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Child Poverty and the Neighbourhood in Metropolitan Areas of Sweden. On how it is combated by social assistance and attempting to find it's possible effects.

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Abstract

This paper takes a fresh look at child poverty at the neighbourhood level in the three Metropolitan regions of Sweden using unique data for 1990, 1996 and 2002. We find that the number of neighbourhoods with high child poverty rates has increased over time, but also that most poor children in the three regions live outside poor neighbourhoods. A dissproportionally large fraction of children with background from low and middle countries live in poor neighbourhoods. Using a simple accounts framework we report that social assistance has a much larger poverty reducing effect in neighbourhoods inhabited by many visible minorities than in neighbourhoods dominantly inhabited by natives. The probability of not having completed secondary school is much higher for young adults that grew up in neighbourhoods with many visible minorities than for those originating from neighbourhoods with a predominant majority population. Results from a preliminary analyse indicate that much of this is due to parental characteristics. However, there are also some signs of characteristics at the neighbourhood influencing the probability of not having completed secondary school.

1. Introduction

The issue of residential segregation has entered the political agenda in many rich European countries. One important reason for this is that a high proportion of immigrants from low and middle income countries have not been successful in finding full time jobs. Low spending power makes many of them and their dependent children reside in less-privileged neighbourhoods of larger cities, in the poor neighbourhoods. Such a spatial concentration is often seen as obstacle in the integration process into the host country. For children residential segregation means a risk of low human capital development as well as acquiring preferences different from those held by the majority. Residential segregation, particularly such having an ethnic aspect, can foster social tensions and unrest. The events in France in the autumn 2005 are alarming examples.

In this paper we will provide new analyses on urban child poverty at the neighbourhood level in Sweden. It is true that in several international comparisons Sweden stands out as a country with little child poverty as it is well known for its ambitious social programs and equal distribution of income. This paper confirms that child poverty rates are low in an overwhelming fraction of all neighbourhoods in the three metropolitan regions of Sweden. However, it also shows that from a low base has the number of poor neighbourhoods and children living in them increased in number during the period here studied that is from 1990 to 2002. Such a development has not passed policy makers unnoticed, and for the first time ever, a metropolitan policy for Sweden was formalised in 1998 (Ministry of Finance, 1998). This policy consists of programs aiming at supporting disadvantaged areas. (Andersson, 2006)

This paper takes on from where Biterman et al (2008) finished in an analysis of inequality in child income across neighbourhoods in Sweden's three metropolitan areas 1990, 1996 and 2002. Using a new definition of neighbourhood and registerdata that study showed that larger and larger proportions of inequality in child income could be attributed to differences in mean income across neighbourhoods. Thus residential segregation, measured in this way, was shown to have increased. That study also concluded, based on estimated regression models that increased returns to parental education forcefully contributed to larger economic polarisation among children in Sweden's metropolitan areas.

Here we continue the analysis of residential segregation in Sweden's three metropolitan areas along three different lines. First, we report on child poverty rates and their changes for more than 500 neighbourhoods. When doing this we investigate how poverty varies by ethnic composition of the neighbourhood. Second, we study how means tested social assistance has combated child poverty at the neighbourhood level by performing a simple accounting exercise. Third, we use the panel characteristics of the data to report on a preliminary analysis on how, among young adults, the probability of not having completed secondary education is affected by household characteristics as well as neighbourhood characteristics both measured when the person was 10 to 12 years of age. The choice of focusing on not completed secondary school is in line with for example Atkinson et al (2002) who recommends member countries of EU to use a similarly defined variable as one indicator of (lack of) social inclusion.

The paper is rich in results. We show that the development towards larger polarisation across neighbourhoods also show up in child poverty rates as both the numbers of neighbourhoods with poverty rates lower than 10 percent as those with poverty rates of at least 40 percent

were larger in 2002 than in 1990. However, although there is a clear tendency for child poverty to become more spatially concentrated, still in 2002 most poor children in metropolitan areas actually live outside poor neighbourhoods. There is a very strong relation between ethnic composition and poverty status at the neighbourhood level. All neighbourhoods with high fraction visible minorities are poor in 1996 as well as in 2002. A rather high proportion of the variation in child poverty rates across neighbourhoods can be explained by a small number of variables measuring parental characteristics at the neighbourhood level.

Turing to the second research question, we find that the poverty reducing effect of social assistance is rather unimportant in neighbourhoods dominated by natives, but larger the larger is the fraction visible minorities in the neighbourhood. Social assistance reduces deep child poverty substantially, but does not make as many children cross the poverty line. In neighbourhoods with high fraction visible minorities was the poverty reducing effect of social assistance smaller in 2002 than in 1990, which might be due to less generous provision.

We also report that the probability of not having completed secondary school is much higher for young adults that grew up in neighbourhoods with many visible minorities than for those originating from neighbourhoods with a predominant majority population. Results from the preliminary analyse we report indicate that much of this is due to parental characteristics. However, there are also some signs of characteristics at the neighbourhood influencing the probability of not having completed secondary school. To develop such analyses seems to be a rather natural next step in the research process.

The rest of the paper is laid out as follows: In the section we discuss central concepts for this study, and their measurement. Section 3 report on child poverty rates by neighbourhoods for the three years 1990, 1996 and 2002 and on poverty in regions defined by ethnic composition. In section 4 we present the analysis of how social assistance affects child poverty rates. Thereafter we shift the attention to the issue to analyse how the probability of not having completed secondary education is affected by household and neighbourhood characteristics in section 5. Finally, we sum up the conclusions in Section 6.

2. The concepts of neighbourhood and child poverty[1]

A neighbourhood is in this study an area smaller than a municipality, but larger than a city block and normally larger then a planning area (it often aggregates few planning areas), and as such it represents a convenient intermediate level. Since the neighbourhood represents a natural social arena for its residents, it is an understandable choice of sub-arena. Furthermore, the division into neighbourhoods is not dependent on administrative changes, which means the borders do not change during the period under review (see Biterman and Franzén, 2007).

The neighbourhood is defined as a built-up area that:
- is demarcated by natural borders (larger 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 or

[1] This section draws from corresponding text in Biterman et al (2008).

public services. (Most often between 4 000 and 10 000 inhabitants.)
- can be considered as an area of identification by its inhabitants.

Such a geographical division into neighbourhoods in accordance with these criteria has been established for the three metropolitan regions, i.e. municipalities of Stockholm, Gothenburg and Malmö neighbouring suburb municipalities see Table 1. Of Sweden's 9 million inhabitants, 3.3 million or 37 percent live in the three large city regions. The region around Stockholm, the capital, in the mid-eastern part of the country is the largest, and consists of not less than 24 municipalities (city level units). Eight municipalities make up the Gothenburg region on the west coast, which is the second largest region by population. As is usually the case for these types of studies, we treat Malmö the south together with the eight municipalities surrounding it as a separate region, although if the national border to Denmark is disregarded, it can be considered to be the eastern (and smaller) part of the Copenhagen-Malmö region. Leaving out neighbourhoods with less than 500 persons in this analysis here we will work with 501 neighbourhoods.

/Table 1 about here/

Table 1 show that the foreign born population ranges from 15 percent in the Gothenburg region to 18 percent in the Stockholm region. Finland is the largest sender country of foreign born living in the Stockholm region and ranks number two among sender countries to the Gothenburg region, but much lower in the Malmö region. In contrast Poland is the second largest country of foreign born living in the Malmö region, but ranks much lower in the other two regions. If Yugoslavia and its successor states are considered to be one unit, it is the single largest sender country for the Gothenburg and Malmö regions. Other high rank sender countries are Iraq, Iran and Turkey.

We define a child as a person under age 18 and measure his or her economic situation based on the disposable income of the parents. An important component of a household's disposable income is wages subject to income tax. In addition, there can be income from capital received as dividends and interest as well as income from capital gains from selling stocks and property. Disposable income also includes public transfers such as pensions, sickness benefits, child allowances and social assistance. After adding the various income components we subtract income taxes paid and arrive at disposable income at the household level.

