Changes in Childhood Environments in Finland, 1987–2023: Family and Neighbourhood Inequalities

MDP in Inequalities, Interventions & New Welfare State
Department of Social Research
Faculty of Social Sciences
Master's thesis

Author:
Juho-Kusti Sivosavi

16.3.2026
Turku

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Title: Changes in Childhood Environments in Finland, 1987-2023: Family and Neighbourhood Inequalities
Supervisors: DSocSci Aleksi Karhula, Prof. Elina Kilpi-Jakonen
Number of pages: 40 pages + appendices 6 pages
Date: 16.3.2026

In this thesis we map out how the inequalities related to childhood environment have changed over the last four decades in Finland. The various changes that the society has faced potentially influence the inequalities in childhood environments. Most notably income inequality increased in the 1990s, socioeconomic neighbourhood segregation has increased dramatically in the 2000s, the urbanization process is still ongoing and total fertility rate has dropped in recent years. However, our understanding of how exactly these developments have influenced the distribution of where children grow up in form of childhood family's household income, parental education, neighbourhood income or the family composition is lacking. Further, the second interesting question is how strongly spatially concentrated different disadvantages are, and how this has changed over time. The thesis focuses on mapping these changes from 1987 to 2023, using high-quality Finnish register data. We find that the socio-spatial polarisation in childhood environments has increased especially in urban areas. Income differences between neighbourhoods have widened and single parenthood, low parental education, foreign background and unemployment have become increasingly concentrated in the lower income level neighbourhoods. Having a family member with at least tertiary education has become heavily connected with growing up in a higher income level neighbourhood. Additionally, the vast majority of children now grow in these polarised urban environments but are more strongly distributed into the higher-income families. This thesis links to the more general international discussions on whether changes in intergenerational mobility are associated with changed childhood environments or societal environment of the children once they have grown up.

Keywords: neighbourhood inequality, childhood environments, residential segregation.

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1 Introduction

Over the past four decades, the environments in which children grow up in Finland have experienced substantial changes. Finland has long been considered a society with relatively low levels of intergenerational inequalities and the role of family background in determining life course opportunities has been limited (Björklund et al., 2002; Grätz et al., 2021). Still, it has gone through various economic and demographic changes, that have reshaped the conditions in which children grow up, even in the relative stability of a Nordic welfare state. Income inequality began to increase rapidly in the 1990s, at the same time with a deep economic recession that characterized the whole decade (Vaattovaara & Kortteinen, 2003; Rintala et al., 2025). Since then, socioeconomic segregation between neighbourhoods has also increased, raising concerns about the spatial concentration of different advantages and disadvantages (Saikkonen et al., 2018; Bernelius & Vilkama, 2019; Rasinkangas et al., 2023; Rintala et al., 2025). More recently, declining fertility rates and growing migration flows have contributed to the changing composition of Finnish families and communities (Kauppinen & van Ham, 2019; Rönnberg et al., 2025). The ongoing urbanization process also shapes the environments in which children are born and grow up through internal and external migratory paths (Bernelius & Vilkama, 2019; Karhula et al., 2020). These changes raise many questions about how the resources and risk factors have affected children's immediate environments, their family and neighbourhood, and how these factors have evolved over time.

A large part of research concentrates on showing how the children's life course opportunities are influenced by the environments in which they grow up. Household resources, parental education, and family structure directly influence the material and social resources that are available to children, while neighbourhood characteristics have their own effect that might either reinforce or counteract the immediate family circumstances (Jencks & Mayer, 1990; Evans, 2004; Chetty & Hendren, 2018). Previous studies show that inequalities in these dimensions have widened in many advanced economies, with significant consequences for both children's life course opportunities and intergenerational mobility (Piketty, 2014; Musterd et al., 2017; Chetty & Hendren, 2018). Several previous studies demonstrate that, even in the Finnish context, childhood environments play a crucial role in shaping outcomes in

adulthood (Erola et al., 2016; Kilpi-Jakonen et al., 2016; Hiilamo et al., 2025). This thesis provides evidence on how inequalities in childhood family and neighbourhood environments themselves developed over time.

The thesis aims to map out how inequalities in Finnish childhood environments have developed from the late 1980s to the early 2020s. Specifically, the thesis examines the distribution of children across different family and neighbourhood contexts, focusing on household income, parental education, family composition, neighbourhood income, foreign background, and parental employment. The goal is to focus on how the advantages and disadvantages have evolved over the past four decades. The analysis addresses two central questions. First, how have the socio-spatial differences in children's living conditions evolved over time, and secondly, have the disadvantages become more spatially concentrated?

By investigating these questions, the thesis provides new evidence on the extent to which inequalities in children's environments have grown and whether they have become increasingly spatially structured. The thesis focuses especially on the neighbourhood differences and their development over time. This focus area is important given that we know their impact on reinforcing or counteracting the family level inequalities (Kauppinen, 2007; Tarkiainen et al., 2024). The novel contribution of this thesis is that we concentrate on the children themselves as the main unit of inspection, and this allows us to see specifically in which kind of families and neighbourhoods children grow up, and how the large societal changes have affected this distribution in Finland.

