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ABSTRACT

Social Assistance Receipt among Young Adults Grown up in Different Neighbourhoods of Metropolitan Sweden*

Using large samples of persons born in 1985 we investigate the relationship between characteristics of the neighbourhood where young people lived as adolescents and the probability that they will receive social assistance when aged 19, 20, and 21, for the three Swedish metropolitan regions – Stockholm, Gothenburg and Malmö. We estimated logistic regressions separately for the majority population and "visible immigrants" and included several characteristics of the neighbourhood and of the parental home in the specification. The probability of social assistance receipt as a young adult is strongly positively linked to social assistance receipt in the parental home and to several other factors. The major result is that the association with social assistance receipt in the neighbourhood where a person lived at age 16 remains strong when parental receipt and a number of other neighbourhood characteristics are controlled for. We conclude that measures to increase the education qualifications and various efforts to create jobs for young adults have a potential of decrease social assistance receipt among young adults. In addition there is also room for spatially focused measures aiming to reduce residential segregation and the demand for social assistance in locations with a comparably high rate of social assistance receipt.

JEL Classification: I38, J15, R23

Keywords: social assistance, Sweden, neighbourhoods, young adults, immigrants

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1. Introduction

In rich countries, the age at which young adults are usually able to fully support themselves is higher than it was one or two generations ago. An important reason for this is that younger cohorts remain in education longer. In addition, the number of young adults who are neither in education, employment or training (NEET) has increased substantially in recent years, raising serious concern.[1] Many of these persons have spent their childhood and youth in the marginalised urban areas which can be found in and around a large number of European cities, as described in Wacquant, (2008). In addition, it is difficult for many young people who have entered the labour market, to find a regular job, which pays a living wage. In the countries with a Nordic welfare state we find a relatively large number of school-leavers who apply for and receive social assistance.[2]

The topic of this study of metropolitan Sweden is under what conditions young persons are more likely to be receiving social assistance benefits. Residential segregation has increased considerably in Sweden during a period when new waves of immigrants have arrived and neighbourhoods with a high rate of social assistance receipt and many immigrants is a recent phenomenon. The issue of residential segregation, socio-economic and ethnic, has risen high on the political agenda. We therefore consider our topic to be of material interest in Sweden, but also in other countries that face problems of residential segregation and a precarious social position of youth. We find a positive relation between the rate of social assistance use in the neighbourhood where a person lives at age 16 and the probability of receiving social assistance as a young adult in models that take into account parental receipt of social assistance and a number of other factors.

[1]For information of proportions in EU countries, see: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=yth_empl_150&lang=en. For a cross country study see Quintini and Martin (2006). Government of Sweden (2013) reports estimates of the numbers of persons in the NEET category, analyses structural factors forming the category as well as efforts aiming to support NEET individuals.

[2] See for example Kauppinen et al (2014). By contrast, in countries belonging to the Southern (or Mediterranean) regime, many young adults continue to live with their parents and can benefit from having to pay little or nothing for room and board, see for example Albertini and Kohli (2013).

A statistical correlation between the rate of social assistance receipt in the neighbourhood in which the young persons live, and their own subsequent receipt of social assistance need not be causal. There may be underlying factors that influence which neighbourhood the parents live in (selection) as well as family and individual characteristics that increase the risk that the offspring will receive social assistance as a young adult (confounding factors).[3] Our analytical model addresses potential problems of selection and endogeneity by controlling for factors that confound or mediate social assistance receipt. Most importantly, we control for parental receipt of social assistance. It is impossible for any study to observe or control for all factors that may influence a family's "selection" -voluntary or involuntary into neighbourhoods with a high frequency of receipt. We do, however, assume that most of these factors are also strongly associated with parental receipt of social assistance and that this variable, therefore, serves as quite a good proxy or instrument for the unobserved factors.

Thus, our objective is to study the relation between a young person's receipt of social assistance, and the neighbourhood where they grew up, with parental receipt as a control variable intended to "catch" as much as possible of feasible selection effects. Thus, the intergenerational correlation in social assistance receipt, which has been the topic of many previous studies and cannot easily be interpreted as being causal, is not the primary focus of our study.

The share of young people who receive social assistance at some point during the age 19-21 is substantial, the share who continue to be dependent on it over an extended period of time is considerably smaller. In this study we use receipt in each of the three years in this age range as an indicator of being more persistently dependent on social assistance.

There are reasons, beyond possible selection effects, why one may expect to find a positive relationship between social assistance receipt in the neighbourhood and social assistance receipt among young adults. One mechanism is the diffusion of information. The various details of eligibility are not widely known among the general public. The second concerns social norms: People may find it degrading to receive social assistance and there are indications that non-take-up of social assistance is widespread. However, due to social interactions, the situation can

[3] For an introduction to the methodological issue see for example Galster (2008).

be rather different if many in a person's social network receive social assistance, especially their own parents.

A third possible reason why the neighbourhood might affect social assistance receipt is the way in which social welfare offices and other parts of the welfare state treat income problems among young adults. Since social assistance is a multi-target residual programme which is individually tested, it differs from social insurance programs in many respects. The latter typically have rules that are relatively easy to access and are implemented with a relatively high degree of uniformity across jurisdictions. The way in which social welfare offices process applications for social assistance can be more varied. In fact, empirical studies using identical hypothetical applications show rather large variation in decisions on social assistance applications.[4]

Fourth, the importance of formal or informal networks for finding employment and for the quality of jobs has long been established in research on labour markets. A neighbourhood with high incidence of social assistance receipt can be expected to have high unemployment and low labour force participation. A person who grows up in such a neighbourhood has lower probability of having family members, relatives, neighbours, peers or family and friends of peers that can provide useful labour market contacts and recommendations and therefore come to rely on social assistance. Fifth, a low-income neighbourhood may be disadvantaged in terms of school quality. The last two possible mechanisms are related to the level of deprivation in the neighbourhood that leads to receipt of social assistance, not to the existence or workings of the social assistance system *per se*.