In order to make comparisons across households with different number of members we adjust the disposable income of each household with it's equivalent scale number, using an equivalence scale often used by Statistics Sweden.[2] Finally, each person is assigned this income. Persons having an equivalent disposable income of less than 60 percent of the medina (computed for all individuals in Sweden; children as well as adults) as observed the same year are classified as poor or not. Child poverty rates for a neighbourhood refer to the proportion children (person under 18 years of age) that are deemed to be poor in relation to the total number of children in the same neighbourhood. In some of the analyses we will also investigate proportion of children that fall under a poverty line set at 40 percent of the contemporary median, thus mapping deep poverty.

[2] This equivalence scale, recommended by the National Board of health and Welfare, starts with 1.16 for the first adult in the household, assigns the value 1.92 for two adults and adds weights of 0.56, 0.66 and 0.76 for each child aged 0 – 3 years, 4 – 10 years and 11 – 17 years respectively.

Among various definitions of poverty the one here chosen has two advantages. It is widely used when assessing poverty among member states of the European Union as for example Eurostat publishes measures of poverty in the member states based on it. Second; as it is based on disposable income it can be used for assessing how social assistance reduces poverty which will be further developed in Section 4. Pay attention to that our poverty line is defined based on median income for all inhabitants (independent of age) in Sweden (not only the three metropolitan areas).

The information for deriving disposable income comes from Statistics Sweden which in turn has compiled information from tax files as well as from registers on public transfers received. Pay attention to that we work with data on all children in the three metropolitan regions in Sweden, not a sample. While this is a desirable property, there are also measurement problems that might affect our results. One problem is that we work with a narrowly defined income pooling and need unit as this is defined as married couples or cohabiting adults having a common child and their dependent children (persons under 18 year of age). We can not know if the real income sharing unit also includes another person over 18 years of age.[3] The narrow definition of the household is not shared by the Household Income Survey conducted annually by Statistics Sweden. The Household Income Survey, which for some year is available in the Luxembourg Income Study (LIS), provides a better basis for estimating child poverty in Sweden as a whole. However, being a sample survey it can not be broken down at the neighbourhood level. As in similar studies incomes that are not noted in the registers are not known to us, and can not affect the classification of a household as poor or not.

The analysis covers each of the years 1990, 1996 and 2002, thus making it possible to investigate changes over time. Between the first pairs of years the Swedish economy went into a deep recession, unemployment increased and labour force participation fell and medina income changed only little. In contrast between the second pair of year the economy recovered quickly and medina income increased rapidly. This means that the poverty line for 2002 defined as 60 percent of the contemporary median will represent a higher purchasing power than the poverty line for the two other years. In some of the computations we will consider this by updating the poverty line for 1990 by the Consumer Price Index, thus working with a povertyline that represent a constant purchasing power.

3. Describing child poverty at the neighbourhood level

In this section we describe results on child poverty rates at the neighbourhood level in Sweden's metropolitan areas. While there are earlier writings on child poverty at the national level, as well as on the municipality level, this is the first time this information on child povertyrates at the level of the neighbourhood as here defined are reported.[4] A first view is obtained in Figure 1 showing the distribution of neighbourhoods after childpoverty rates in 1990 and 2002. Most neighbourhoods have child poverty rates lower than 20 percent, but there are also a few with much higher child poverty rates. In the figure it is clearly visible that

[3] One example is older siblings living with the parents and in many cases studying. If the latter is the case needs are underestimated and there is a risk that we classify a household and the person under 18 wrongly as not poor. Another example is units we classify as single parent units, while in reality it can include also another adult person having income of substantial size. In such case there is a risk that we wrongly classify the child as poor.
[4] For entire Sweden see Ministry of Social Affairs (2004) and Gustafsson et al (2007) and for estimates on poverty at the municipality level based on a somewhat different definition of poverty see, Save the Children Sweden (2008).

the distribution has become more polarised across the two years, as the fraction of neighbourhoods with child poverty rates less than 10 percent has increased, as has the proportion of neighbourhoods with rather high poverty rates. This is also shown in Table 2 where it is shown that while for example half of the poor children lived in 20 percent of the neighbourhoods in 1990, the corresponding number in 2002 was 15 percent The process of increased spatial concentration of child poverty took place during both sub-periods.

/Figure 1 about here/

/Table 2 about here/

For some purposes it can be useful to classify neighbourhoods in a small number of categories based on their child poverty rates. Where to put the borders between such categories and how many to work with is arbitrary. Following practice in several US studies on poverty at the neighbourhood level (see for example Jargowsky, 1996) we define a neighbourhood with a child poverty rate of at least 40 percent as a "poor neighbourhood". Pay attention to that our definition of poverty at the household level is not comparable with the one used in the United States. The official poverty line for the United States is when related to the median income relatively close to 40 percent, not to 60 percent which is how our poverty line for Sweden is defined. We do not claim that poor neighbourhoods in Sweden's metropolitan areas to have a living standard that is equally much worse off to the main stream of the society as their counterparts in the United States.

In our data for 1990 there are 10 neighbourhoods with a proportion poor children large enough to be qualified for the label "poor neighbourhood". The number had increased to 34 in 2002, thus an increase to 340 percent. The data shows that while there was only one neighbourhood with a child poverty rate over 50 percent in 1990, the number had increased to 18 in 2002. In 2002 Södra Rosengård, in the Malmö region had the highest child poverty rate, 78 percent (up from 44 percent in 1990), followed by Fittja in the Stockholm region (67 percent in 2002, up from 52 percent in 1990) and Norra Biskopsgården in the Gothenburg region (62 percent in 2002). In case we define neighbourhoods with a poverty rate of higher than 20 percent, but lower than 40 percent, as "almost poor", there were 84 such neighbourhoods in 1990, and the number had decreased by five in 2002.

/Table 3 about here/

While our results indicate a remarkable rapid increase in the number of poor neighbourhoods, and subsequent the number of inhabitants, one should not forget that most poor children in the three metropolitan areas do not live in the poor neighbourhoods. Table 3 indicates that in 2002 slightly less than one out of three poor children in the three metropolitan areas lived in a poor neighbourhood. True, this is an increase from not more than one out of ten in 1990, but still the numerous neighbourhoods with low poverty rates contributes with a larger number of poor children.

/Figure 2 about here/

Comparing child poverty rate in particular neighbourhoods considerable mobility across years is observed. This becomes visible in Figure 2 where we have for each neighbourhood plotted child poverty rates in 1990 and in 2002. It becomes clear that there has been a rather large

mobility among neighbourhoods that in 1990 were classified as almost poor; a relatively large fraction has become poor, others have experienced substantial drops in child poverty rates, while for a third category changes across year are small. The figure also shows that among initially poor neighbourhoods a reduction in the child poverty rate was a rather unusual event.

In order to study the relation between ethnicity and child poverty at the neighbourhood level we have used one out of several possible classifications. It is based on the rate between the number of visible foreign-born (of all ages) and the number of native born (of all ages). In the Swedish context is it generally perceived that various forms of discrimination and social exclusion are social problems for some, but not for all foreign-born. People from distant countries with a low or medium-high GDP easy to recognise by colour of the skin or name are unfavourably treated in many cases. Many such immigrants have entered Sweden as refugees or family members to such persons and often they have only a short history of living at the destination. In contrast, people from closely located countries with a high GDP that are visibly difficult to recognise from natives by colour of skin or by name are often treated similar to natives. Such migrants have in many cases arrived as economic immigrants, many have lived at the destination for many years and are well integrated in the Swedish society.

A more detailed description of the classification is the following: For each of the three large city regions is the average rate of visible foreignborn to native born computed and put equal to 1.0, and for each neighbourhood is the corresponding ratio computed.[5] In this definition does the number of non visible foreign-born persons in a particular neighbourhood not affect the ethnic classification of a neighbourhood. Based on the value for this variable is the neighbourhood classified into one out of eight different categories. There are three categories of neighbourhoods with varying degree of homogenous native-born population (values less than 0.25, 0.25 – 0.49, 0.50 – 0.79), two categories of integrated neighbourhoods (values 0.80 – 1.24, 1.25 – 1.99) and three categories with a concentration of visible foreign-born (2.0 – 3.99, 4.00 – 9.99, 10 and higher).

