for distinguishing Estonian municipalities that charge users of personal social services from those that do not charge users is obtained from the survey "Charging individuals and/or their families for social services by local governments" *("Kohaliku omavalitsuse poolt isikult ja/või perekonnalt sotsiaalteenuste eest tasu nõudmine")* carried out by the Praxis Centre for Policy Studies in 2010-2011 at the request of the Ministry of Social Affairs of Estonia. The reason for using data from this survey is that there are no statistics about user charges imposed on social services by the LGs in Estonia. The questionnaire was sent to all 226 LGs in November 2010; the response rate was 100%.

Persons responsible for the management of social affairs in the municipalities were asked whether they charge users and/or their families for social services provided by the municipality. It is important to emphasise that the answer was purely defined by the local representatives themselves and is therefore a subjective view. In the case of some services, such as nursing home care where the service is often purchased from the private sector or from other municipalities, or social and municipal housing, where the administration is carried out by different officials or departments, results might be somewhat biased and the number of LGs where users are requested to pay fees might be higher. The survey results were explored and clarified during the 20 in-depth interviews carried out with representatives of the local governments and service providers.

For the statistical analysis, one of the LGs that charges users had to be removed from the database because of the amalgamation of two municipalities in autumn 2009. As the survey was conducted in 2010 but the other statistical data is from 2009, we did not have data for the amalgamated municipality. Therefore the number of municipalities included in the statistical analysis is 225.

The variables describing municipality characteristics were obtained from Statistics Estonia. The data for 2009 was used because no 2010 data was available for most of the variables at the time the analysis was conducted. The choice of variables is dictated by the fact that the social services included in the study are mainly targeted at the elderly and/or disabled people. The selection of variables was constrained by data availability. The variables included in the study are: population, elderly population[5], income level of inhabitants, budget volume, importance of social sphere, importance of social costs for the elderly and disabled, and volume of social costs for the elderly and disabled. *Population* (popul) describes the number of inhabitants in the municipality on 1st January 2009. *Elderly population* (popul65) describes the relative proportion of people over 65 years of age in the whole population of the municipality on 1st January 2009. Additionally the relative proportion of very old people (over 85 years of age) is included in the analysis (popul85) as these people are supposedly the main target group of most personal social services included in the study. *Income level of inhabitants* (INC) is calculated

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[5] The number of disabled inhabitants is not available by administrative unit.

as the local budget receipts from personal income tax per inhabitant. This indicator is chosen because the average income data of individuals is not available by municipality. *Budget volume* (budgvol) describes the overall wealth of the municipality and is calculated as local budget expenditures per inhabitant, whereby local budget expenditures are without allocations for investments from the state budget. These allocations are excluded because they are made for specific purposes and may constitute a significant proportion of the local budget of a small municipality in a single year. *Importance of social sphere* (socimport) is calculated as the proportion of social protection expenditures from the local budget's total expenditures without allocations for investments from the state budget. *Importance of social costs for elderly and disabled* (eldsocimport) is calculated as the proportion of these expenditures from the local budget's total expenditures without allocations for investments from the state budget. *Volume of social costs for the elderly and disabled* (socvolpop65) are calculated as social expenditures for elderly and disabled people per elderly inhabitant (i.e. over 65 years of age). Additionally the costs for elderly and disabled people per inhabitant over 85 years of age (socvolpop85) are calculated.

In the statistical analysis firstly the hypotheses were tested that the variables chosen (population, elderly population, income level of inhabitants, budget volume, importance of social sphere, importance of social costs for the elderly and disabled, and volume of social costs for the elderly and disabled) have different means in the two relevant groups of municipalities (LGs charging users of local social services and LGs not charging users of local social services). As the tests of normality (Kolmogorov-Smirnov) showed that normal distribution cannot be assumed, the nonparametric Mann-Whitney U-Test was used for testing these hypotheses.

As a second step a logistic regression analysis was used for estimating the probability that a municipality charges users of personal social services and for identifying the variables relevant for this prediction.