Yet another possibility is that the neighbourhoods with a high share of social assistance recipients are seen as "bad" neighbourhoods and that stigmatisation and discrimination decreases job chances for those who live there. That many young persons growing up in low-income, immigrant-dense neighbourhoods expect to be discriminated has been documented in qualitative studies (Beach and Sernhede 2011). A quantitative field experiment found that for a job-seeker with an "Arabic sounding" name living in such a neighbourhood led to a lower call-

[4] See Strantz (2007) and references therein.

back rate from employers than if the address was in a more affluent area. (However, for persons with a traditionally Swedish name, it made no difference, see Carlsson et al, 2018)

Our study is relatively unique as we are using register data on a large sample to relate social assistance receipt by young persons to a range of neighbourhood characteristics while controlling for parental characteristics, including receipt of social assistance. We characterise the neighbourhood in which the young person grew up not only by the rate of social assistance receipt but also by average neighbourhood income, fraction of visible minorities, level of education and fraction of two person households.

We focus on the probability of social assistance receipt between the ages of 19 to 21 among all men and women born in 1985 who lived in the three metropolitan regions of Stockholm, Gothenburg and Malmö in 2001 and follow the entire birth cohort until 2006. Several explanatory variables are measured for the young adult at age 16, including characteristics of the parental household and the neighbourhood.

Over a period of time, social assistance receipt in Sweden has become much more common among, what may be called, the "visible immigrant minority" than among other groups. Unemployment is higher among immigrants than among natives, and in addition, unemployed immigrants are less likely than unemployed natives to have qualified for receiving unemployment insurance. Poverty among young adults in Sweden also has a clear ethnic profile (Biterman ed, 2007). Both foreign-born young adults and native-born with foreign-born parents have higher rates of social assistance receipt than the average for their age group.

The term "visible minority" has been used as a demographic category by Statistics Canada, and in numerous studies on Canada. It has also been introduced in the Swedish context (National Board of Health and Welfare, 2010: p 184) and has been applied in studies of residential segregation, such as Brännström and Rojas (2012) and Gustafsson et al. (2017). As will be seen below "visible minority" youth, as defined in Section 4, are more likely than others to grow up in neighbourhoods with high rates of social assistance receipt. For these reasons, we make the analysis separately for "visible minority" persons and the majority. The results indicate that there are important differences between the two categories in the characteristics associated with the probability of social assistance receipt.

2. Social assistance in Sweden[5]

Social assistance in Sweden requires both an application from the individual and a decision taken at the social welfare office. Potential claimants contact the local social welfare office and this may result in an appointment with a social worker and a formal claim (see Minas, 2005). The claimant has to provide information on the composition of the household, its income from all sources, its assets, and housing expenditures as well as in some cases, other expenditures. A benefit unit consists of one or two adults (married or cohabiting) and their dependent children. A person is considered a child if under the age of 18, or under 21 if still completing upper-secondary school. Parents and their adult children are not legally required to support each other. Young persons aged 18 to 20 who are not in secondary school are regarded as independent benefit units even if living with their parents. They can apply for social assistance for their own necessary expenditures and if they do, the income of parents is typically not regarded (National Board of Health and Welfare, 2013). If the parental household receives social assistance, the amounts should according to the regulations be reduced when the child becomes an adult and is no longer considered part of the benefit unit.

Students are normally expected to be able to maintain themselves on grants and loans from the central government during the academic year, which is nine months, but can (and a substantial number do) receive social assistance if they are unable to find a job during the remaining three months. (See Centrala Studiemedelsnämnden, 2013) Most school leavers who are looking for a job have not qualified for income-related unemployment insurance benefits as they have little or no history of paid work. Due to the same reasons, immigrants with a short or relatively short period of residence in Sweden also have high rates of social assistance receipt as shown in a number of studies; see Gustafsson, (2013).

Once submitted, the application is reviewed by a social worker, a process involving checking information and performing calculations, and subsequently a decision is taken. To be eligible for social assistance, the benefit unit must have a low income and be unable to find work and also have exhausted savings and saleable assets like (with some exceptions) a car (National

[5] For a overview on the role and pattern of Social Assistance benefit receipt in Sweden in comparison with OECD countries see Immervoll et al (2015).

Board of Health and Welfare, 2013). Each year the government specifies the income thresholds below which an applicant can be eligible for social assistance. In 2018, this countrywide norm for an adult person living alone and without children was 4 000 SEK (approximately € 400 per month) plus housing costs (unless these are considered excessive). For a one-person household paying the average rent for a one-room-and-kitchen apartment, the amount received would be approximately half the average net-of-tax earnings of a low-paid worker such as a cleaner, according to Statistics Sweden (2013).[6] Assistance is normally granted for one month. For assistance to continue, a new application must be made.[7]

/Table 1 about here/

A good reason for analysing social assistance receipt for those aged 19-21 is that for earlier cohorts it was associated with a strongly increased probability of future assistance receipt indicating poor labour market outcomes. We also have data for the cohort born in 1978 and, as is seen from Table 1, these show that although most of those who had received assistance at ages 19-21 did not do so when they were age 28, the share that did was far higher than that among those who had not - ten times higher among the majority population, three times among visible minorities.[8]

3. Literature review

There is a relatively large literature on the relationship between parental social assistance receipt, on the one hand, and social assistance receipt in the next generation, on the other, see

[6] van Vliet & Wang (2018) report net minimum income benefit levels relative to the average net wage of a production worker for 26 OECD countries showing that such rates for Sweden fell drastically between 1995 and 2000 to become very close to the average for the countries covered in their study.

[7] For studies on the dynamics of social assistance receipt in Sweden, see Bäckman and Bergmark (2011), Mood (2013) and Andrén and Andrén (2013) for a comparison with Norway, Luxembourg and The Netherlands, see Könings (2018).

[8] Unlike the 1985 cohort we study here, this cohort became 19 – 21 during Sweden's deep recession. Lorentzen et al (2018) has analyzed the transition from schooling to work for the 1975 birth cohort (in a study also covering the same cohort in Finland and Norway) using sequence analysis. One of several results is that 15 percent of the cohort come to follow what the authors label "exclusion trajectory".

Page (2004). It shows the existence of strong intergenerational correlation. For our research question it implies that it is important to consider social assistance receipt in the parental home.

An intergenerational relationship in income has been shown to exist and been investigated in many studies, for literature surveys see Björklund and Jäntti (2009) or Blanden (2013). Since parents receiving social assistance have low income, the positive relation in social assistance receipt across generations might only mechanically reflect the positive intergenerational correlation in income. Another possibility is that social assistance receipt by parents affects different kinds of behaviour in their children. Persons who have grown up in families receiving social assistance are likely to be better informed about the criteria for receiving benefits. They might also find it more acceptable than those who have had no such experience during their upbringing. Yet another possible reason is that the statistical relation is due to confounding factors. For example, ill-health or drug abuse can be correlated across generations and also affect receipt.