We cross this classification of clusters of neighbourhoods with the classification of neighbourhoods by poor, almost poor and non poor, and show the results in Figure 3. A very clear pattern is observed. Neighbourhoods with a predominant majority population have low child poverty rates, neighbourhoods with a large fraction visible minorities are without exceptions classified as almost poor neighbourhoods or poor neighbourhoods. In the category with the highest fraction visible minorities are actually all neighbourhoods classified as poor in 1996 as well as in 2002.

/Figure 3 about here /

/Figure 4/

[5] See Biterman and Franzén (2007) for the exact definition. It is to some extent arbitrary where the dividing line between visible foreign-born and other foreign-born should be put. Here people born in for example Hungary, Russia and Rumania are (together with those from for example Finland, Norway, Germany and United States) considered as not visible foreign-born. This in contrast to persons born in for example Yugoslavia (and its successor countries), Bulgaria, Greece, Spain and Italy who are considered as visible foreign born (together with people from Africa, Africa and Latin America).

Up to now we have worked with a poverty line that across the years moves as the medina income for all persons in entire Sweden. The median in 2002 is considerably higher than the one observed in 1990, and the purchasing power of the poverty line used up to now has thus increased. Will we show a similar picture of child poverty at the neighbourhood level if we keep the purchasing power of the poverty line from the base year, or not? The answer to this question is found in Figure 4 where we show poverty rates computed using various assumptions for clusters of neighbourhoods with different ethnic composition in 1990 and in 2002. Here we se that povertyrates in clusters with the highest concentration of majority population are the lowest, and actually went down across the years. Turning to clusters with a large fraction of visible minorities there are not only larger proportion children under the contemporary poverty line in 2002 compared to 1990, but actually a larger fraction under a poverty line representing the same purchasing power as the poverty line of 1990. The figure also show the proportion children falling under a poverty line set to 40 percent of the median in 1990 and 2002, the very poor. We see that actually around one out of ten children living in neighbourhoods with a large fraction visible minorities were very poor in 1990, and that in 2002 the proportion had more than doubled in the cluster with the highest fraction visible minorities. Poverty has thus become more sever in the neighbourhoods with a high concentration of visible minorities.

Parents in poor, almost poor and non poor neighbourhoods differ in many aspects. This becomes visible when inspecting descriptive statistics (not shown in this version of the paper). For example in poor neighbourhoods did the proportion parents born in middle or low income countries increase from about half to two thirds, and only one third alternatively one in four were born in Sweden. In contrast variables indicating single parenthood or age at parent's child birth show less of variation across the three categories. Not surprising parents in poor neighbourhoods have shorter education and have weak labour market attachment than parents living in non poor neighbourhoods. While labour market attachment actually increased in non poor neighbourhoods, the development is in the opposite direction in poor neighbourhoods. More remarkably, the level of parental education increased across years in all categories of neighbourhoods.

/Table 4 about here/

We round off this section by reporting results from a first regression analysis for year 2002 in which we for 2002 have related the child poverty rate in the neighbourhood to some variables measuring average parental characteristics in the neighbourhood. We find that in this specification can a surprisingly high proportion of the variation in child poverty rates bee explained as the R^2 is as high as 0.92. The negative coefficients for some dummy variables measuring high parental education are rather high for example. Further comments will wait until we have experimented with alternative specifications.

4. Social assistance and child poverty in the neighbourhood

In the section we investigate the child poverty reducing effects of social assistance. Social assistance is the last safety net of the Swedish welfare state. To receive social assistance a

person has to apply at the social welfare office where an investigation is conducted in order to determine if the household is entitled. An important part of the investigation is the means test which relates to monthly income. A simplified description this is that applicants that have income lower than the appropriate thresholds for the household, and who can not find means to support itself by for example by accepting a job offer, drawing on bank account or selling it's car do not qualify for social assistance. The thresholds used at the social welfare offices were during our latest year of investigation, but not for the former, the same all over the country, and are yearly decided by the government. The threshold covers most expenditure needs, with housing expenditures as the main exception.

Social assistance can be a well targeted measure to combat child poverty. However, it is not a perfect measure to combat poverty as take up rates is lower than 100 percent. For example it is generally perceived that many households that qualify for social assistance do not apply and non use is substantial.(Gustafsson, 2002) When assessing the poverty reducing effect of social assistance, there is also the time dimension to consider. Social assistance is granted on the basis of monthly income, but here we assess poverty based on yearly income. If a household has a fairly low income during all of the year but applies / receives social assistance for only some months, this will make poverty measured on a yearly basis less severe, but will not make the household cross the poverty line.

Social assistance programs typically have many goals and can therefore be evaluated according to various criterions. There is in Sweden a common understanding on that one of the central goals for social assistance is to combating child poverty. However, we are not aware of any previous attempt to investigate how social assistance affects child poverty. This might partly be due to the way in child poverty has been conceptualised and measured in previous studies. For example in the measurement of child poverty made by Save the Children Sweden (2008), households with a disposable income lower than a predetermined poverty line or that have received social assistance at least once during the year under measurement are deemed as poor. Such a definition of child poverty does not easily invite to studies of how social assistance reduce child poverty.

When assessing the poverty reducing effects of social assistance we apply a simple accounting framework. For each household we recalculate its disposable income with a variable that subtract the amount of social assistance received by the household during the same year. Keeping the poverty line as previously defined we arrive at a variable "child poverty before social assistance". Comparing poverty rates computed before considering social assistance receipt with the observed poverty rate we arrive at a measure of how social assistance affects child poverty. This measure should bee seen as a first approximation, "the night after effects". Such calculations do not consider the possibility that receipt of social assistance can affect the behaviour of the household. For example, one can argue that in some cases the receipt of social assistance make an adult member less eager to search for a job or accept a wage offer received. In such cases is disposable income calculated before social assistance receipt not independent to social assistance receipt. However, to the extent the means testing at the social welfare offices is stringent, such cases are not numerous.

/Figure 5 about here/

Figure 5 shows that at the neighbourhood level there is on one hand a rather strong relation between child poverty rates as computed without considering receipt of social assistance, and those computed after considering this particular income source. However, although the

general tendency is the higher the child poverty rate before social assistance, the higher is the poverty reducing effect, there is also much of a difference in poverty reducing effect for neighbourhoods with the same level of pre-social assistance poverty.

Earlier studies have shown that rates of social assistance receipt in Sweden are rather sensitive to the aggregate unemployment rate. Statistics from the National Board of Welfare shows that in 1990 did 5.7 percent of the population in Sweden as a whole live in a household that received social assistance at least once in 1990, the rate had increased to 8.2 percent in 1996, but moved back to 4.9 percent in 2002. We will here concentrate on possible trends in the child poverty reducing effect of social assistance and have chosen to report results for the first and last years available in the data. When comparing the poverty reducing effects those years we should be aware of that there are evidence of the provision having been less generous (or differently phrased more stringent) during the period here studied. Such conclusions comes from an empirical study asking social workers and others administering social assistance to make hypothetical decisions based on vignettes (Strantz, 2007).

/ Figure 6 about here/

Figure 6 shows the child poverty reducing effect 1990 and 2002 for clusters of neighbourhoods with different ethnic composition. Two measures are shown for each year: The percentage children taken out of poverty as evaluated by a poverty line put at 40 percent of the contemporary median (deep poverty) and a poverty lien put at 60 percent of the contemporary median. We draw several conclusions from the figure. First, social assistance has a rather small child reducing effects in clusters dominated by the majority. Second, the larger the fraction visible minorities in the cluster, the larger are the child poverty reducing effects. Third, there is a tendency that a higher proportion children taken out from deep poverty by social assistance than the proportion children crossing the poverty line. Finally, the poverty reducing effect is hardly larger in 2002 than in 1990. Actually in the cluster with the largest concentration of visible minorities, the poverty reducing effect of social assistance is actually smaller in 2002 than in 1990.