4. Results and discussion
4.1. General attitudes towards charging for local social services

According to the survey users are charged for at least one kind of social service in 153 municipalities, that is in 68% of all LGs. 73 municipalities (32% of all LGs) claim not to charge for any social services that are provided by the municipality.

The practice of charging users of social services is rather divergent among the service fields as would be expected based on the different characteristics of services (Graph 3). Charges are often used in the case of nursing homes and social housing where the service is clearly individual and can easily be linked to the amount of consumption of the service. However, the principle of individuality of services is also evident for other services such as home care which is an alternative to nursing homes, but also child care, adapting a dwelling, providing personal assistance, elderly day care services – all of them are person-related services and do not create considerable externalities. Thus, based on the allocative efficiency consideration

explained previously, social services costs contain a significant potential for introducing user charges.

One reason why charges are not used in the case of home care services, elderly day-care and child care services, is that the marginal costs of these services may be rather low in some cases. For example, in the case of home care, the service is usually provided by an LG-employed social worker on a monthly salary basis, thus the costs of the service do not depend directly on the number of service users.
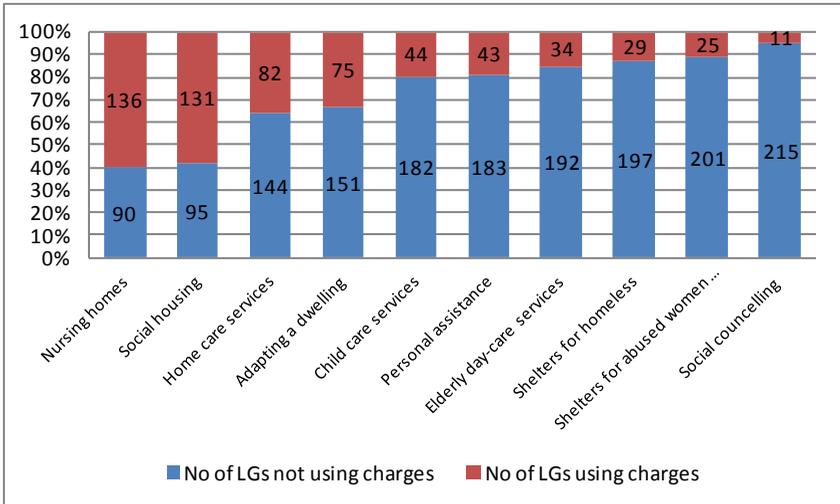
Graph 3. User charging practises in the case of different social services offered by LGs in Estonia.

Considering the principles that Estonian LGs take into account when deciding whether to charge users of social services or not (see Graph 4), it can be concluded that most of them (78% of all LGs) follow the principle of providing emergency care free of charge. However, 22% of LGs that charge users for some services do not consider this principle important.

The users' ability to pay is clearly one of the most important factors that limit the use of charges. This option was marked by 83% of the LGs not charging users of social services and even by 57% LGs that do charge users for some services.

The majority (69%) of LGs applying charges to control the amount of service usage and in order to acquire information on the number of service users. Financial concerns are indicated by approximately one third of LGs that apply charges for some services.