Previous studies that have addressed the issue of intergenerational links in social assistance receipt in Sweden, have all found it to exist: The relation may, however, not be causal as the results of Edmark and Hanspers (2015), who use sibling difference method applied to a small national sample, indicate. Stenberg (2000) studied the birth cohort of 1953 growing up in Stockholm and their receipt of social assistance during the years 1982 and 1983. Ringbäck et al (2008) studied a large national cohort and related receipt of social assistance at ages 25-26 in 2002 to a number of parental characteristics measured in 1990-1992, including the duration of social assistance receipt. Moiso et al (2015) compared intergenerational relations in social assistance receipt among young adults in Finland, Norway and Sweden and for different cohorts using data from the end of the 1990s until 2008.

There are also some previous Swedish studies of the relation between characteristics of neighbourhoods where persons grew up and social assistance receipt as adults. The results are mixed. Studies of the Stockholm birth cohort, persons born in Stockholm and living in Stockholm in 1963 report that they found no relationship between neighbourhood characteristics and subsequent social assistance receipt, (SeeBrännström (2004) who used matching technique the probability of social assistance receipt at ages 16 to 19 and also

Brännström (2005) who applied multilevel analysis.)[9] Similarly Brännström (2012) who followed a very large sample of persons born in 1977 to 1979 in Sweden's three metropolitan areas during a twelve-year period found little evidence of a relationship between neighbourhood characteristics and subsequent social assistance receipt. In a later study Brännström and Rojas (2012) divide the same sample into "clusters" according to socio-economic outcomes. They find that those who have grown up in the neighbourhoods with the highest concentration of visible immigrants and resource-poor groups run a statistically significant higher risk of finding themselves in the cluster with both high unemployment, short education and higher frequency of social assistance receipt. The size of the effect is not large, however.

However, Mood (2004) who used parish level data relating to 1990 to 1999 for the city of Stockholm and analysed both inflow and outflow rates for persons aged 20 to 25, reported that the higher the proportion of people in the parish receiving social assistance, the higher the percentage of non-recipients who enter receipt. Similar to this, Åslund and Fredriksson (2009) found that refugees living in Sweden had a higher probability of receiving social assistance if they were placed in a municipality with many social assistance recipients. Related to this Neuman (2016) reports that, in models that consider parental characteristics, receipt of social assistance at ages 20-24 and 27-31 is positively related to the share of immigrants in the neighbourhood in which the person had grown up (in 1990) among natives but not among children of immigrants.

The study by Åslund and Fredriksson (2009) can be described as a natural expeiment but none of the above mentioned studies of where children and adolescents grew are randomised and therefore escape the possibility of selection bias. In contrast, the Canadian study of Oreopoulus (2003) uses the assignment of low-income families to housing projects in different Toronto neighbourhoods as a natural experiment to investigate adult labour market outcomes of persons who had grown up in a neighbourhood with different quality as measured by receipt of social assistance and some other variables. He concludes that the importance of neighbourhood quality

[9] Note, however, that the 1953 cohort grew up and became adults in a more homogenous society, during a long period of economic growth, expansion of the welfare state as well as of the education system and large social mobility. Therefore this result is not necessarily transferable to more recent periods.

for subsequent earnings, unemployment risk and social assistance receipt are small, when parental characteristics are controlled for.

4. Data and definitions

The individual data we work with come from the database LISA plus information on each individual's address and matching neighbourhood codes. Statistics Sweden (2011) documents the database LISA (Longitudinell integrationsdatabas för Sjukförsäkrings- och Arbetsmarknadsstudier, in English Longitudinal Integrated Database for Health Insurance and Labour Market Research) which uses personal identity numbers of all persons permanently residing in Sweden in order to link information across registers and years. For this study we have extracted a dataset covering all individuals who were born in 1985 and lived in one of the three metropolitan areas in 2001.

For these young adults and each member of the household where they lived at the age of 16 we obtained information on education, year of birth, country of birth and year since immigration. Information on the level of education for both generations is coded in eight levels plus a variable indicating that no information is available. We also use a variable indicating whether there was only one adult present in the household in which the 16-year-old lived. For both populations we include dummies indicating parents' region of birth and, for the visible immigrant minority, also dummies for years since immigration. The income information includes variables measuring disposable income and receipt of social assistance for each year. It originates from the tax authority and various authorities paying transfers to the households. We also know whether the young adults had completed secondary school at age 19 and whether they had become parents at age 21.

We divide the sample into two; one including those with parents born in Sweden, Europe other than Southeast Europe, Anglo-America or Oceania ("the majority population", 24 582 observations), and one with parents born in Southeast Europe (Greece and former Yugoslavia), Africa, Latin America or Asia ("visible minorities", 5 930 observations). The samples do not include the very small number of persons in households recorded as having negative or zero disposable income in 2001. We follow all young adults during ages 19 to 21 irrespective of domicile as long as they remain within Sweden and observe their receipt of social assistance.

Thus, at this stage the only attrition is the small number of persons (less than one per cent) who emigrated or died.

The definition of "neighbourhood" that we are working with here is available for the three metropolitan regions which together have 3.3 million inhabitants, more than a third of the country's total population. These are also the regions for which the issues we study are most pertinent. A "neighbourhood" is an area smaller than a municipality, but larger than a city block and normally larger than a planning area. A neighbourhood often represents a natural social arena for its young adults and does not have to be identical to an administrative unit. We use a definition of "neighbourhood" which has been previously used for mapping how residential segregation has developed (See Biterman ed., 2007 and National Board of Health and Welfare, 2010). The neighbourhood is defined as a built-up area that:

- is demarcated by "natural borders" (major streets, green areas, etc.).
- corresponds to a city district or a residential area.
- possesses a number of inhabitants large enough to provide a basis for certain private and public services.
- can be considered as an "area of identification" by its inhabitants.

It is thus constructed as an area in which one may expect social interactions between inhabitants, in particular children and adolescents.

Most neighbourhoods have a population of between 4 000 and 10 000 inhabitants. Considering that segregation is an urban phenomenon, we have excluded rural neighbourhoods on the outskirts of suburban municipalities as well as neighbourhoods with fewer than 500 inhabitants. Altogether, 2 652 or nine percent of the observations are deleted due to these restrictions.