5. Studying consequences of growing up in a particular neighbourhood

How are people growing up in various neighbourhoods doing in adult life? Are differences in adult characteristics due to parental characteristics only, or can the neighbourhood bee shown to affect the development, effects that are independent on parental characteristics? We will make a first effort to study this with our data, being aware of that much research work is ahead of us. We study individuals who were 10 to 12 year of age in 1990 and at that time lived the three metropolitan regions of Sweden. We follow up the same individuals in 2002, only with the exception of persons who have emigrated or died, independent of where in Sweden they resided. As we work with register data there is no attrition due non response. This gives us a total sample of 92 613 persons. The outcome variable we will study is not having finished secondary education when people were 22 to 24 years of age as registered by Statistics Sweden. The motivation for choosing this particular outcome variable is that it signals a high risk of being excluded from the labour market and from social life. [6] In Figure 7

[6] There are some measurement problems that might affect our results. The population register kept by Statistics Sweden builds on vital statistics. In case a person out-migrates without notifying the authorities he or she is

we show such defined rates of short education by neighbourhood in 1990. With an average of 19 percent, the rate varies from almost zero up to over one third.

/Figure 7 about here/

/Table 5 about here/

In a series of logistic regressions we first relate this outcome to clusters of neighbourhoods and characteristics of the neighbourhood as observed in 1990. Thereafter we bring in parental characteristics measuring education, labour market attachment and ethnic composition in 1990. Table 5 shows in Model 1 a rather clear relation between in which type of neighbourhood the young person grew up and having no secondary education as a young adult. With almost no exception do the odds ratio increases with the proportion visible minorities in the neighbourhood. The risk of not having finished secondary school is as much as three and a half times as high if growing up in a neighbourhood with a high fraction of visible minorities. However, the estimates for model 2 shows that when we bring in variables measured at the neighbourhood level are the coefficients for variables indicating ethnic composition not significant and instead do variables that measure characteristics of the neighbourhood significant. Such variables measure for example parental education, poverty status of the neighbourhood, proportion single parents.

/Table 6 about here/

We now shift the interest to parental characteristics and models reported in Table 6. As expected parental education clearly affect the probability of not having finished secondary education and there are also clear effects of parental labour market status as well as single parent status. Rather interesting there are also many coefficients of parent country of birth that are statistically significant. With only one exception (Yugoslavia) do they indicate that parental immigrant status increases the probability of not having finished secondary education. The highest are for a background in not surprisingly Somalia but more unexpected also in the category of the neighbouring countries of Norway, Denmark and Iceland. When adding variables measured at the neighbourhood level in Model 2 there are not much of changes in the coefficients for the household level variables. Among neighbourhood level variables a minority are found to have coefficients that are statistically significant. In the next steps of the research process we will look further into this aspect by various sensitivity analyses in order to find out which aspects of a neighbourhood that seems to matter.

6. Conclusions

This paper has exploited a rich database on neighbourhoods in three metropolitan regions of Sweden. We have focused on child poverty defined from information on disposable income for all families with children living in 501 neighbourhoods 1990, 1996 and 2002. During this period when the immigrant population grew and residential segregation became much more of a hot topic in the Swedish policy debate and in policymaking.

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wrongly recorded as residing in Sweden. Further, information on education refers to formal education received in Sweden and do not necessary cover formal education received in another country.

We show clear indications of an increased residential segregation when studying child poverty rates. The number of neighbourhoods with child poverty rates lower than 10 percent increased. Starting from a low base the number of neighbourhoods with child poverty rates of at least 40 percent was many times larger in 2002 than in 1990. However, although there is a clear tendency for child poverty to become more spatially concentrated, still in 2002 most poor children in the three metropolitan areas actually live outside poor neighbourhoods. We showed that there is a very strong relation between ethnic composition and poverty status at the neighbourhood level. All neighbourhoods with high fraction visible minorities are poor neighbourhoods in 1996 as well as in 2002. A rather high proportion of the variation in child poverty rates across neighbourhoods can be explained by a small number of variables measuring average parental characteristics at the neighbourhood level.

Turing to the second research question, we find that the poverty reducing effect of social assistance is rather unimportant in neighbourhoods dominated by natives, larger the larger is the fraction visible minorities in the neighbourhood. Social assistance reduces deep child poverty substantially, but does not make as many children cross the poverty line. In neighbourhoods with high fraction visible minorities was the poverty reducing effect of social assistance smaller in 2002 than in 1990, which might be due to less generous provision.

We also report that the probability of not having completed secondary school is much higher for young adults that grew up in neighbourhoods with many visible minorities than for those originating from neighbourhoods with a predominant majority population. Results from the preliminary analyse indicate that much of this is due to parental characteristics including ethnicity. However, there are also some signs of characteristics at the neighbourhood influencing also being of importance. To develop such analyses seems to be a rather natural next step in the research process.

References

Anderson, R. (2006) "'Breaking Segregation' – Rhetorical Construction or Effective Policy? The Case of the Metropolitan Development Initiative in Sweden", Urban Studies, 43, no 4, 787 – 799.

Atkinson, A., Cantillon, B., Marlier, E. and Nolan, B. (2002) Social Inidcators. The EU and Social Inclusion, Oxford: Oxford University Press.

Biterman, D. and Franzén, E. (2007) Residential segregation (Chapter 6)" in (Social report 2006. The National Report on Social Conditions in Sweden) International Journal of Social Welfare, Vol. 16, July Supplement 2007

Biterman, D. Gustafsson, B. and Österberg, T (2008) Economic and Ethnic Polarisation among Children in Sweden's Three Metropolitan Areas", Schmollers Jahrbuch. Journal of Applied Social Science Studies, 128, 121 – 152.

Gustafsson, B. (2002) "Assessing Non-Use of Social Assistance", European Journal of Social Work, 5, 149 – 158.

Gustafsson, B., Zaidi, A. and Franzén, E. (2007) "Financial Poverty", International Journal of Social Welfare, 16, Supplement 1 (Social Report 2006. The National Report on Social Conditions in Sweden) 67 – 90..

Jargowsky, P.A. (1997) Poverty and Place. Ghettos, Barrios and the American City, New York: Russell Sage.

Save the Children Sweden (2008) Barnfattigdom i Sverige 2007. Årsrapport. Stockholm

Ministry of Finance (1998). *Utveckling och rättvisa – en politik för storstaden på 2000-talet* [Development and justice: A policy for metropolitan areas in the 21st century]. Prop 1997/98:165

Ministry of Social Affairs (2004) Ekonomiskt utsatta barn, Stockholm Ds 2004:41.

Stranz, H. (2007) Utrymme för variation: Om prövning av socialbidrag, Stockholm: Stockholms Universitet: Socialhögskolan / Institutionen för socialt arbete

Table 1
Definition of the three large city regions, number of neighbourhoods, population size and country of origin composition.

Region	Stockholm	Göteborg	Malmö
Municipalities	Stockholm, Solna, Sundbyberg, Danderyd, Ekerö, Järfälla, Lidingö, Sigtuna, Sollentuna, Täby, Upplands-Bro, Upplands Väsby, Vallentuna, Österåker, Botkyrka, Haninge, Huddinge, Nacka, Salem, Turesö, Värmdö, Norrtälje, Nynäshamn and Södertälje	Göteborg, Kungälv, Ale, Lerum, Partille, Härryda, Mölndal and Kungsbacka	Malmö, Burlöv, Kävlinge, Lomma, Lund, Staffanstorp, Svedala, Vellinge and Trelleborg.
Number of neighbourhoods	337	205	154
Urban neighbourhoods with a population larger than 500 persons	271	138	92
Total population as of 2002	1 0830 600	769 900	528 300
Foreign born population as of 2002	324 400	116 400	90 700
Foreign born population 2002 as percent of the total population in the region	18	15	17

Table 2
Concentration of neighbourhood child poverty.
The proportion of all neighbourhoods in which given proportion of poor children live 1990, 1996 and 2002

	1990	**1996**	**2002**
50%	20%	17%	15%
75%	43%	40%	38%
90%	66%	63%	62%

Note: A child is defined if the disposable equivalent income in the household is less than 60 percent of contemporary disposable median income.