Beyond their national relevance, these questions contribute to a broader debate on inequality and intergenerational mobility. A major concern in this literature is whether declining mobility is linked to rising spatial inequalities in childhood environments, especially through growing neighbourhood segregation (Musterd et al., 2017; Chetty & Hendren, 2018). When families with fewer resources increasingly concentrate in some areas, while more advantaged families cluster in others, the role of neighbourhoods in shaping children's life-course opportunities becomes even more significant (Wilson, 1987; Sharkey & Faber, 2014). Although this process has been recognized in many advanced economies, the development of neighbourhood segregation in the context of the Nordic welfare state might be quite different. By

situating Finland in the centre of this discussion, the thesis provides insight into whether the welfare state has been able to address these socio-spatial inequalities, or whether it has failed to protect children from the increasing spatial concentration of disadvantages.

Empirically, his thesis provides a large scope mapping of changes in neighbourhood segregation from the point of view for childhood environments in Finland between 1987 and 2023, using Finnish register data. Furthermore, it advances understanding of how spatial inequalities in childhood develop in a Nordic welfare state context and how these trends relate to broader conversations about segregation, cumulative disadvantage, urbanization and intergenerational mobility. This kind of comprehensive mapping out of these changes has not yet been done before in the Nordic context.

In the next part we go through previous literature on the topic, part 3 introduces the data and methods of analysis and part 4 shows the results. Parts 5 and 6 are reserved for discussion and conclusion.

2 Previous Literature

2.1 Neighbourhood Effects and Contextual Mechanisms

There are various theories that can explain how, and through which characteristics, the physical socio-economic environment in which a child grows up, shapes future outcomes beyond their immediate family circumstances. Research on neighbourhood effects suggests that local social and physical environments shape children's socioeconomic outcomes even beyond family resources (e.g. Jencks & Mayer 1990; Chetty & Hendren 2018).

There are several mechanisms that can be behind the neighbourhood effect. One approach to this is the neighbourhood context, which together with other individual and family-level factors can influence the well-being of children (Wilson, 1987). The neighbourhood context theory suggests social isolation and social capital, which could be summarized as the geographic concentration of poverty limits linking networks and resources (Wilson, 1987; 1996; Putnam, 1995; Kintrea & Atkinson, 2001). Another mechanism that has been on the focus of researchers is the contagion or social control theory. The contagion model suggests that residents with low socioeconomic status influence other residents with their behavioural norms and that social control permits high-status adults and local peers to have social control over the other residents of the neighbourhood and act as role models for young people (Mayer & Jencks, 1989; Jencks & Mayer, 1990).

From a developmental perspective, the cumulative risk exposure of low-income children, who live in risky environments, neighbourhoods with weaker services and fewer cognitive enrichment opportunities, helps explain persistent gaps (Evans, 2004). Individuals from low-income childhoods are more likely to adopt faster, more present-oriented strategies, which can include earlier parenthood (Mittal & Griskevicius, 2014). This is consistent with the finding that one of the key risk-factors for child poverty is growing up in a household that is run by a single-parent (Gornick & Jäntti, 2012).

At the same time, neighbourhood effects are heterogeneous and depend on the context. Some evidence suggests that effects vary depending on the location, timing and duration of the exposure, as well as the definition of neighbourhood (Friedrichs

et al., 2003; Sharkey & Faber, 2014; Tammaru et al., 2016; Petrović et al., 2022). External factors and exogenous characteristics might also determine the neighbourhood effects (Andersson et al., 2007). As well as residential contexts, activity-space approaches show that self-perceived social status influences the extensiveness of daily spaces and experienced segregation (Järv et al., 2021). Research on networks in São Paulo also links poverty to smaller, more local personal networks (Marques, 2012). Family-level variables often mediate neighbourhood associations and both are needed to explain child outcomes (Minh et al., 2017). Compensation mechanisms complement this view, as other resources, such as extended kin and neighbours can partly compensate for lacking resources from the parents (Erola & Kilpi-Jakonen, 2017).

The type of disadvantaged environment to which a child is exposed also matters. Evans (2004) argues that childhood is a sensitive period during which exposure to cumulative risks, such as noise, crowding, low quality housing, violence and stress, can have long-term cognitive, emotional and health effects. Limited resources can also affect the possibility for intergenerational mobility (d'Addio, 2007). Large-scale studies from the United States link neighbourhood effects in childhood to intergenerational mobility and gender gaps (Chetty et al., 2016; Chetty & Hendren, 2015; 2018). Chetty and Hendren (2015) highlight the importance of neighbourhood effect by looking into the effect that moving to a higher-income neighbourhood has on the adulthood outcomes of the children who moved there during childhood. In sum, spatial segregation deepens the intergenerational transmission of disadvantage.

It is a crucial thing to understand how these disadvantages accumulate and evolve over time. Thomas Piketty (2014) argues that overall, wealth inequality in our society has increased over time. This can be linked to segregation dynamics, as rising income and wealth inequality is widely linked to stronger socio-spatial separation (Tammaru et al., 2016; Musterd et al., 2017). Recent evidence suggests that residential segregation dynamics are in some contexts more strongly associated with wealth than with income (San Millán et al., 2025). U.S. literature connects segregation to the concentration of poverty through multiple, overlapping segregations. Race, income within race, and segregation from higher-income groups all play their part in this process (Massey & Denton, 1993; Massey & Fischer, 2000;

Quillian, 2012). This suggests that inequalities on many levels are accumulating and leading to spatial segregation between communities.