Political considerations seem to be least important – very few LGs (3% of LGs not charging for any services, and 1% of LGs charging for some services) indicate that they do not apply charges due to the resistance by inhabitants (and therefore due to the potential risk of losing votes). However, these answers need to be viewed with the caution. The respondents to the questionnaire were mainly civil servants implementing the policies designed at the political level; therefore they do not necessarily reflect the attitude of policy makers.
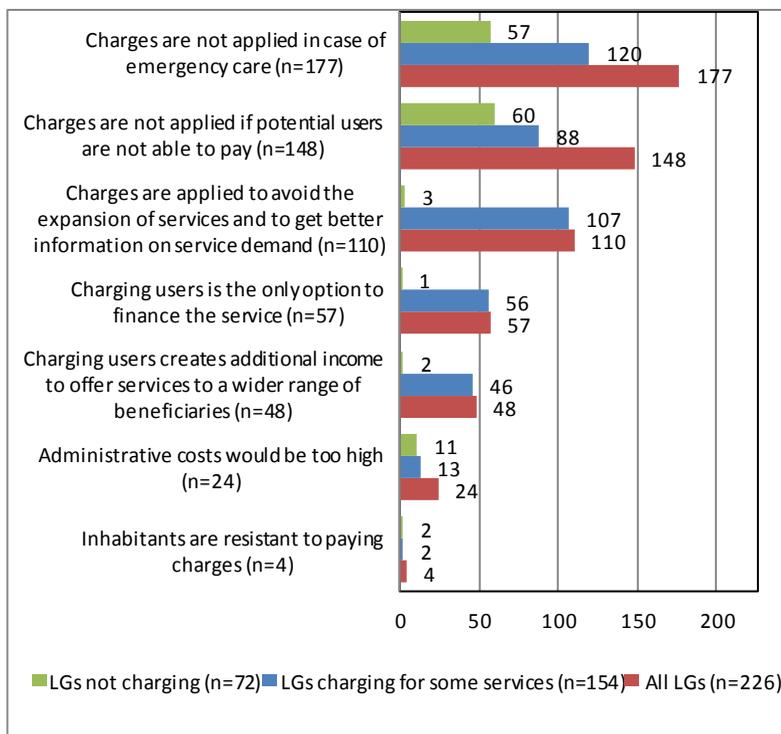
Graph 4. Principles applied in the case of deciding whether to charge or not to charge the users of social services (frequency of answers by groups of LGs).

When looking at the preconditions of service delivery (see Graph 5), usually Estonian LGs limit themselves to persons that do not have family (i.e. (grand)children or (grand)parents) of their own) (91% of LGs charging for some services and 74% of LGs not charging). This leads to the situation where some of the service users are forced to acquire the service on the open market and some users receive the service either on a basis of subsidised charges or completely free from LGs, causing an unequal treatment of residents in cases where the family is not able or not willing to pay. Also, it fosters an information bias as LGs do not have a full

overview of those in need. Expanding the services to the whole population of the LG and introducing a charge for those who are able to pay would allow an increase in the cost-efficiency as well as equity of service provision. However, this would definitely increase the administrative burden of the LGs as they would need to evaluate the ability to pay in each individual case.
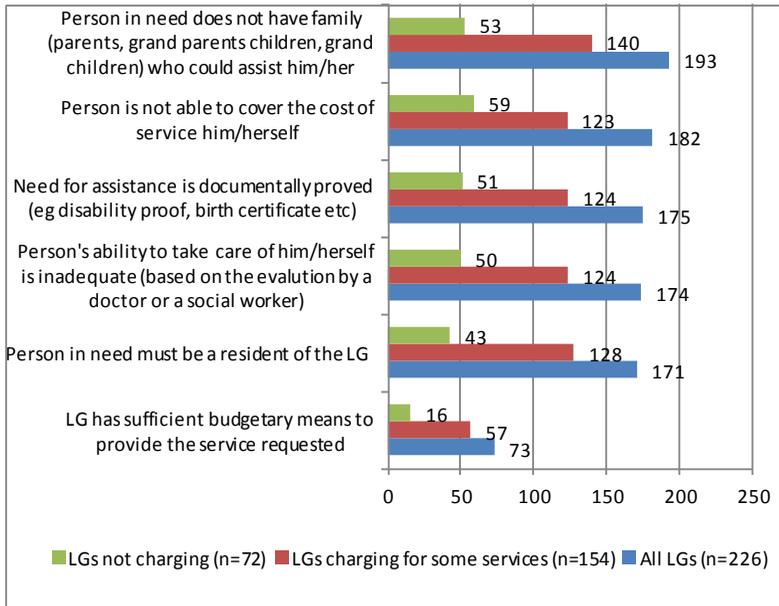
Graph 5. Preconditions of offering services (frequency of answers by groups of LGs).