Table 3
Number of children that are poor 1990 and 2002 in neighbourhoods that are classifies as not poor, almost poor and poor.

	0-19,9 poor in neighbourhood	20-39,9% poor in neighbourhood	> 40% poor in neighbourhood	Summa
1990				
Number of poor children	54669	26487	9169	90325
Number of children	504951	101887	20265	627103
2002				
Number of poor children	55757	27729	37383	120869
Number of children	499 791	104979	68830	673 600

Note: A child is defined if the disposable equivalent income in the household is less than 60 percent of contemporary disposable median income.

Table 4
Determinants of child poverty rates at the neighbourhood level 2002. Ordinary least squares regression.

	B	Std. Error	Sig.
(Constant)	,525	,130	,000
Mean mother's age when child is born	,006	,003	,050
Mean age of child	-,013	,002	,000
Reference: fraction of children with Swedish born parents			
Fraction of children with parents born in non rich countries	,391	,018	,000
Fraction of children with parents born in rich countries	-,167	,079	,034
Reference: fraction of household where both parents have compulsory education			
Fraction with one parent compuslory education	-,026	,129	,840
Fraction with one or both parents secondary education	-,628	,100	,000
Fraction with at least one parent short university education	-,600	,103	,000
Fraction with one parent long unviersity education	-,377	,108	,001
Fraction with both parents long university educaiton	-,568	,109	,000
Larger- Stockholm	-,039	,004	,000
Larger – Gothenburg	-,030	,004	,000
Fraction single parents	-,104	,019	,000

Adjusted R^2=0,915

Table 5.
Association between characteristics at the neighbourhood level and not having completed secondary school.

	Model 1			Model 2		
	Estimate	**Pr**	**OR**	**Estimate**	**Pr**	**OR**
Intercept	**-1,825**	<,0001		**-3,135**	<,0001	
Refernce: ethnictype 1						
ETNTYP2_1990	-0,036	0,200	0,965	-0,037	0,251	0,964
ETNTYP3_1990	**0,364**	<,0001	1,438	0,063	0,082	1,065
ETNTYP4_1990	**0,434**	<,0001	1,543	0,040	0,338	1,041
ETNTYP5_1990	**0,657**	<,0001	1,928	0,078	0,081	1,081
ETNTYP6_1990	**0,791**	<,0001	2,207	0,055	0,302	1,057
ETNTYP7_1990	**1,016**	<,0001	2,763	0,079	0,292	1,083
ETNTYP8_1990	**1,272**	<,0001	3,568	0,181	0,085	1,198
Percentage in neighbourhood:						
Reference both parents long university education						
Both parents compulsory education				**0,020**	<,0001	1,020
One parent compulsory education				**0,012**	0,006	1,012
Both parents secondary education				**0,017**	<,0001	1,017
One or two parents short university education				**0,011**	0,009	1,011
One parent long university education				0,009	0,137	1,009
Poor				**0,013**	<,0001	1,013
Single				**0,024**	<,0001	1,024
Reference both parents strong labour market attchment						
One parent strong labour market attachment				**-0,008**	<,0001	0,992
Both parents low labour market attchent				-0,001	0,829	0,999
None of the parents have working income				-0,003	0,594	0,997

Note: Logistic regression with the dependent variable: Not finished secondary education in 2002. All independent variables measured in 1990. Individuals 22-24 years old in 2002 and 10-12 years in 1990.

Table 6
Association between characteristics at the household level, the neighborhood level and not having completed secondary school.

	Model 1			Model 2		
	Estimate	Pr	OR	Estimate	Pr	OR
Intercept	**-2,903**	<,0001		**-3,394**	<,0001	
Individual Characteristics						
Man	**0,274**	<,0001	1,315	**0,280**	<,0001	1,323
Reference both parents long university education						
Both parents compulsory education	**1,359**	<,0001	3,892	**1,272**	<,0001	3,567
One parent compulsory education	**1,094**	<,0001	2,987	**1,026**	<,0001	2,791
Both parents secondary education	**0,827**	<,0001	2,287	**0,767**	<,0001	2,154
One or two parents short university education	**0,497**	<,0001	1,644	**0,460**	<,0001	1,584
One parent long university education	**0,265**	<,0001	1,304	**0,249**	<,0001	1,283
Poor	**0,145**	<,0001	1,156	**0,127**	<,0001	1,136
Single	**0,588**	<,0001	1,801	**0,498**	<,0001	1,645
Reference both parents strong labour market attchment						
One parent strong labour market attachment	**0,200**	<,0001	1,222	**0,220**	<,0001	1,246
Both parents low labour market attchent	**0,465**	<,0001	1,592	**0,469**	<,0001	1,598
None of the parents have working income	**0,799**	<,0001	2,223	**0,778**	<,0001	2,178
Reference parents born in Sweden						
Parents born in:						
Finland	**0,558**	<,0001	1,746	**0,437**	<,0001	1,548
Other Nordic countries	**1,115**	<,0001	3,051	**1,074**	<,0001	2,926
Yugoslavia	**-0,120**	0,029	0,887	**-0,323**	<,0001	0,724
Greece	**0,757**	<,0001	2,133	**0,507**	<,0001	1,661
Turkey	**0,393**	<,0001	1,482	**0,135**	0,020	1,144
Iraq	**0,354**	0,000	1,425	0,122	0,204	1,130
Iran	-0,087	0,228	0,917	**-0,244**	0,001	0,783
Chile	**0,602**	<,0001	1,825	**0,402**	<,0001	1,495
Somalia	**1,104**	<,0001	3,016	**0,845**	<,0001	2,327
Poland	**0,166**	0,039	1,180	0,025	0,758	1,025
Other Western countries	**0,801**	<,0001	2,227	**0,788**	<,0001	2,198
Other Eastern Europé	0,067	0,429	1,070	-0,076	0,377	0,927
Other Southern Europé	**0,484**	0,010	1,623	0,322	0,088	1,380
Other middel East	0,040	0,586	1,041	**-0,204**	0,007	0,816
North Africa	-0,019	0,912	0,981	-0,226	0,186	0,798
Other africa	**0,499**	<,0001	1,646	**0,265**	0,002	1,303
Central Asia	-0,100	0,423	0,905	**-0,322**	0,010	0,725
Far East	0,168	0,081	1,183	0,009	0,924	1,009
Sout America	**0,633**	<,0001	1,883	**0,457**	<,0001	1,580
Mother Swedish born father foreign born	**0,182**	<,0001	1,993	**0,117**	0,001	1,125
Father Swedish born mother foreign born	**0,211**	<,0001	1,235	**0,173**	<,0001	1,189
Mother and father foreign born from different countries	**0,241**	<,0001	1,273	**0,093**	0,103	1,097
Neighbourhood characteristics						
ETNTYP2_1990				**-0,069**	0,034	0,934
ETNTYP3_1990				0,021	0,567	1,022
ETNTYP4_1990				-0,017	0,704	0,984
ETNTYP5_1990				-0,018	0,696	0,982
ETNTYP6_1990				-0,037	0,506	0,964
ETNTYP7_1990				-0,081	0,301	0,922
ETNTYP8_1990				-0,032	0,768	0,968
Reference both parents long university education						
One parent compulsory education				0,009	0,066	1,009
Both parents secondary education				0,003	0,544	1,003

One or two parents short university education	**0,011**	0,006	1,011
One parent long university education	0,004	0,332	1,004
Poor	0,008	0,223	1,008
Single	**0,011**	0,001	1,011
Reference both parents strong labour market attchment			
One parent strong labour market attachment	**0,018**	<,0001	1,018
Both parents low labour market attchent	**-0,012**	<,0001	0,988
None of the parents have working income	-0,005	0,223	0,995
One parent compulsory education	-0,004	0,429	0,996

Note: Logistic regression with the dependent variable: Not finished secondary education in 2002. All independent variables measured in 1990. Individuals 22-24 years old in 2002 and 10-12 years in 1990.