We have further divided the remaining neighbourhoods into deciles according to average household equivalent disposable income[10] and included dummies for these as control variables as well as six binary variables indicating in which range the percentage of visible minorities in the neighbourhood lies. There are strong correlations between very low income in the

[10] See Statistics Sweden (2011) for the equivalence scale applied.

neighbourhood and a large percentage of visible minority immigrants as well as between high income and low share of visible minorities. Like the parental household characteristics, the neighbourhood variables are observed in 2001.

From the data, we also calculate neighbourhood characteristics based on all households in the neighbourhood. Of particular interest is the rate of social assistance receipt (among all households) in the neighbourhood. Further, we compute average neighbourhood income, the share of visible minority persons in the neighbourhood population, measures of education, as well as the proportion of households with more than one adult present

Our data from LISA and neighbourhood codes cover the years 1990 – 2006 not later years. The data shows that the proportion of visible minorities among children and teen-agers in the regions studied had more than doubled during the 1990s. Much of the increase was concentrated to low-income neighbourhoods where the share was well above average. The comparatively high concentration of visible immigrant minorities in some types of neighbourhoods is thus a rather recent phenomenon which is additional reason for focussing on a recent cohort, even though we are only able to follow it until age 21.

As Table 2 shows, less than ten per cent mong the majority population sample, received social assistance at least one month when they were 19, 20 or 21. In the visible minority sample the percentages were much higher, with a maximum of 34 per cent at age 19. Substantially fewer received social assistance each year between age 19 and 21: Three per cent of the majority sample and 17 per cent of the visible minority sample. Our outcome variable "social assistance receipt" takes the value of 1 if the person received social assistance at least once each year he or she was 19, 20 and 21 which thus indicate some persistence in receipt.[11]

/Table 2 about here/

[11] Our data does not include information about number of months of receipt. . As a sensitivity analysis we also defined social assistance receipt as receipt during at least two out of three years. The results were very similar.

5. Descriptive statistics and model specifications

Table 3 shows how differently persons born in 1985 in the majority population and in the visible minority immigrant population were distributed across deciles defined by *neighbourhood* average equivalent income in 2001. For example, only 11 percent of the majority sample lived in one of the three lowest deciles as compared to 53 percent of the minority sample. In contrast, 46 percent of the majority households were in the top decile, but not more than 14 percent in the minority sample. Our data shows that visible minorities made up almost half of the 1985 cohort who lived in low-income neighbourhoods in 2001.

/Table 3 about here/

Table 3 lists the main variables used and their means for the two samples. Characteristics of the parental households refer to 2001. Quartile income refers to equivalent disposable income of all Swedish households that included a child born in 1985. Disposable income includes wages, capital income and transfer income, all net-of-tax. 61 per cent of the visible minority 16-year-olds lived in a *household* in the first income quartile, as compared with only 15 per cent in the majority sample. Only 4 per cent of the 16-year-olds in the majority population sample lived in households receiving social assistance, but as many as 35 per cent in the visible minority sample. The average parental education is longer among the majority than among parents of visible minority children. Very few in our samples had become parents before the age of 21.

Just under half of the visible-minority children, have parents born in the Middle East or North Africa. There is considerable variation in years since the family's immigration. 26 per cent in the visible minority sample have a parent with post-secondary education, as opposed to 48 per cent among the majority. In 28 per cent of visible minority parental households, noone has more than nine years of schooling, as opposed to eight per cent for the majority sample. The shares living in single adult households is practically the same for the two samples.

We pool observations from the three regions in our estimates, but include binary variables for region in the specification. (Separate estimates gave over all similar results for the three regions.) Separate estimates by gender indicated that the results were largely similar, except for the impact of being a young parent. We therefore report estimates for women and men jointly

but with a gender dummy and interactions between gender and having a child. In contrast, we estimate the models for visible immigrants and others separately for reasons discussed in the Introduction. As is shown in the next section several results also differ between the two categories.

To see whether social assistance receipt by the young adult can be attributed to observable characteristics - individual, parental and of the neighbourhood - we estimated logistic regression models. We report results from three specifications.

The first includes only binary variables indicating categories of neighbourhood in terms of average income and of percentage visible immigrant inhabitants. The second adds measures of education at the neighbourhood level, the share of two-adult households and the characteristic which is our main focus: The percentage of social assistance recipients in the neighbourhood is included as well as its square since we cannot assume a priori that the relation is linear.

In the third model we include variables relating to the parental household and some individual characteristics as well as dummies for metropolitan region. The purpose is to see to what extent this might weaken the relations between social assistance receipt and the neighbourhood characteristics. We enter household income as three binary variables allowing estimations to take into account non-linearity in the relation between parental household income and social assistance receipt as a young adult. We also include parents' level of education and, most importantly, whether the parental household received social assistance. The individual characteristics are gender and dummies for whether the person has completed upper secondary school and whether they had become mothers or fathers at age 21. The last two indicate important life-course events likely to affect the probability of receiving social assistance. None of the three variables are likely to have been affected by social assistance receipt. For visible minority persons we also include parents' region of birth and years since immigration.

6. Results

Estimates for the two populations are reported in Tables 4 and 5, respectively. In addition to coefficients, odds ratios and marginal effects evaluated at the mean are shown. We find that the probability that the young person receives social assistance is inversely related to

neighbourhood average income at age 16 but that the relation is substantially weakened when more neighbourhood characteristics are included and not statistically significant for either minority or majority youth when parental and individual characteristics are also included (Model 3).

The share visible minorities in the neighbourhood is associated with an increased probability of social assistance receipt in the majority sample in Model 1 but the relation ceases to be statistically significant in Model 2 except for the neighbourhoods with more than 75 percent visible minorities and even this is insignificant in Model 3. For the minority sample, a high concentration of immigrants comes with increased probability of social assistance receipt in Model 2 but not in Model 3. Education levels in the neighbourhood matter for the visible minority sample but not for the majority.

While the neighbourhood variables mentioned above loose statistical significance when household and individual variables are entered in the model, it is quite otherwise with the share receiving social assistance in the neighbourhood. The coefficient for the share of social assistance recipients is positive and the one for its square is negative, indicating a non-linear relationship. The relationship is stronger in Model 2 than in Model 3.