All other preconditions seem to be equally important except for the budgetary situation in LGs, which is taken as a precondition in only about one third of the LGs. During the interviews the respondents clarified that this might be explained by the very limited budget of the social services. The budget is so constrained that there is no scope to reduce it further and thus if there is a person in need, the means for providing the minimum amount of service will need to be found anyway (e.g. "*we cannot leave the person to die on the street*").

To summarise, Estonian LGs seem to use charges either to finance high-cost services such as nursing home services or to control the expansion of a service. The role of the user charges in providing additional funds to the LG budget is clearly underemployed. Also, in applying the principle that local services are offered only for those who do not have family and who cannot thus rely on family support, limits the potential use of charges as a demand control instrument and hinders equal access to the public services.

4.2. Results of statistical analysis

Next we will look at whether the employment of user charges in Estonian LGs can be explained by the differences in socio-economic conditions or financial situation of the LGs. Those LGs that charge users have more inhabitants on average, but the range of values is very wide and standard deviation is high (see Appendix 1). The relative importance of elderly people in the whole population is somewhat higher in the LGs not imposing charges, but the difference between the smallest and largest values and the standard deviation are also bigger in this group. The LGs that charge users of social services have a higher income level of inhabitants but at the same time lower budget expenditures (without allocations for investments from the state budget) per inhabitant on average. The importance of social sphere, and importance and volume of social costs for the elderly and disabled, are all somewhat bigger in the group of LGs charging users of social services.

However, according to the results of the Mann-Whitney U-Test (see Appendix 2), the distribution of a variable can be regarded as different across the groups of LGs charging and not charging users of social services in only four cases: 1) importance of social sphere, 2) importance of social costs for the elderly and disabled, and 3) volume of social costs for the elderly and disabled per inhabitant over 65 years of age and 4) per inhabitant over 85 years of age. In all the other cases the distribution has to be regarded as the same across the two groups of LGs. If we take the significance level to be $α=0,1$ instead of $α=0,05$, then the distribution of population and income level of inhabitants can also be regarded as different across the two groups of LGs.

To take into account the inconsistencies in the survey answers relating to social housing and nursing homes highlighted previously, the statistical analysis is carried out also in a way that only the LGs imposing charges for home care service, personal assistance, adapting a dwelling, and/or elderly day-care services are considered as charging the users of social services[6]. All the other LGs are treated as "non-charging". To differentiate this classification of LGs from the one used earlier, it is called "charge2" and the earlier version is called "charge1".

According to the survey 103 out of the 225 municipalities included in the statistical analysis (45,8%) do not charge users of home care services, personal assistance, adapting a dwelling or elderly day-care services, and 122 (54,2%) impose charges at least on one of these social services (see Table 1). However, the "non-charging" group may contain local governments that do not provide any of these four personal social services contained in the analysis (the questionnaire does not enable us to distinguish them from the municipalities that provide services but do not charge the users).

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[6] Child care services, social counselling, shelters for the homeless and for abused women and children are excluded from the analysis to concentrate on services directed at the elderly and disabled people.

Also in the case of using "charge2", LGs that charge users have more inhabitants on average, whereby the difference of means between two groups is bigger than it was in the case of using "charge1". But, as before, the range of values is very wide and standard deviation is high. In general the outcomes do not differ much from those obtained when using "charge1" (see Appendix 1).

Table 1. Classification of municipalities on the basis of charging the users of social services

Classification	Non-charging		Charging		Total
	No. of LGs	%	No. of LGs	%	No. of LGs
"Charge 1"	73	32,4	152	67,6	225
"Charge 2"	103	45,8	122	54,2	225

However, the results of the Mann-Whitney U-Test are rather different than before (see Appendix 2). When using "charge2" only the distribution of population and income level of inhabitants can be regarded as different across the two groups of LGs. In all the other cases it is not possible to reject the null hypothesis and so the distribution has to be regarded as the same across the groups. The conclusion does not change if we take the significance level to be $\alpha=0,1$ instead of $\alpha=0,05$.