Chen et al. (2012) document how neighbourhood income inequality in Canadian cities rose sharply from 1980 to 2005. During this period, richer neighbourhoods experienced rapid income growth while poorer ones stagnated. The authors propose rising family income inequality and increasing spatial sorting as likely causes for this divergence, rather than unemployment or reduced public transfers. Policy evaluations suggest that deconcentrating assisted housing modestly improves economic mixing for very low-income families, while high-income families might become even more segregated as the residential choices of non-assisted residents are also affected (Owens, 2015). Studies of ethnic segregation in England show systematic concentration of socio-economic disadvantages in segregated areas but not necessarily poorer access to schools or transport and highlight significant variation between cities (Catney et al., 2021; Patias et al., 2023). Overall, international evidence suggests that neighbourhood and family level disadvantages together shape the socio-economic outcomes for children growing up in different areas, although the neighbourhood effect is affected by various contextual factors. It can also be argued that the level of segregation is increasing across modern societies and that this development could be leading to stronger spatial accumulation of disadvantages.

2.2 Socio-Spatial Accumulation of Family and Neighbourhood Disadvantages

Previous literature suggests that neighbourhood effects are often limited and mediated through schools in the European and Nordic context (Kauppinen, 2007, 2008; Bernelius & Vilkama, 2019; Tarkiainen et al., 2023). Even if the extensive Nordic welfare state can mediate the risks related to different disadvantages, disadvantages still accumulate to certain parts of the population in the Nordic countries (Skifter Andersen et al., 2016; Rintala et al., 2025).

Finland provides an institutional setting of relatively low inequality and active social mixing policies in housing, yet several studies document gradual increases in segregation over the last three decades. Research on Helsinki suggests polarisation with concentrated disadvantage in eastern neighbourhoods despite efforts to provide mixed housing (Vaattovaara & Kortteinen, 2003). For 2005–2014, Finnish

metropolitan trends show no dramatic shifts overall but small increases in disparities by income and ethnic background and a stronger link between income and homeownership (Saikkonen et al., 2018; Kurvinen et al., 2025). In terms of mixing, especially income mixing seems to be an important factor in reducing inequalities (Andersson et al., 2007).

Evidence from European countries suggests that although the stronger welfare policies in European countries compared to the United States are limiting the impact of neighbourhood disadvantages, the environments where young people grow up still matter, especially in terms of educational outcomes (Andersson, 2004; Nieuwenhuis & Hooijmer, 2016; Skifter Andersen et al., 2016). Recent Norwegian research shows that neighbourhood disadvantage does not affect all students in the same way (Borgen & Zachrisson, 2025). Boys and children overall from less-educated families are more vulnerable, but these differences are smaller than those related to students' overall academic ability.

Schools seem to be crucial factors both as potential mechanisms of neighbourhood effects and as drivers of residential choice among families with children (Bernelius & Vaattovaara, 2016; Bernelius & Vilkama, 2019; Rönnberg et al., 2025). Ethnic segregation is stronger among households with children, and higher-income Finnish-origin families' mobility is sensitive to school catchment boundaries (Bernelius & Vilkama, 2019; Kauppinen et al., 2022). Register-based Finnish studies suggest that family and neighbourhood effects may not be equally significant. For students' GPA in major cities, most of the variance is attributable to families and schools (Tarkiainen et al., 2024). Even if the neighbourhood effect is limited, there are hints of small negative neighbourhood associations for adolescents from low-education parental backgrounds. Earlier evidence showed neighbourhood composition relates to secondary education choices, with non-linear effects of low-education concentration, and stronger predictive power for parental education and homeownership than income at the family level (Kauppinen, 2007).

Demographic dynamics analyses indicate intraregional migration of Finnish-origin households tends to increase ethnic segregation, while the migration of non-Western-origin households tends to decrease it (Kauppinen & van Ham, 2019). Furthermore, Vaalavuo et al., (2019) find that upward income mobility from low- to

high-income neighbourhoods is stronger for native-born Finns than for individuals with foreign background. The internal migratory patterns seem to provide pathways for more educated and higher-income-earning young adults to move from rural areas to urban areas (Bernelius & Vilkama, 2019; Karhula et al., 2020). Furthermore, Vaalavuo et al., (2019) find that upward income mobility from low- to high-income neighbourhoods is stronger for native-born Finns than for individuals with foreign background. The trend of ongoing urbanization is a crucial factor in shaping the accumulation of disadvantages, since migratory flows are one of the main drivers of segregation (Bailey et al., 2017).

There is also recent evidence that shows accumulating trends of disadvantages and widening gaps between groups in Finland (Härkönen et al., 2023; Hiilamo et al., 2025; Kurvinen et al., 2025). In an empirical report published by the Finnish Institute for Health and Welfare, Rintala et al. (2025) find that in Finland the accumulation of risks has become more common between 1987 and 2022. Additionally, the main characteristics of the accumulated disadvantages are the combination of unemployment, need of social assistance, low income and low education and insufficient income. They also find, that in the 2010s the four main risks' combined prevalence has risen strongly, and that men are more prone to the occurrence of these accumulated disadvantages, especially after 1995. They find no large regional differences and while they do not look at children specifically, their evidence suggests that low income has become an increasingly more pronounced factor regarding the four main disadvantages that are intertwined.