Some estimates for household and individual characteristics are worth comment. If the young adult had completed upper-secondary education at age 19, the odds of receiving social assistance receipt are reduced by about three-fourths in the majority population and by nearly a half in the visible minority population. Having become a young mother (in both populations) or a young father (in the visible minority population) comes instead with a clear increase in the odds of receipt.[12]

That visible minority youth run a greater risk of social assistance receipt if the family is recently immigrated is consistent with what previous studies have found. It is more surprising that there is no statistically significant relation with parental education in the visible immigrant sample. This is in contrast to the majority sample where we found that if a parent has a post-secondary education the odds of receipt for the young adult are considerably smaller. There are, however,

[12] Educational achievement could be influenced by neighbourhood characteristics; in that case we would somewhat underestimate neighbourhood effects.

similar, clearly negative, relations between parental income and the odds of social assistance receipt as young adults in the two samples. Although parents are not obliged to support children who are legally adults many, of course, voluntarily help their children by for example letting them live in the parental home at low or no cost and / or by paying bills. Parents with low income are less likely to have the means to assist their children in such ways. With two adults in the parental household the odds of social assistance receipt are lower than if only one adult was present.

Coefficients for parental receipt of social assistance are statistically significant and substantial, confirming that receipt is linked across generations. The odds-ratios are 5.9 in the majority population and 5.5 in the visible minority population.

/Figure 1 A, B, C about here/

In order to illustrate how the probability of receipt as young adults is related to the proportion of social assistance receipt in the neighbourhood, we have calculated predicted probabilities. They are shown in Figure 1 where receipt in the neighbourhood (on the horizontal axis) ranges from zero to 40 per cent.[13] We have chosen three sets of individual and household characteristics such that one of them (A) is associated with a low probability of receiving social assistance and one (C) with a high probability. The third (B) has characteristics common in both samples. For each of these three there is one graph for a majority person and two for persons with a background in the Middle East and North Africa, but with varying years since the family's immigration.

Figure 1 shows that in case majority persons are otherwise rather unlikely to receive social assistance, it matters very little whether the neighbourhood where they grew up had few or many social assistance recipients. In all other cases, the probability of receipt increases with the rate of social assistance receipt in the neighbourhood. It increases up to a proportion of recipients of approximately 30 percent, and then the graphs level off. For persons having a low or average risk of becoming a social assistance recipient, the probability is larger if their parents had migrated from a Middle East or North African country, particularly if they have immigrated

[13] Only four neighbourhoods have higher rates of social assistance receipt.

recently. In contrast, in case the individual has a high risk of social assistance receipt, an immigrant background makes little difference to the probability of receipt.

7. Conclusions

In this study we investigate whether the probability that adults aged 19 to 21 will receive social assistance varies according to where they grew up, within the Stockholm, Gothenburg and Malmö regions in Sweden. Our sample is of individuals born in 1985 and focus was on receipt of social assistance each year between age 19 and 21, thus of some continuance. We estimated logistic regressions separately for majority and visible immigrants and included several neighbourhood characteristics, not only the rate of social assistance receipt in the neighbourhood in the specification.

The most important result from the study is that the higher the rate of social assistance receipt in the neighbourhood where a person lives at age 16 - up to a level of approximately 30 percent - the higher the probability of receiving social assistance subsequently as a young adult. Such an increase in probability is found for most categories but not for individuals from the majority population whose characteristics predict a low probability of receipt.

While in some studies neighbourhood characteristics, such as average income or even the share of low-income households, are not seen to have a significant relation to individual outcomes once parental characteristics are included in the model (see our literature review), we have shown that it might be important precisely which neighbourhood characteristics are included in the analysis. In the present study, neighbourhood income and the proportion visible immigrants were not significant in the full model but the share of households with social assistance in the neighbourhood was. As discussed in the introduction of the paper there are several circumstances that could constitute causal links between the frequency of social assistance receipt in the neighbourhood and the probability of receipt as a young adult. An important topic for future research would be to try to establish the reasons why the rate of social assistance receipt in the neighbourhood where the person grow up is associated with the probability to receive social assistance as young adult.

Nevertheless, social assistance receipt in the neighbourhood can at most cause a part of the variation in risk of receipt as a young adult. A comparison of the ranges of probability between Figures 1 A, B and C, indicates that when other factors are most favourable, a young person in a neighbourhood with very high rates of receipt has a very much lower probability of becoming recipients themselves than a person in a neighbourhood with few recipients but for whom other factors indicate a high risk. A number of other factors were also found to be significantly related to social assistance receipt as a young adult. Some of these relate to the parental household, others to what the young persons themselves have recently experienced. Our estimates show that young adults in both sub-populations are more likely to receive social assistance if the household in which they grew up did so. This is in line with what has been reported from studies in several countries, including Sweden but the relation is not necessarily causal. We also report that young adults who have not completed upper-secondary education are considerably more likely to receive social assistance as are those who have become mothers at an early age. The probability of social assistance receipt is higher if there was only one adult in the parental home and if household income was low. It is worth noting that while that a long parental education is, associated with a lower probability of receipt within the majority population, as may be expected, this is not the case for visible-minority young adults. Among the latter, the probability is lower, the longer the period since the family immigrated.

In two of the examples illustrated by Figure 1, youth with parents born in the Middle East or North Africa had considerably higher probability of receiving social assistance than those with parents born in Sweden, particularly if the family had immigrated relatively recently. Yet, for those whose other characteristics were associated with a high risk, this was not the case.

A policy conclusion from the results of this study is that several measures focused on the individual can be instrumental in reducing the number of young adults in circumstances which lead to social assistance receipt. Obvious examples are measures to increase the education qualifications and various efforts to create jobs for young adults. However, there is also room for spatially focused measures aiming to reduce residential segregation and the demand for social assistance in locations with a rate of social assistance receipt considerably higher than the median for metropolitan Sweden.