Later on, we controlled the probability of charging on socioeconomic conditions of the LG with the help of logistic regression. The general form of the logistic regression used in the paper is as follows:

Logit (charge) = $B_0 + \sum B_i X_i$,

where *charge* is "charge1" or "charge2" depending on the particular model and X_is are variables described above.

The results of the logistic regression analysis depend on: the classification of municipalities ("charge1" or "charge2"); on the stepwise method used (Forward Stepwise Likelihood Ratio (LR), Forward Stepwise Wald, Backward Stepwise Likelihood Ratio (LR) or Backward Stepwise Wald); and on the municipality characteristics included in the analysis. Variables with strong ($r>0,7$) and statistically significant correlations (see Appendix 3) were not inserted into the models together. Substituting popul65 with popul85 and socvolpop65 with socvolpop85 in the models did not produce considerably different results, so only popul65 and socvolpop65 were used in the models.

Three different combinations of variables were used in the models:
        model 1: popul, popul65, INC, budgvol, socimport, socvolpop65,
        model 2: popul, popul65, INC, budgvol, eldsocimport, and
        model 3: popul, popul65, INC, budgvol, socvolpop65.

The final set of variables remaining in these models in the case of different classifications of municipalities ("charge1" or "charge2") and after using different

stepwise methods (forward LR, forward Wald, backward LR or backward Wald) is given in Table 2 and Appendix 4.

Table 2. Variables in the equation

		Model 1	**Model 2**	**Model 3**
Charge1				
Forward	LR	-	-	-
	Wald	-	-	-
Backward	LR	INC, socimport	INC, eldsocimport	popul, socvolpop65
	Wald	INC, socimport	INC, eldsocimport	-
Charge2				
Forward	LR	INC, socimport	INC, eldsocimport	INC
	Wald	INC, socimport	INC, eldsocimport	INC
Backward	LR	popul, INC, socimport	popul, INC, budgvol, eldsocimport	INC, budgvol, socvolpop65
	Wald	INC, budgvol, socimport	INC, budgvol, eldsocimport	INC, budgvol, socvolpop65

As can be seen, none of the variables is included in the final equation in all possible cases. In most cases income level of inhabitants (INC) and one of the measures of the importance of social costs (socimport, eldsocimport, or socvolpop65) are present. In almost all of these cases the coefficients for INC, socimport, eldsocimport, or socvolpop65 appear to be significantly different from 0, at the significance level of 0,05. The odds ratio for a unit change in INC lies between 1,003 and 1,005 and its 95% confidence interval ranges from 1,000 to 1,008. This means that when local budget receipts from personal income tax per inhabitant increase by one euro, the increase in the odds of charging the users of social services is up to 0,8%.[7] Also the increase in the proportion of social protection expenditures or social costs for the elderly and disabled in the local budget tends to increase the odds of charging the users of social services. However, the size of their influence cannot be specified based on the data used because of the very wide 95% confidence intervals. A unit change in socvolpop65 cannot be associated with a change in the odds of charging the users of social services as its confidence intervals include the value 1.

In addition to these variables population and local budget expenditures per inhabitant are also present in some equations, but a unit change in these variables cannot be associated with a change in the odds of charging the users of social services as their confidence intervals include the value 1. Relative importance of people over 65 years of age in the whole population of the municipality (popul65) does not appear in any of the equations.

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[7] In cases when the confidence interval includes the value 1 (i.e. no change in odds), it cannot be concluded based on the data used that a unit change in INC is associated with a change in the odds of charging the users of social services.

However, none of the estimated models fits the data well as the values of -2logL of the final models are high (near 300) and not remarkably smaller than the values of -2logL for the models containing only a constant. The values of the Cox & Snell R^2 and the Nagelkerke R^2 (below 0,1) show that only a very small part of the variation in the dependent variable is explained by these logistic regression models.

The results of the logistic regression analysis are in general consistent with the results of the Mann-Whitney U-Test. The probability that a municipality will charge users of social services tends to be larger if the income level of its inhabitants is higher and the social costs are larger in volume or in proportion to the budget's expenditures. A larger population may also increase the probability that the LG charges users of social services but the results are not robust. At the same time the proportion of elderly people does not seem to have any influence on the decision to charge users of social services. However, as the estimated models do not fit the data well, it may be expected that there are some other important factors that influence the decision of LGs to charge or not to charge the users of social services.