Hiilamo et al. (2025) show that childhood parental income is a more powerful predictor of adverse adult outcomes, such as death risk, low education and long-term unemployment, compared to school or postal code area income, among cohorts born 1981–1989. They also find that gaps between the bottom and top income deciles widened across cohorts, indicating rising within-country inequality. Their decomposition of parental, school, and postcode-level incomes connects directly to the neighbourhood and family levels in a similar way that is used in this study. Complementary Finnish demographic work provides evidence of a growing double disadvantage: the single-parent employment gap widened from 1987 to 2018 (Härkönen et al., 2023), consistent with the focus on family structure.

2.3 Research questions and hypotheses

The two main research questions of this study are: (1) How have the socio-spatial differences in children's living conditions evolved in Finland over the past decades and (2) have different disadvantages become more concentrated in low-income neighbourhoods over the same time period? To sum up, the previous literature suggests that the overall trend of inequality is rising, and that the mechanisms related to this process are layered to different levels, such as family and neighbourhood. There seems to be a strengthening of neighbourhood and family-level correlation, even if the neighbourhood effects are heterogeneous and mediated by welfare state policies. European and Nordic studies link modest but observable increases in socio-spatial segregation to rising income disparities, especially among families with children (Musterd et al., 2017; Saikkonen et al., 2018; Bernelius & Vilkama, 2019; Kauppinen et al., 2022). Based on this evidence we can form the hypothesis that the differences in childhood family environments are growing (H1).

While much of the variance in child outcomes is explained by family characteristics, but neighbourhood context still matters, especially regarding the timing and duration of the exposure to neighbourhood level advantages and disadvantages (Kauppinen, 2007; Sharkey & Faber, 2014; Chetty et al., 2016; Tarkiainen et al., 2024). Evidence for widening between-decile gaps in parental income (Hiilamo et al., 2025), tighter connection of income and homeownership (Saikkonen et al., 2018), and growing accumulation of risks (Rintala et al., 2025), all serve as evidence that there is an increasing alignment between family-level disadvantage and living in lower-income neighbourhoods. This leads us to form the hypothesis that the socio-spatial concentration of family level disadvantages is increasing, meaning that different kinds of disadvantages are accumulating on the same families and neighbourhoods (H2).

Contrasting theories suggest that definitions of neighbourhoods as a fixed living space might be too restrictive and this is something that has to be kept in mind when analysing the results of this study. Neighbourhood effects also depend on neighbourhood scale, exposure windows, and activity spaces (Järv et al., 2021; Petrović et al., 2022). However, in the Finnish context inequalities between children from different socio-economic backgrounds are growing, and the environments in which these children live are becoming more polarised. Over time, the concentration

of advantaged and disadvantaged families into different neighbourhoods implies that children’s opportunities are increasingly determined by the environment in which they grow up (Hiilamo et al., 2025; Rintala et al., 2025).

3 Data & Methods

In this study we use Finnish FOLK full population register datasets. The datasets are constructed, curated and maintained by Statistics Finland and the metadata are publicly available (*Data resources catalogue; Statistics Finland*). The FOLK dataset consists of combined register data that can be traced by using personal identification numbers. The data has been pseudonymised since researchers are not allowed to identify individuals. The FOLK datasets consist of several modules and in this study we use four different modules: the FOLK basic module for the years 1987–2023, consisting of data on age, family type, education, place of origin and gender; the FOLK family module, consisting of data on the number of children and linking the people who live in the same household to a family; the INFRA location data module consisting of data on the postal code area numbers; and lastly, the FOLK income module consisting of data on the individuals' income and income types. First, we calculate the family and neighbourhood income based on the whole population N=7,670,410. We then restrict the population to children aged under 18 in each calendar year 1987-2023, summing up to a total population n=3,351,364. This is done since the focus of the thesis is on the children's neighbourhood environments. The number of individuals in 1987 was 1,135,962 and 1,022,198 in 2023. The total number of families in the data is 2,347,417 . In 1987 the number of families was 643,211 and 550,183 in 2023.

Family characteristics are recorded for the child's family of residence in each year. Neighbourhood characteristics are recorded for the child's postal code area neighbourhood in each year. Neighbourhoods have been defined based on postal code areas also in the previous Finnish literature (e.g. Kauppinen & Van Ham, 2019; Vaalavuo et al., 2019). On the neighbourhood level we measure neighbourhood income measured by calculating annual median income by postal code area and rank neighbourhoods into ten deciles. Deciles are calculated for each year to reflect the evolving income distribution. We split the analysis by dividing the postal codes to urban and rural neighbourhoods to take into account the different ways in which segregation presents itself in these two areas (Kurvinen et al., 2025). In the second part of the analysis, we divide the neighbourhoods into low-income (the lowest quintile), mid-income (from the 2nd to the 4th quintile) and high-income

neighbourhoods (the highest quintile). Following the urban-rural distinction by the Finnish Environmental Institute, we consider inner urban, outer urban, and peri-urban areas as being urban and others as rural (Helminen et al., 2014). Urban population centres are defined by Statistics Finland as agglomerations with more than 15,000 inhabitants. Each agglomeration includes a central urban area that is further divided into inner and outer urban areas, and this central urban area is surrounded by a peri-urban area