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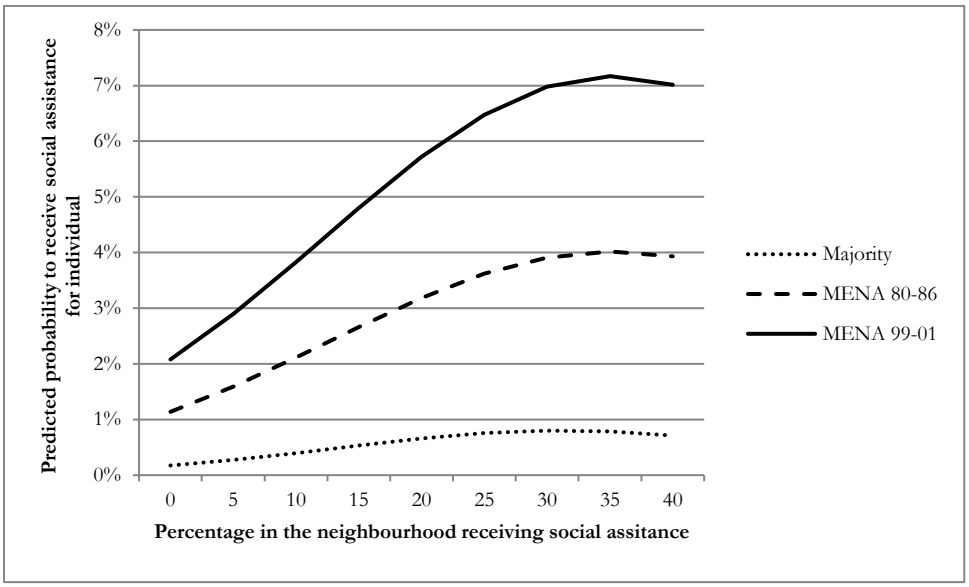
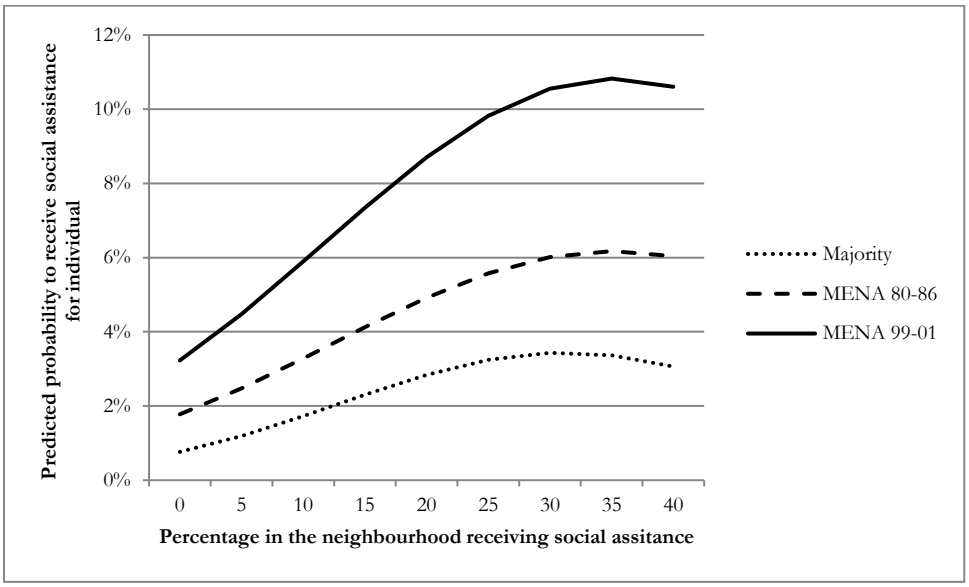
Figure 1
Predicted probabilities of receiving social assistance when aged 19 to 21

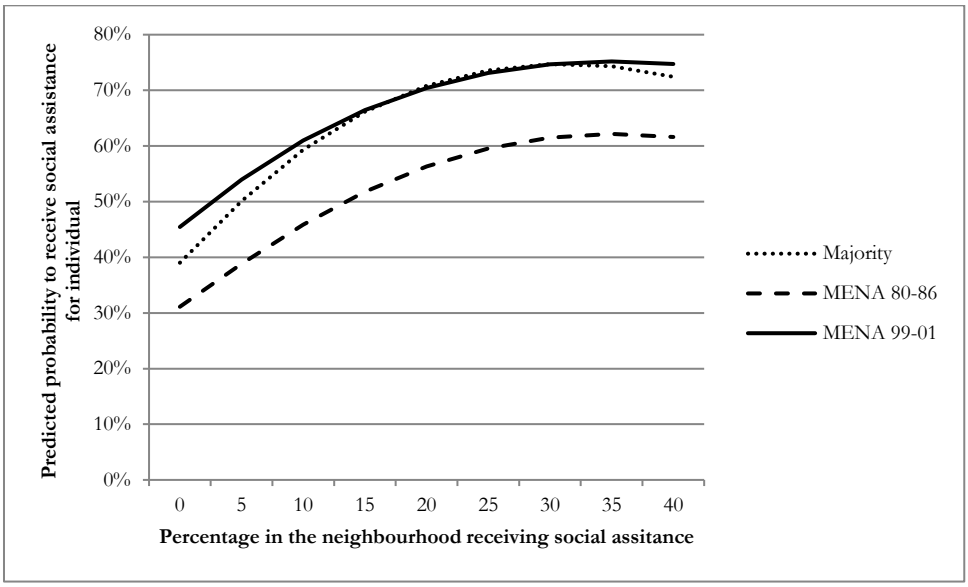
Individual A



Individual B



Individual C



Note: MENA stands for parents born in Middle East and North Africa. 80-86 indicates that the background household immigrated between 1980 and 1986. 99-01 indicates that the background household immigrated between 1980 and 1986.
Individual A: At least one parent has 3 or more years of post-secondary education, household belongs to the highest income quartile, does not receive social assistance, lives in larger-Stockholm and includes two adults. The individual has secondary education at age 19 and no child aged 0-3.
Individual B: Highest education in the household is two-year secondary school, household belongs to the second income quartile, does not receive social assistance, lives in larger-Stockholm and includes two adults in the household. The individual has secondary education at age 19 and no child aged 0-3.
Individual C: No parent has primary education, household belongs to the lowest income quartile, receives social assistance, lives in larger-Stockholm and includes only one adult. The individual has no secondary education at age 19 no child aged 0-3.

Table 1 The relation between social assistance receipt (SA) at ages 19 to 21 and receipt of social assistance at age 28 as well as main source of income. The 1978 birth-cohort. Percent.

		Of those who did not receive SA each year at age 19. 20 and 21.	Of those who received SA each year at age 19. 20 and 21
Share receiving social assistanceat age 28			
Men	Majority	3	27
	Visible minorities	7	22
Women	Majority	2	23
	Visible minorities	7	19
Share having their main income from work or parental leave at age 28.			
Men	Majority	78	49
	Visible minorities	59	49
Women	Majority	71	50
	Visible minorities	60	52

Source: Authors own calculations from LISA with neighbourhood definitions added.

Table 2. Share with social assistance (SA) among individuals born 1985 (per cent).