Figure 1. Distribution of percentage poor in neighbourhoods (n=574) 1990 and 2002

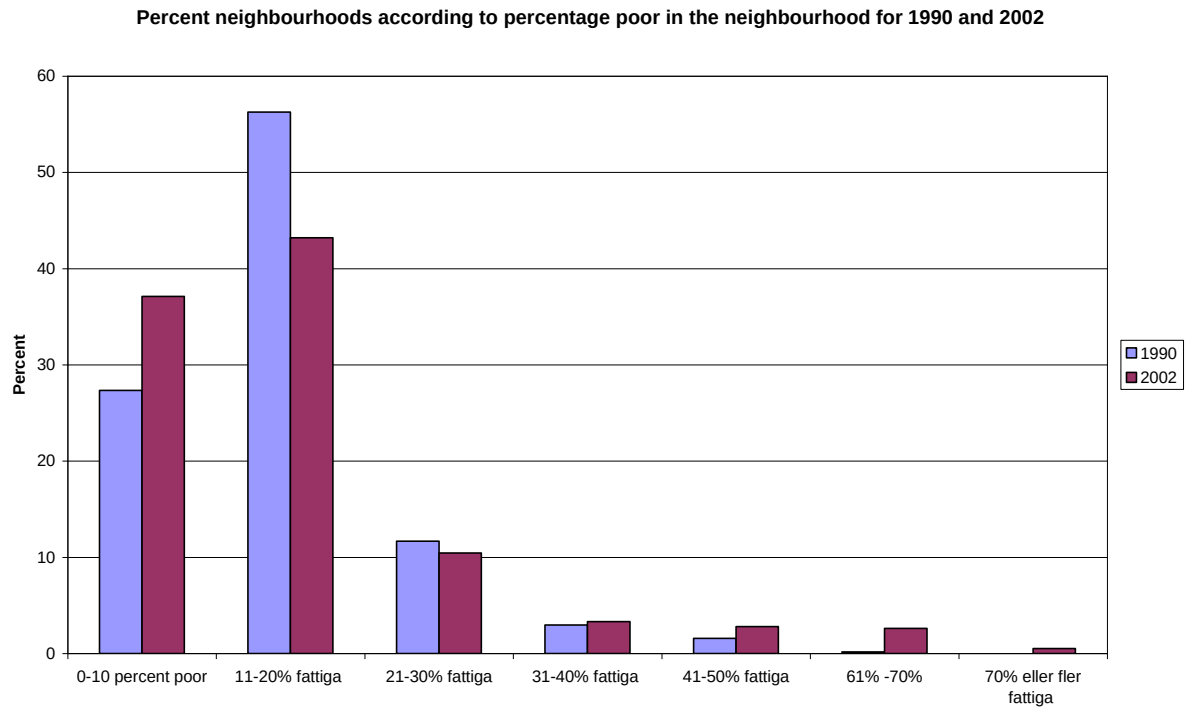


Figure 2.
Child poverty rates at neighbourhood level 1990 and 2002.

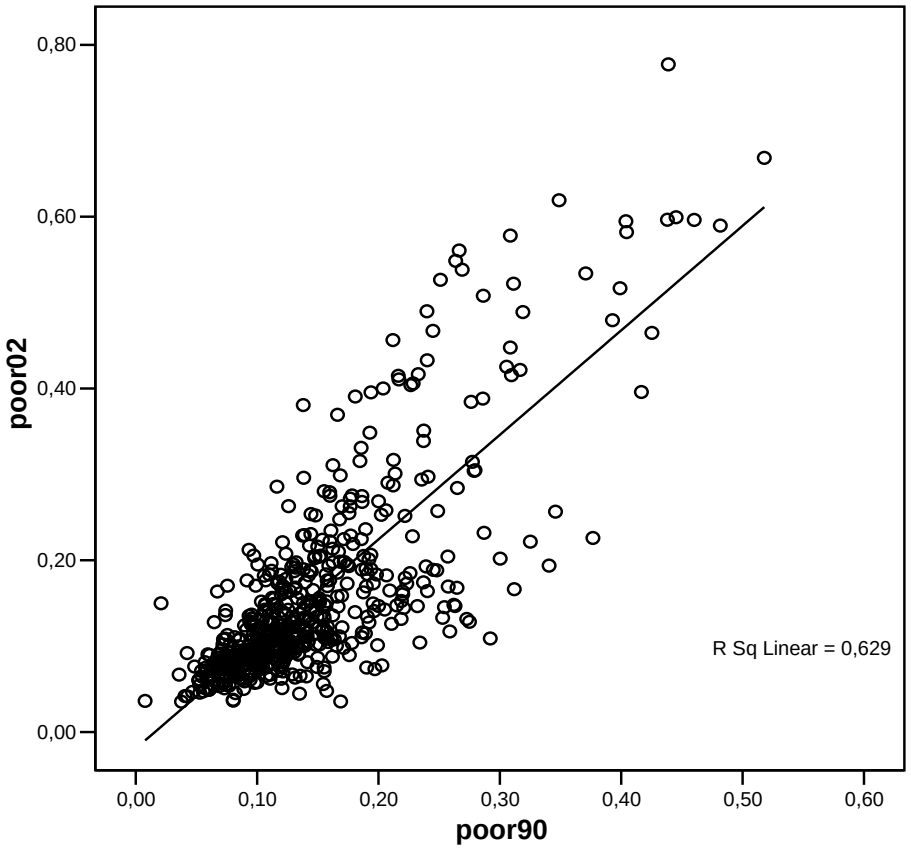
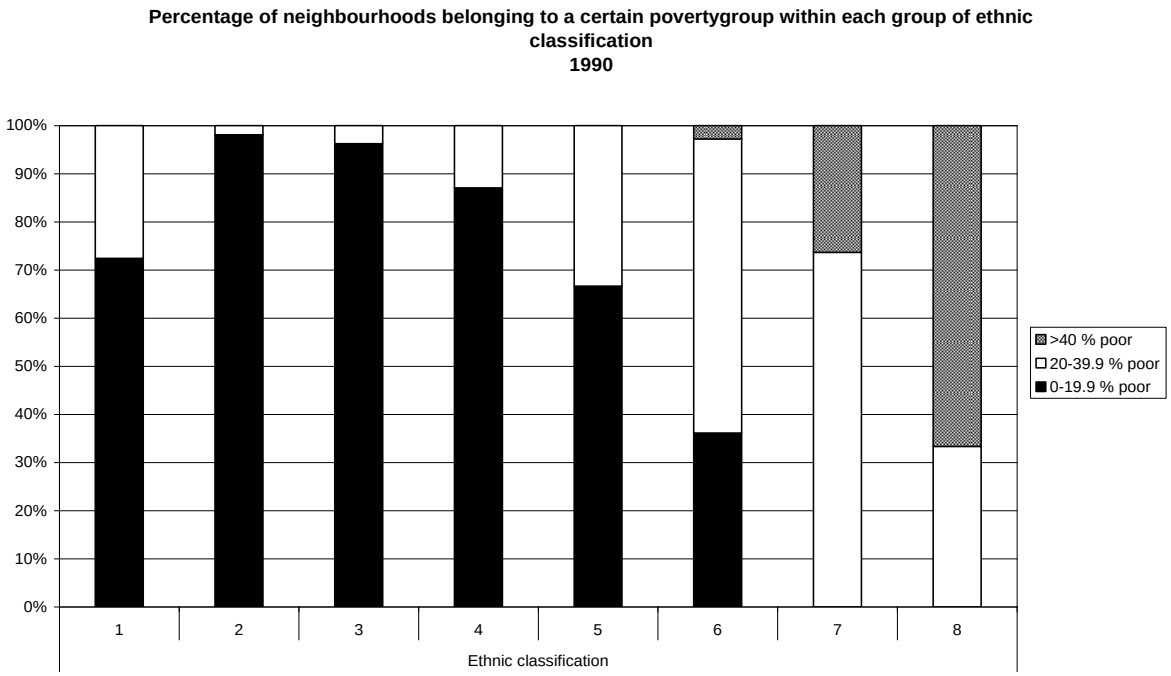
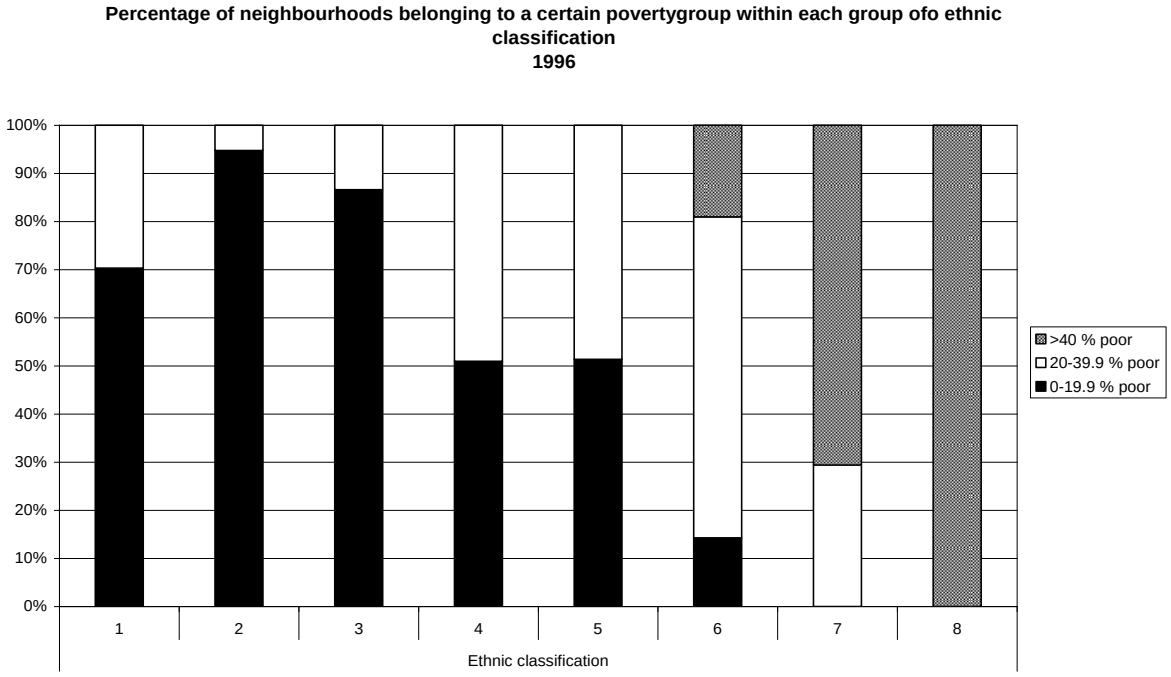