Family-level variables include high and low parental education, unemployment, homeownership status, single-parenthood, foreign background and family income. Many studies find parental education to be a strong predictor of their children's socioeconomic outcomes (Erola et al., 2016; Hällsten et al., 2022). Highest educational attainment in the family links neighbourhood disadvantage to education (Andersson, 2004; Evans, 2004; Kauppinen 2007; Karhula & Sirniö, 2018; Tarkiainen et al., 2024). In this study education is calculated as the maximum education in family in a given year. Statistics Finland classifies education on nine levels. We pay special attention to low educated families, which are families where no family member has completed upper secondary education (level 3), and to families with high education, which we classify as families where at least one family member has completed at least some form of tertiary education (level 5). The third important variable is unemployment. A person is considered to be unemployed if they are aged 15-74 and are unemployed on the last working day of the year. Information on unemployment is obtained from the Ministry of Labour's jobseeker register, so even the child themselves can be unemployed. Both education and unemployment are disadvantages that have had a tendency to accumulate for the same people (e.g. Rintala et al., 2025).

Single parenthood describes family structure and is a core dimension of disadvantage (Evans, 2004; Chetty et al., 2016; Karhula & Sirniö, 2018; Härkönen et al., 2023; Rintala et al., 2025). Previous literature also suggests that the risk of growing up in a single parent led family is stronger for children of less educated parents, and that over time, this risk has grown (Kalmijn & Leopold, 2021). In this study we consider a family to be led by a single parent if the family type is registered either as having a father and children or a mother and children. Foreign background can also be seen as a factor connected to neighbourhood inequalities (Sampson,

2000; Quillian ,2012; Tammaru et al., 2016; Vaalavuo et al., 2019). We consider a family as having foreign background if one or more family members are of foreign origin, meaning that both their parents or the only known parent have been born abroad.

Low family income is a key component of accumulating risks in Finland and an important of adverse adult outcomes (Musterd et al., 2017; Hiilamo et al., 2025; Rintala et al., 2025). Net income is the sum of salary, capital income, income enterprises and transfers minus taxes and tax-deductible expenses. Negative income values were set to zero by Statistics Finland. To preserve privacy, Statistics Finland round income figures to hundreds of euros. The income is calculated for each family as equivalised income, in the same way as the LIS does (*LIS: Methodological notes*). The total income of the family is divided by the square root of the number of family members to account for the different needs that arise with a larger family. The income is also adjusted for inflation. We use the national Consumer Price Index in 2020 euros (Statistics Finland).

Homeownership captures housing tenure stratification and is used as a family-level variable in multiple studies (Vaattovaara & Kortteinen, 2003; Kauppinen, 2007; Karhula & Sirniö, 2018; Saikkonen et al., 2018). Statistics Finland considers a person as a homeowner if the homeowner owns the house or if the homeowner owns the housing shares. We consider a family as owning a house if one or more of the family members are registered as a homeowner. We leave homeownership out of the main analysis and present the results regarding it only in the appendix.

First, we map out the trends of different family level characteristics. This allows us to analyse how have the overall childhood living conditions and shares of children growing up in families with certain characteristics have changed over time. In the second part of the analysis, we calculate the shares of children's family level characteristics in low-, mid- and high-income neighbourhoods and map out these shares over time for both urban and rural areas. This provides us with a general picture of how the socio-spatial polarization of disadvantages has developed in relation to neighbourhood income levels. Finally, we move on to construct figures that show the yearly distribution of children's family level characteristics in each neighbourhood income decile. The mean values of each variable are calculated for

each year and neighbourhood income decile, and the years 1987 and 2023 are highlighted separately. This provides a more detailed picture of the share of the child population whose families have a given characteristic in each decile and helps us analyse their distribution across the neighbourhood income deciles. We also do the same kind of analysis for median equivalised family income in order to observe the development of income differences between neighbourhoods. These analyses are also done separately for urban and rural postal code area neighbourhoods for each year 1987-2023.

4 Results

First, we present descriptive trends in children's family-level characteristics. This way we can see how the share of children who grow up in families with these characteristics has developed over the years. These include high and low parental education, median equivalised family income, single parenthood, foreign background, urban–rural status, and unemployment. Examining these trends provides an overview of how childhood living conditions and family characteristics in Finland have developed over time. Figure 1 shows the mean value or shares of a given children's family level variable for the years 1987–2023.