	Majority	**Visible minority**
SA age 19	8	34
SA age 20	9	32
SA age 21	7	26
SA ages 19, 20 and 21	3	17
SA ages 19 or 20 or 21	14	47

Source: Authors' own calculations from LISA with neighbourhood definitions added.

Table 3. Descriptive statistics for background household of individuals born in 1985 and individual characteristics. Percent

	Majority	Visible minority
Neighbourhood covariates		
Neihborhood decile 1	4	36
Neighbourhood decile 2	4	12
Neighbourhood decile 3	3	5
Neighbourhood decile 4	7	9
Neighbourhood decile 5	9	10
Neighbourhood decile 6	7	6
Neighbourhood decile 7	8	4
Neighbourhood decile 8	13	4
Neighbourhood decile 9	18	8
Neighbourhood decile 10	28	6
Fraction visible minorities		
Less than 5 percent	56	10
5-10 percent visible minorities	21	15
10-25 percent visible minorities	17	33
25-50 percent visible minorities	4	24
50-75 percent visible minorities	1	12
More than 75 percent visible minorities	0	6
Fraction with level of education		
Post-secondary education	32	24
Upper-secondary education	39	40
Less than upper secondary education	17	24
No educational information	12	13
Receiving social assistance	4	15
Fraction two person household	42	33
Background household covariates		
Quartile 1	15	61
Quartile 2	19	21
Quartile 3	26	12
Quartile 4	41	7
Social assistance receipt	4	35
Highest educational level of parents		
Less than 9 years of elementary schooling	1	13
Elementary schooling 9 years	7	15
Upper-secondary 2 years	26	23

Upper-secondary 3 years	13	16
Post-secondary less than 3 years	18	11
Post-secondary 3 years or more	30	15
Post-graduate studies	3	2
Education info missing	0	5
Two adult persons in the background household	68	66
Parents born in:		
Sweden	92	
Other Nordic countries	4	
Other western Europe	1	
Other northeastern Europe	3	
Southern Europe		20
Middle East and North Africa		49
South America		9
Other Africa		10
Other Asia		10
Immigration year of the household		
Before 1980		18
1980-1986		26
1987-1990		18
1991-1994		25
1995-1998		11
1999-2001		3
Individual covariates		
Completed upper-secondary when 19 years old	75	61
Completed upper-secondary when 21 years old	86	76
Woman with a child 0-3 years	2	4
Man with a child 0-3 years	1	2
N	24 582	5 930

Source: Authors' calculations from LISA with neighbourhood definitions added.

Table 4. Models estimating the probability of receiving social assistance at age 19, 20 and 21.

Logistic regression. Cohort 1985 – the majority

	Estim	prob	OR	ME	Estim	prob	OR	ME	Estim	prob	OR	ME
Intercept	**-4,197**	<,0001			-1,718	0,256			-0,982	0,557		
Neighbourhood income: ***reference decile 8-10***												
Neighbourhood decile 1	**1,585**	<,0001	4,881	0,051	0,331	0,229	1,392	0,011	-0,279	0,412	0,756	-0,008
Neighbourhood decile 2	**1,200**	<,0001	3,319	0,039	0,225	0,315	1,252	0,007	-0,213	0,444	0,808	-0,006
Neighbourhood decile 3	**0,983**	<,0001	2,671	0,032	**0,421**	0,039	1,523	0,014	0,041	0,869	1,042	0,000
Neighbourhood decile 4	**0,919**	<,0001	2,505	0,030	0,317	0,051	1,373	0,010	0,061	0,748	1,063	0,001
Neighbourhood decile 5	**0,729**	<,0001	2,072	0,024	0,181	0,231	1,198	0,006	0,038	0,826	1,039	0,001
Neighbourhood decile 6	**0,652**	<,0001	1,919	0,021	0,156	0,315	1,169	0,005	-0,064	0,714	0,938	-0,002
Neighbourhood decile 7	**0,373**	0,016	1,452	0,012	0,022	0,893	1,022	0,001	-0,235	0,199	0,791	-0,007
Fraction visible minorities in neighborhood ***reference: 1-5 percent***												
5-10 percent visible minorities	**0,427**	<,0001	1,533	0,014	0,013	0,904	1,013	0,000	-0,101	0,399	0,904	-0,003
10-25 percent visible minorities	**0,738**	<,0001	2,092	0,024	-0,065	0,629	0,937	-0,002	-0,089	0,574	0,915	-0,002
25-50 percent visible minorities	**0,699**	0,000	2,012	0,023	-0,378	0,086	0,685	-0,012	-0,259	0,354	0,772	-0,007
50-75 percent visible minorities	**1,141**	<,0001	3,130	0,037	-0,151	0,647	0,860	-0,005	0,069	0,873	1,072	0,002

More than 75 percent visisble minorities	**2,184**	<,0001	8,885	0,071	**1,582**	0,007	4,864	0,051	1,467	0,062	4,335	0,039
Other neighbourhood variables												
Education												
Ref. Less than upper secondary*												
Post-secondary education					-0,021	0,102	0,980	-0,001	-0,005	0,749	0,996	0,000
Upper-secondary education					-0,008	0,723	0,993	0,000	-0,009	0,701	0,991	0,000
Receiving social assistance					**0,128**	<,0001	1,137	0,004	**0,098**	0,001	1,103	0,003
Square receiving social assistance					**-0,002**	<,0001	0,998	0,000	**-0,002**	0,004	0,998	0,000
Two person household					**-0,028**	<,0001	0,972	-0,001	**-0,015**	0,000	0,985	0,000
Individual and household variables												
Man									**-0,209**	0,011	0,811	-0,006
Parents born in:												
Ref: Sweden												
Other Nordic countries									-0,001	0,995	0,999	0,000
Other western Europe									0,093	0,731	1,097	0,003
Other northeast Europe									0,250	0,151	1,283	0,007
Highest educational level in HH, ***Ref upper secondary 2 years***												