Conclusion

The aim of the current paper was to explore the determinants of charging users of local social services, based on the example of a small, unitary, highly centralised, post-soviet country. In a highly centralised country with rising social expenditures increasing LG revenues with the help of user charges would create additional income for service development and allow control over the expansion of services. It would create potential to enhance the efficiency of service delivery and increase the quality of services.

The results of the survey among local governments in Estonia show that two thirds of local governments charge for some social services. However, the practice is rather divergent among the service areas, as would be expected based on the different characteristics of services. In some services, like nursing care, user charges are extensively used; in other cases, such as shelters for homeless and abused persons and personal assistants for disabled people, the charges are seldom applied.

LGs present the users' inability to pay as a reason for not charging users. However, as the service is often limited to persons who do not have families and therefore could not rely on family support, LGs often do not have a full overview of the actual demand for the service and service users who would be able to pay for services are forced to find the service on the open market. Splitting the demand between a publicly offered service and a market-based service may lead to the inefficient use of resources. The ability to pay may also depend on social security systems, either private or public. Social insurance or life insurance schemes against the risks of nursing care or disabilities may considerably improve the service users' ability to pay.

LGs justify the application of user charges mainly by the need for information and demand control. Financial motivation is only mentioned by one third of the charging

municipalities. Thus, the efficiency consideration and co-financing of service provision that could reduce the financial burden of social costs are still not acknowledged.

The results of the logistic regression analysis and of the Mann-Whitney U-Test show that if the local budget receipts from personal income tax per inhabitant is higher, the municipality is more likely to charge users of social services. So the first hypothesis set up in the introduction (municipalities with higher income level of inhabitants tend to apply user charges more) can be considered proven. The second hypothesis (larger municipalities tend to employ user charges more) is not supported by the findings. Although the U-Test showed that the distribution of population can be regarded as different across two groups of LGs, the results of the logistic regression analysis revealed that the change in the number of inhabitants of the LG cannot be associated with a change in the odds of charging the users of social services. The results of the analysis indicated that the probability of charging users of social services tends to be higher if the social costs are higher in volume or in proportion to the budget's expenditures. However, as the estimated logistic regression models did not fit the data well, it may be concluded that LG charging policies depend largely on factors not considered in the statistical analysis.

The current article showed that there are no strong statistical relations between the financial and population characteristics of the municipalities and their decision to charge for local social services. This indicates that further aspects and factors need to be investigated, to include positive theories of charging fees such as forms of service provision (production structures) and competitive situations within and across the municipalities which may play an important role in charging policy.

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Appendix 1. Descriptive statistics