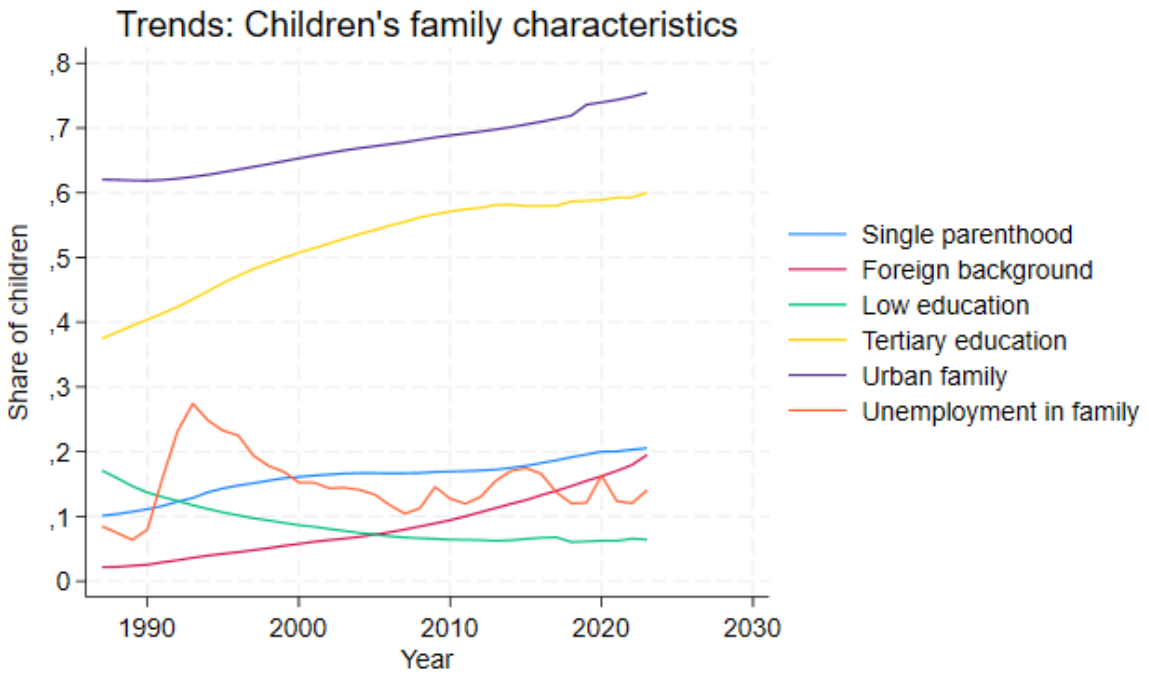

Figure 1. Trends: Children's family characteristics

The share of children living in single-parent households has increased substantially from the late 1980s to 2023. The most rapid rise occurred during the 1990s, after which the growth rate slowed. The early increase is likely related to the reform of divorce legislation that took effect in January 1988 (Holopainen et al., 2017; 226). Whereas in 1987 fewer than 10% of children lived in single-parent households, the share exceeded 20% by 2023.

Growth in the share of children with foreign family background has accelerated over time. In 1987, fewer than 3% of children lived in families with at least one member of

foreign origin. In 2023 nearly one in five children do so. The share of children growing up in families with at least tertiary education has also increased substantially. Whereas in 1987 only 40% of families had a member who had completed tertiary education, in 2023 the share had increased to 60%. This goes hand in hand with the fact that childlessness has increased substantially especially among the low educated (Jalovaara et al., 2019).

Correspondingly, the proportion of families in which no member had completed upper secondary education declined from over 16% in 1987 to just above 6% in 2023. The share of children living in urban areas has increased steadily. In the late 1980s, fewer than 63% of children lived in urban locations, whereas by 2023 the share had risen to nearly 75%. The trend in family unemployment has been relatively stable except during the 1990s. Before the 1990s parental unemployment in Finland was extremely rare. The recession of the 1990s sharply increased unemployment, and by 1993 almost 28% of children lived in families with at least one unemployed member. Since 2000, the share has remained roughly between 10% and 17%.

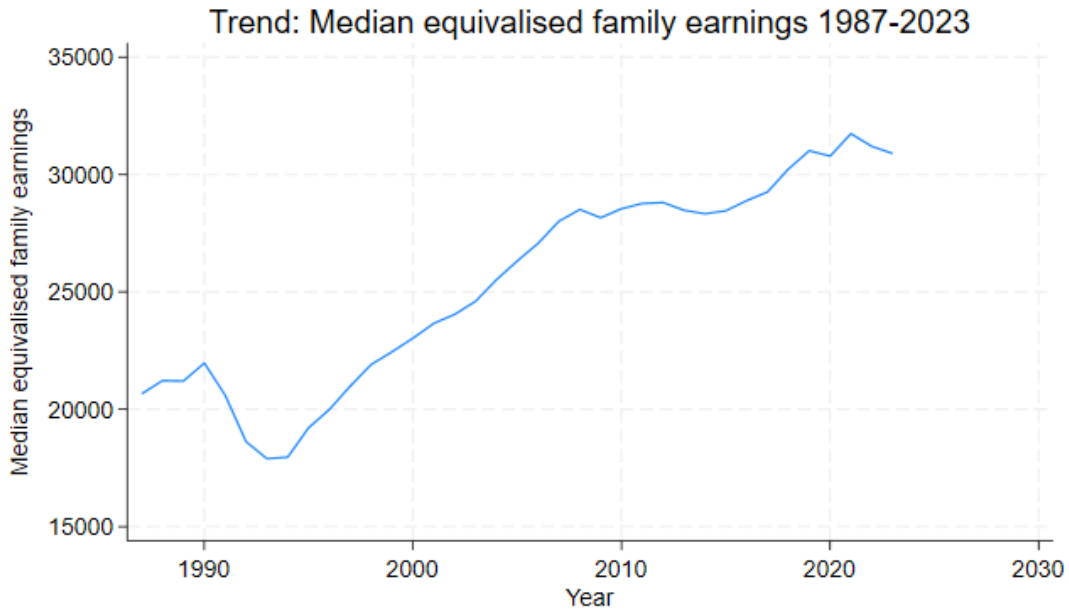

Figure 2. Trend: Median equivalised family earnings 1987-2023.