Graduate program	-1,010	0,052	0,364	-0,029
Post-secondary ≥ 3 yrs	**-0,608**	<,0001	0,544	-0,016
Post-secondary < 3 years	**-0,594**	<,0001	0,552	-0,016
Upper-secondary 3 years	-0,142	0,255	0,867	-0,004
Elementary schooling	0,063	0,569	1,065	0,002
Less than elementary schooling	0,394	0,066	1,483	0,010
No information	0,389	0,211	1,476	0,011
Region *Ref: Stockholm*				
Larger Göteborg	0,187	0,118	1,205	0,005
Larger Malmö	0,246	0,069	1,279	0,007
Quartile for disposable income *Ref: quartile 1*				
Quartile 2	**-0,256**	0,010	0,774	-0,007
Quartile 3	**-0,534**	<,0001	0,586	-0,014
Quartile 4	**-1,132**	<,0001	0,322	-0,030
Parent household receives SA	**1,784**	<,0001	5,953	0,048
Two adults in parent household	**-0,538**	<,0001	0,584	-0,014
At least upper-secondary school age 19	**-1,448**	<,0001	0,235	-0,039

Man and child 0-3 years	0,485	0,126	1,624	0,013
Women and child 0-3 years	**1,137**	<,0001	3,116	0,030

Source: Authors' estimates based on LISA and neighbourhood definitions added.
Coefficients in bold type are significant at the 5% level.
HH – Household
OR – Odds-ratio
ME – Marginal effects
* Estimates included a variable for "information on education not available". The number of such observations are so small that we do not report the results for this group but note that they are not included in the reference category.

Table 5. Models estimating the probability of receiving social assistance at age 19, 20 and 21.
Logistic regression. Cohort 1985 – visible minorities

	Estim	prob	OR	ME	Estim	prob	OR	ME	Estim	prob	OR	ME
Intercept	-2,389	<,0001			-8,427	<,0001			-6,901	<,0001		
Neighbourhood income: ***reference decile 8-10***												
Neighbourhood decile 1	**1,515**	<,0001	4,549	0,209	**0,508**	0,047	1,662	0,068	0,137	0,697	1,147	-0,033
Neighbourhood decile 2	**0,930**	<,0001	2,534	0,128	0,237	0,298	1,267	0,032	-0,087	0,774	0,916	-0,047
Neighbourhood decile 3	**0,582**	0,009	1,790	0,080	0,325	0,188	1,385	0,044	-0,013	0,965	0,987	-0,029
Neighbourhood decile 4	**0,587**	0,002	1,798	0,081	0,329	0,115	1,390	0,044	-0,010	0,970	0,990	-0,029
Neighbourhood decile 5	**0,516**	0,004	1,676	0,071	0,273	0,173	1,314	0,037	-0,135	0,556	0,874	-0,038
Neighbourhood decile 6	**0,923**	<,0001	2,516	0,127	**0,649**	0,002	1,914	0,087	0,296	0,205	1,345	0,015
Neighbourhood decile 7	**0,937**	<,0001	2,553	0,129	**0,871**	<,0001	2,390	0,117	0,556	0,021	1,744	0,044
Fraction visible minorities in neighborhood ***reference: 1-5 percent***												
5-10 percent visible minorities	-0,071	0,690	0,932	-0,010	-0,256	0,165	0,775	-0,034	-0,309	0,131	0,734	-0,042
10-25 percent visible minorities	0,017	0,925	1,017	0,002	-0,359	0,060	0,698	-0,048	-0,111	0,621	0,895	-0,016

25-50 percent visible minorities	**-0,431**	**0,042**	0,650	-0,060	**-0,957**	<,0001	0,384	-0,128	-0,359	0,240	0,698	-0,046
50-75 percent visible minorities	-0,231	0,318	0,794	-0,032	**-1,269**	<,0001	0,281	-0,170	-0,231	0,553	0,793	-0,035
More than 75 percent visisble minorities	-0,183	0,456	0,833	-0,025	**-1,506**	<,0001	0,222	-0,202	-0,414	0,395	0,661	-0,071
Other neighbourhood variables												
Post-secondary education					**0,045**	0,000	1,046	0,006	**0,034**	0,017	1,035	0,001
Upper-secondary education					**0,079**	<,0001	1,082	0,011	**0,065**	0,005	1,068	0,003
No educational information					**0,079**	<,0001	1,082	0,011	**0,063**	0,004	1,065	0,003
Receiving social assistance					**0,162**	<,0001	1,176	0,022	**0,073**	0,002	1,076	0,008
Square receiving social assistance					**-0,002**	<,0001	0,998	0,000	**-0,001**	0,002	0,999	0,000
Two person household					0,004	0,437	1,004	0,001	0,001	0,876	1,001	0,000
Individual and household variables												
Man									0,157	0,066	1,169	0,015
Parents born in									**0,362**	0,004	1,436	0,040
Ref: Southern Europe												
MENA									**0,432**	0,018	1,540	0,055
South America									**0,460**	0,003	1,584	0,051
Other Africa									-0,184	0,293	0,832	-0,022

Other Asia	**-0,980**	<,0001	0,375	-0,100
Year of immigration for HH: *Ref immigrated 1999-2001*				
Before 1980	**-0,612**	<,0001	0,542	-0,060
1980-1986	**-0,407**	0,006	0,666	-0,040
1987-1990	-0,220	0,089	0,803	-0,022
1991-1994	-0,253	0,073	0,777	-0,025
1995-1998	-0,182	0,683	0,834	-0,028
Highest educational level in HH, *Ref upper seondaryc 2 years*				
Graduate program	-0,182	0,683	0,834	-0,028
Post-secondary ≥ 3 yrs	-0,158	0,294	0,854	-0,011
Post-secondary < 3 years	-0,161	0,329	0,851	-0,012
Upper-secondary 3 years	0,028	0,842	1,028	0,005
Elementary schooling	0,208	0,129	1,231	0,026
Less than elementary schooling	0,224	0,103	1,251	0,027
No information	**0,475**	0,006	1,608	0,061
Region *Ref: Stockholm*				
Larger Göteborg	**0,524**	0,000	1,689	0,054

Larger Malmö	**0,363**	0,030	1,438	0,052
Quartile for disposable income ***Ref: quartile 1***				
Quartile 2	**-0,277**	0,020	0,758	-0,030
Quartile 3	**-0,633**	0,001	0,531	-0,064
Quartile 4	**-0,570**	0,036	0,565	-0,068
Parent household receives SA	**1,691**	<,0001	5,426	0,183
Two adults in parent household	**-0,422**	<,0001	0,655	-0,046
At least upper-secondary school age 19	**-0,604**	<,0001	0,547	-0,066
Man and child 0-3 years	**0,995**	0,000	2,705	0,098
Women and child 0-3 years	**1,003**	<,0001	2,728	0,102

Source: Authors' estimates based on LISA and neighbourhood definitions added.
See notes to Table 4.