Variable		Popul		popul65		popul85		INC		socimport		eldsocimport		budgvol		socvolpop65		socvolpop85	
Qualification type (charge1, charge 2)		CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2
No charge	N	73	103	73	103	73	103	73	103	73	103	73	103	73	103	73	103	73	103
	Mean	3069	3022	,203	,203	,020	,019	387	385	,093	,095	,047	,050	960	966	214	226	2343	2473
	Std. Dev	5227	4672	,055	,051	,009	,009	111	102	,054	,050	,047	,044	273	294	213	196	2107	1907
	Median	1583	1583	,209	,207	,018	,018	366	365	,077	,085	,030	,037	879	894	149	161	1744	1961
	Min	97	97	,098	,098	,000	,000	95	95	,010	,010	,000	,000	525	525	0	0	0	0
	Max	40323	40323	,412	,412	,052	,052	725	725	,272	,272	,234	,234	2360	2688	1140	1140	10795	10795
Charge	N	152	122	152	122	152	122	152	122	152	122	152	122	152	122	152	122	152	122
	Mean	7219	8279	,200	,200	,019	,019	407	413	,111	,115	,059	,060	933	921	281	287	2989	3039
	Std.Dev	33267	37056	,040	,041	,007	,008	88	90	,092	,101	,056	,060	234	198	306	334	2781	3041
	Median	1902	1952	,196	,194	,018	,018	396	404	,093	,092	,042	,040	896	894	185	181	2224	2113
	Min	316	316	,114	,114	,006	,008	238	238	,035	,035	,003	,003	250	250	11	11	109	109
	Max	395646	395646	,331	,331	,044	,044	792	792	,943	,943	,391	,391	2688	1818	2597	2597	19146	19146
Total	N	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
	Mean	5873	5873	,201	,201	,019	,019	400	400	,106	,106	,055	,055	941	941	259	259	2780	2780
	Std.Dev	27542	27542	,046	,046	,008	,008	97	97	,082	,082	,053	,053	247	247	280	280	2594	2594
	Median	1780	1780	,199	,200	,018	,018	386	386	,087	,087	,040	,040	894	894	172	172	2037	2037
	Min	97	97	,098	,098	,000	,000	95	95	,010	,010	,000	,000	250	250	0	0	0	0
	Max	395646	395646	,412	,412	,052	,052	792	792	,943	,943	,391	,391	2688	2688	2597	2597	19146	19146

Appendix 2. Comparison of variable distributions. Hypothesis Test Summary, Mann-Whitney U-Test

H_0: the distribution of the variable is the same across groups		
Variable	**Value of U-test**	
	Charge1	Charge2
Popul	**,062****	**,045***
popul65	,533	,303
popul85	,799	,872
INC	**,092****	**,007***
Socimport	**,025***	,106
Eldsocimport	**,008***	,144
Budgvol	,837	,511
socvolpop65	,012	,211
Socvolpop85	,013	,315

*-significant at the level α=0,05
** - significant at the level α=0,1

Appendix 3. Correlation matrix

		Popul	popul65	popul85	INC	socimport	eldsocimport	budgvol	socvolpop65	socvolpop85
Popul	Pearson Corr	1	-,132*	-,123	,175**	-,036	-,038	,020	-,002	,030
	Sig. (2-tailed)		,048	,065	,009	,589	,566	,763	,976	,659
popul65	Pearson Corr	-,132*	1	,767**	-,578**	,233**	,230**	,020	,044	-,013
	Sig. (2-tailed)	,048		,000	,000	,000	,001	,771	,509	,846
popul85	Pearson Corr	-,123	,767**	1	-,473**	,307**	,338**	-,030	,205**	-,040
	Sig. (2-tailed)	,065	,000		,000	,000	,000	,655	,002	,551
INC	Pearson Corr	,175**	-,578**	-,473**	1	-,254**	-,213**	,145*	-,078	-,020
	Sig. (2-tailed)	,009	,000	,000		,000	,001	,030	,245	,770
Socimport	Pearson Corr	-,036	,233**	,307**	-,254**	1	,727**	-,025	,632**	,563**
	Sig. (2-tailed)	,589	,000	,000	,000		,000	,711	,000	,000
Eldsocimport	Pearson Corr	-,038	,230**	,338**	-,213**	,727**	1	,030	,929**	,851**
	Sig. (2-tailed)	,566	,001	,000	,001	,000		,658	,000	,000
Budgvol	Pearson Corr	,020	,020	-,030	,145*	-,025	,030	1	,202**	,182**
	Sig. (2-tailed)	,763	,771	,655	,030	,711	,658		,002	,006
socvolpop65	Pearson Corr	-,002	,044	,205**	-,078	,632**	,929**	,202**	1	,900**
	Sig. (2-tailed)	,976	,509	,002	,245	,000	,000	,002		,000
socvolpop85	Pearson Corr	,030	-,013	-,040	-,020	,563**	,851**	,182**	,900**	1
	Sig. (2-tailed)	,659	,846	,551	,770	,000	,000	,006	,000	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Appendix 4. Variables in the Equation