Median equivalised family income has risen substantially from 1987 to 2023 (figure 2). In 1987, the median was slightly above 20,000 euros per person, whereas by 2023 it exceeded 30,000 euros per person. Figure 3 shows us the distribution of children in six equivalised family income brackets in 1987 and 2023. This figure

allows us to analyse how the share of children growing in families with different levels of income has evolved over time. Following the trend of median equivalised family earnings, the distribution of children has shifted to being more concentrated on the higher equivalised family income brackets.

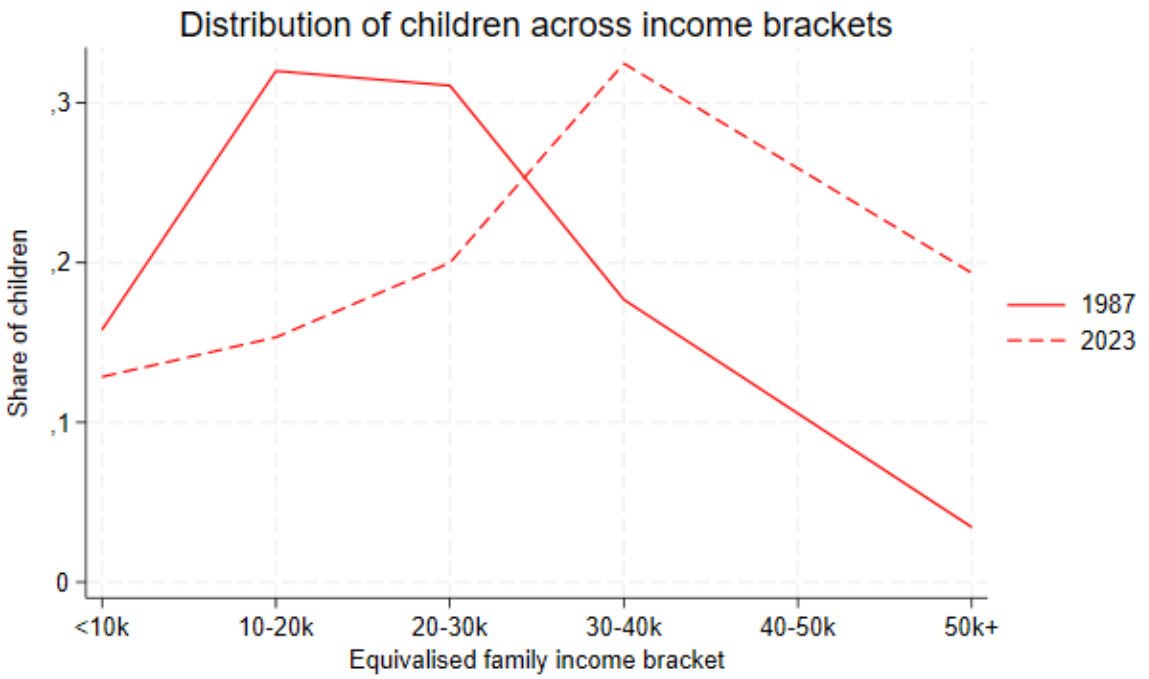

Figure 3. Distribution of children across income brackets.

In 1987 roughly a third of children grew up in households with yearly equivalised earnings of 10.000 to 20.000, in 2023 a similar share of children grew up in families with yearly income of 30.000 to 40.000 in equivalised terms. However, the share of children growing up in households whose yearly equivalised earnings are less than 10.000 hasn't changed much from 1987 to 2023. Overall, these results are in line with earlier findings that suggest fertility rates being higher among higher income earning households (Jalovaara et al., 2019). Importantly, these results show that despite of increasing income levels, a substantial share of children still grow up in low-income earning families.

Next, we calculate the shares of children's family level characteristics in low-, mid- and high-income neighbourhoods. This allows us to see how strong the socio-spatial polarisation of these characteristics is. If the share of children with certain characteristics is substantially different between the low- and high-income

neighbourhood, we can expect a stronger socio-spatial gradient for the variable in question across the neighbourhood income deciles. In these figures we show the shares of children living in families with a foreign background, single-parenthood, low parental education, and unemployment on the primary y-axis, and the share of families with tertiary education is shown in each graph on the secondary y-axis. Figures 4 shows the results for urban low- and high-income neighbourhoods and figure 5 shows the results for the rural ones respectively. Results for the mid-income neighbourhoods both in urban and rural areas are presented in the appendix (figures A 12 & A 13).