Figure 3
Neighbourhoods after classification of ethnicity and child poverty rates, 1990, 1996 and 2002





Percentage of neighbourhoods belonging to a certain povertygroup within each group of ethnic classification
2002

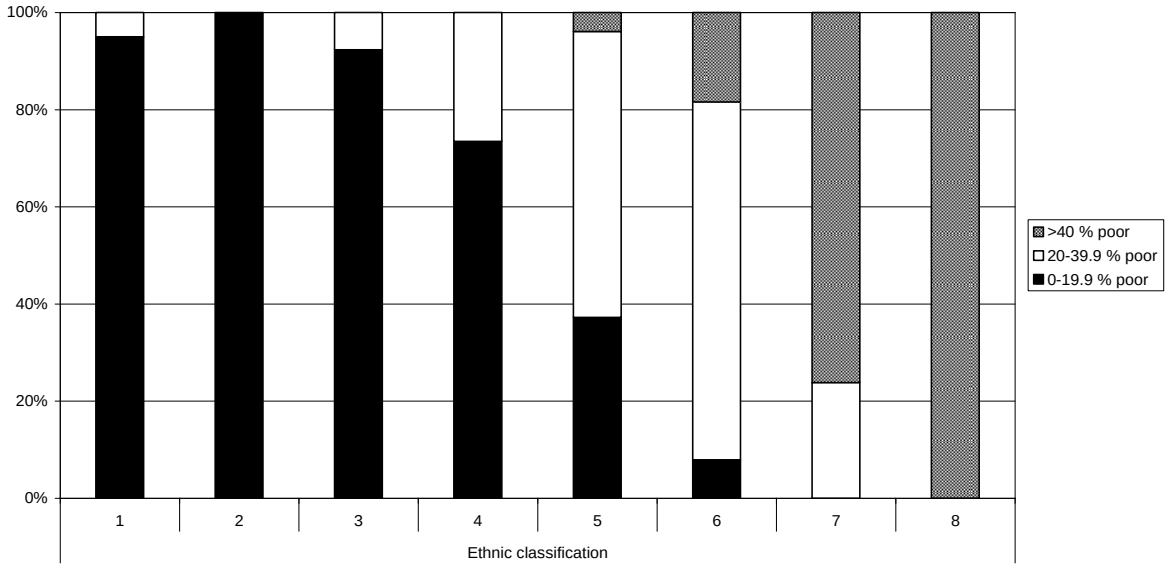


Figure 4
Poverty rates in clusters of neighbourhoods defined after ethnicity

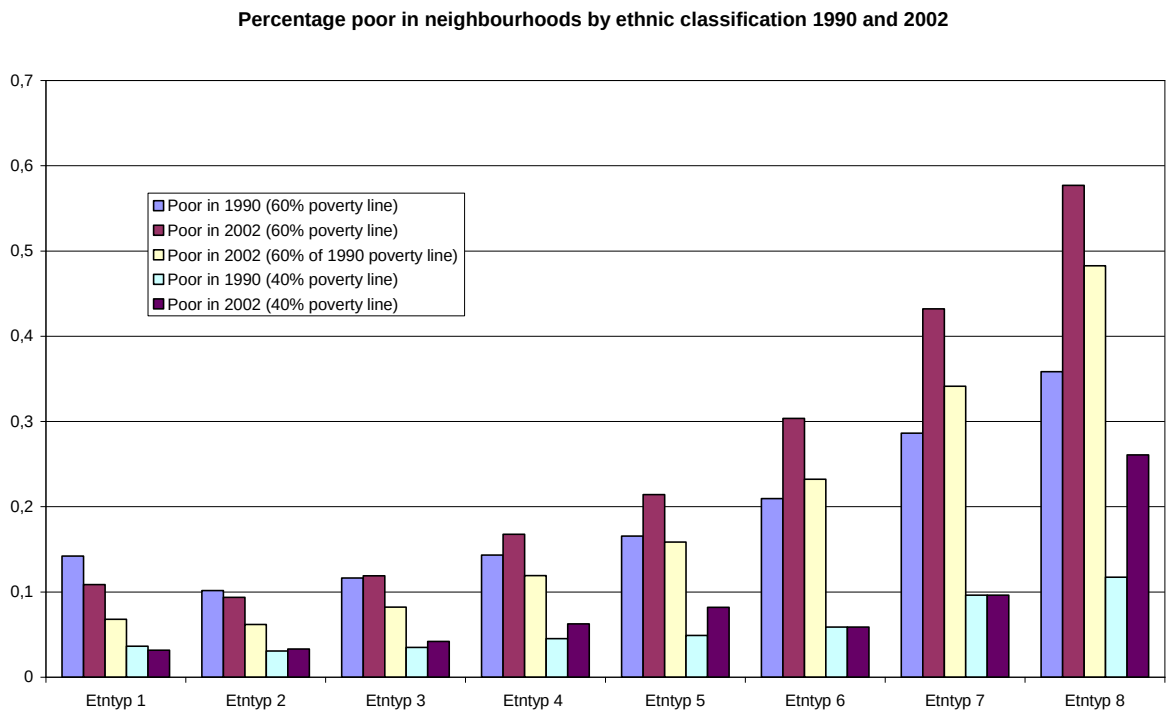
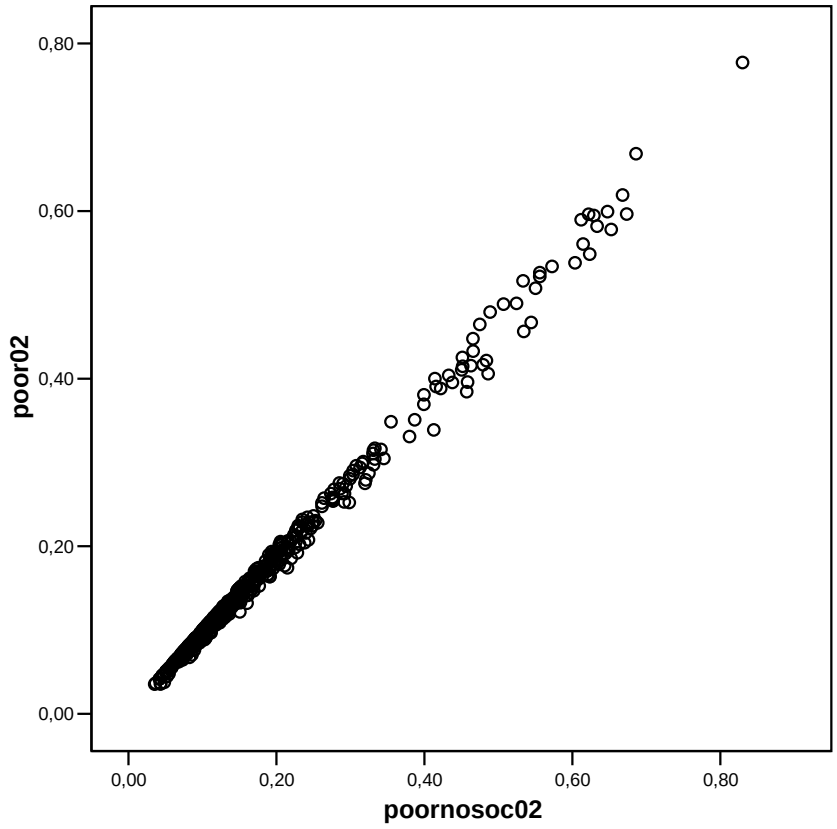


Figure 5
Child poverty reducing effect of social assistance on the neighbourhood level