Charge1

		B	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Model 1							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	INC	,003	4,174	,041	1,003	1,000	1,007
	Socimport	6,125	4,143	,042	456,920	1,255	166415,666
	Constant	-1,225	2,347	,125	,294		
Backward (Wald)	INC	,003	4,174	,041	1,003	1,000	1,007
	Socimport	6,125	4,143	,042	456,920	1,255	166415,666
	Constant	-1,225	2,347	,125	,294		
Model 2							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	INC	,003	3,492	,062	1,003	1,000	1,006
	eldsocimport	6,597	3,625	,057	732,664	,824	651720,072
	Constant	-,814	1,310	,252	,443		
Backward (Wald)	INC	,003	3,492	,062	1,003	1,000	1,006
	eldsocimport	6,597	3,625	,057	732,664	,824	651720,072
	Constant	-,814	1,310	,252	,443		
Model 3							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	popul	,000	1,551	,213	1,000	1,000	1,000
	socvolpop65	,001	2,897	,089	1,001	1,000	1,003
	Constant	,290	1,405	,236	1,337		
Backward (Wald)	Constant	,733	26,527	,000	2,082		

Charge2

		B	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Model 1							
Forward (LR)	INC	,005	7,923	,005	1,005	1,001	1,008
	Socimport	6,245	5,520	,019	515,509	2,816	94358,834
	Constant	-2,265	8,682	,003	,104		
Forward (Wald)	INC	,005	7,923	,005	1,005	1,001	1,008
	Socimport	6,245	5,520	,019	515,509	2,816	94358,834
	Constant	-2,265	8,682	,003	,104		
Backward (LR)	Popul	,000	1,861	,173	1,000	1,000	1,000
	INC	,004	5,672	,017	1,004	1,001	1,007
	Socimport	6,349	5,743	,017	571,932	3,179	102890,591
	Constant	-2,179	7,926	,005	,113		
Backward (Wald)	INC	,005	9,252	,002	1,005	1,002	1,008
	Budgvol	-,001	2,852	,091	,999	,998	1,000
	Socimport	6,160	5,668	,017	473,245	2,970	75411,961
	Constant	-1,398	2,407	,121	,247		
Model 2							
Forward (LR)	INC	,004	6,600	,010	1,004	1,001	1,007
	Eldsocimport	5,871	3,960	,047	354,553	1,092	115078,475
	Constant	-1,743	6,464	,011	,175		
Forward (Wald)	INC	,004	6,600	,010	1,004	1,001	1,007
	Eldsocimport	5,871	3,960	,047	354,553	1,092	115078,475
	Constant	-1,743	6,464	,011	,175		
Backward (LR)	Popul	,000	1,470	,225	1,000	1,000	1,000
	INC	,004	5,777	,016	1,004	1,001	1,007
	Budgvol	-,001	2,667	,102	,999	,998	1,000
	Eldsocimport	6,387	4,809	,028	593,943	1,971	178981,250
	Constant	-,862	1,075	,300	,422		
Backward (Wald)	INC	,005	8,081	,004	1,005	1,001	1,008
	Budgvol	-,001	3,227	,072	,999	,997	1,000
	Eldsocimport	6,219	4,555	,033	501,976	1,661	151660,406
	Constant	-,863	1,095	,295	,422		

Model 3							
Forward (LR)	INC	,003	4,807	,028	1,003	1,000	1,006
	Constant	-1,133	3,497	,061	,322		
Forward (Wald)	INC	,003	4,807	,028	1,003	1,000	1,006
	Constant	-1,133	3,497	,061	,322		
Backward (LR)	INC	,004	7,254	,007	1,004	1,001	1,007
	Budgvol	-,001	4,381	,036	,999	,997	1,000
	socvolpop65	,001	4,562	,033	1,001	1,000	1,003
	Constant	-,487	,379	,538	,614		
Backward (Wald)	INC	,004	7,254	,007	1,004	1,001	1,007
	Budgvol	-,001	4,381	,036	,999	,997	1,000
	socvolpop65	,001	4,562	,033	1,001	1,000	1,003
	Constant	-,487	,379	,538	,614		