a) The relation between pre and post social assistance child poverty rates



b) The relation between pre social assistance child poverty rates and poverty reducing effect.

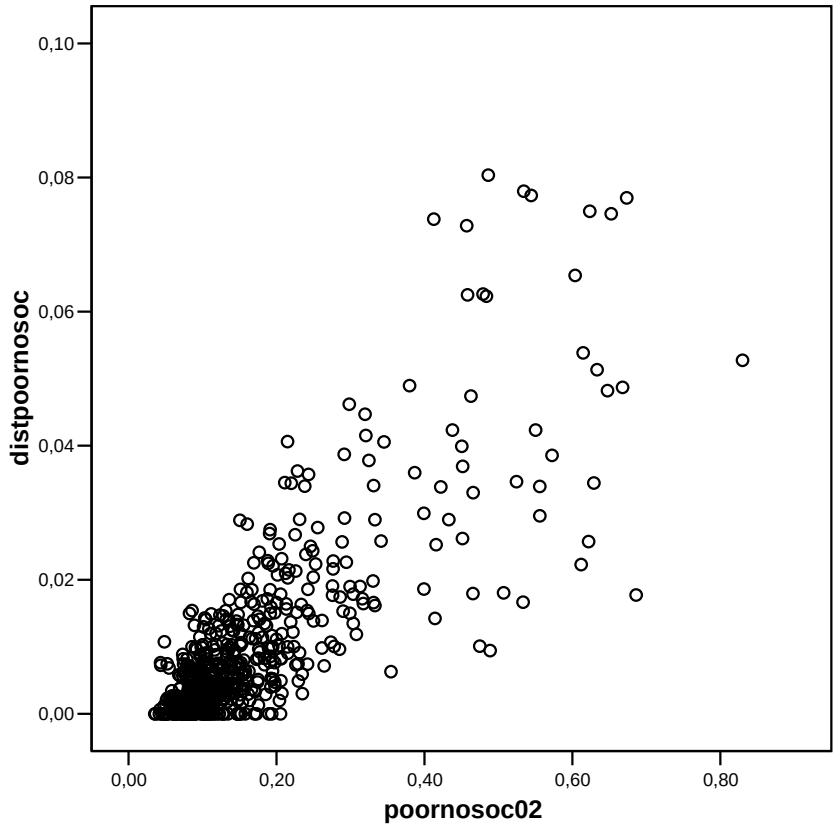


Figure 6 Social assistance reducing effects on child poverty in different clusters of neighbourhoods 1990 and 2002

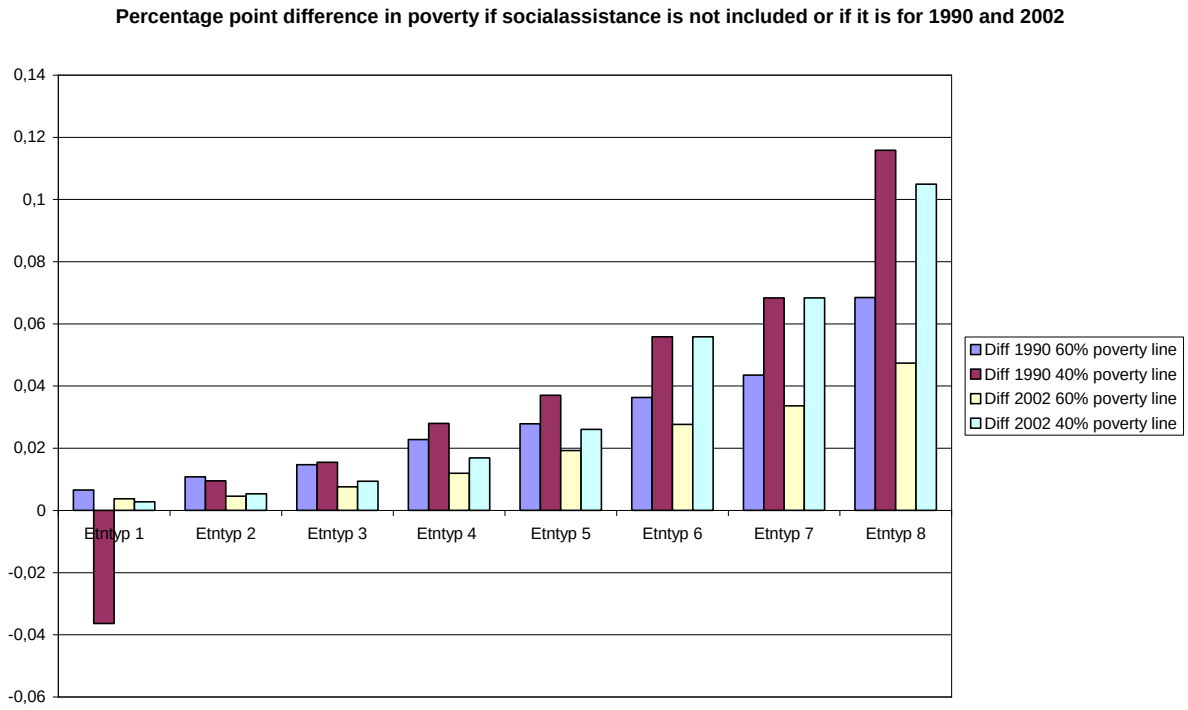


Figure 7 Rates of young adults not having completed secondary education by neighbourhoods.