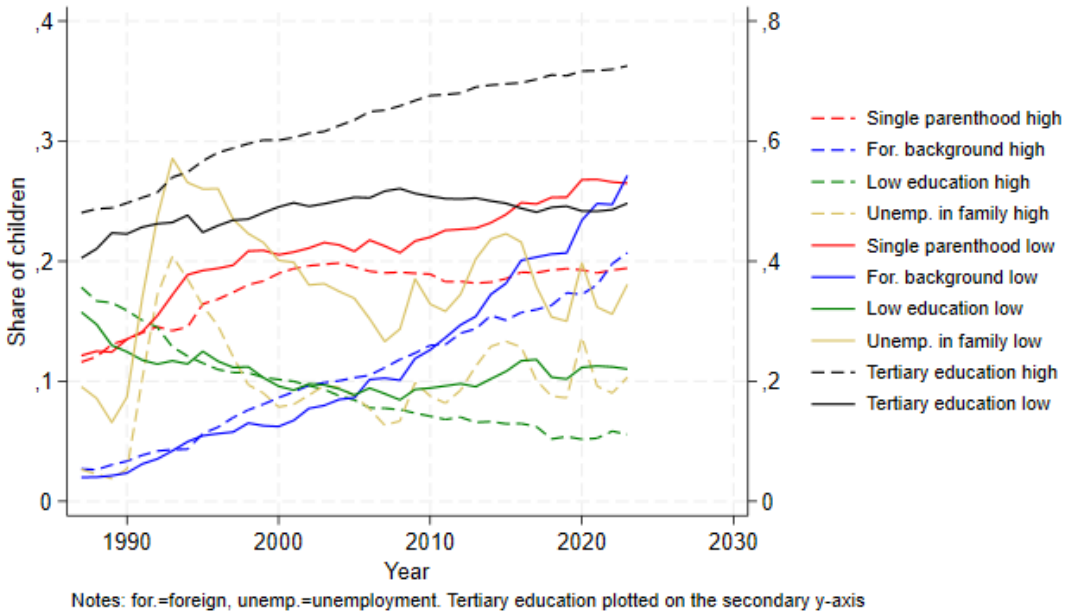

Figure 4. Family characteristics in high- and low-income urban neighbourhoods over time

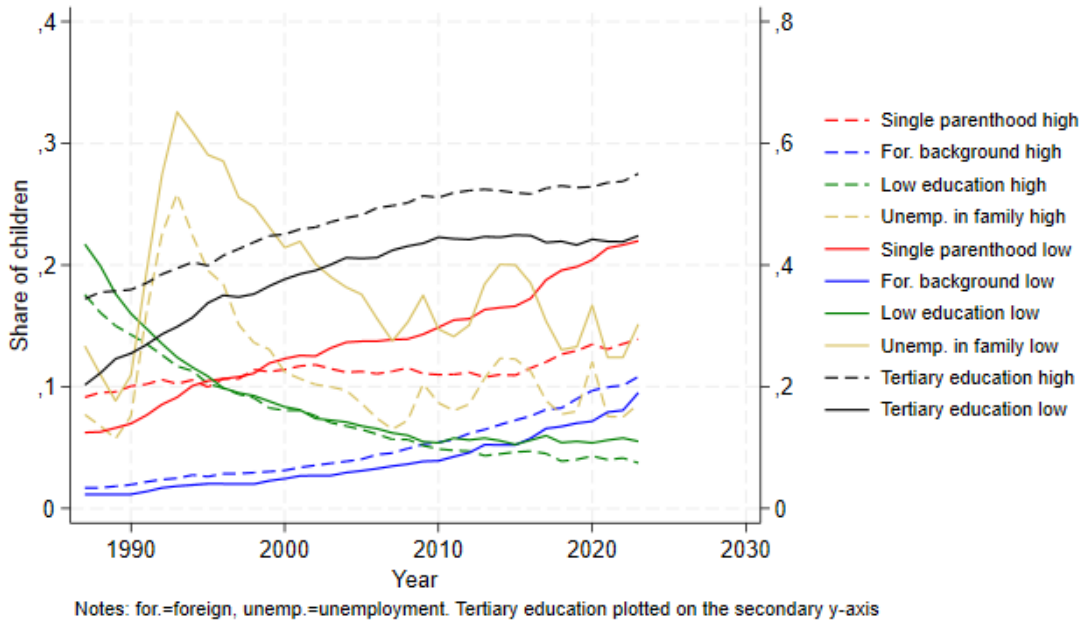

Figure 5. Family characteristics in high- and low-income rural neighbourhoods over time

We can see that the results for urban and rural areas differ markedly. In low-income urban neighbourhoods the share of children with tertiary education in family has grown by 10 percentage points from 1987, but still in 2023 only half of the children grow up in these high educated families. In high-income urban areas this share has grown from 50% to almost 80% over the same time period, suggesting a large difference in the educational levels between the children in high- and low-income urban families. The same development can be seen in terms of low parental education, single parenthood and foreign background, although on a bit smaller scale. In the late 1980s, these characteristics were similarly prevalent among children living in both low- and high-income neighbourhoods, but over time they have become more polarised across different childhood environments.

Most strikingly, in urban areas the socio-spatial concentration of disadvantages has increased significantly since the early 2000s. Both in high- and low-income neighbourhoods shares of children with these family characteristics were roughly on the same level in the late 1980s, and started to diverge slightly during the 1990s, but the largest divergence has only occurred during the past two decades. Over time, the share of low educated families has reduced less and shares of single parent families and families with foreign background have increased more in the low-income areas compared to the high-income ones. Only family unemployment seems to follow a

similar trend in both urban and rural environments, albeit always on a higher level in the low-income neighbourhoods. Unemployment has been associated with living in a low-income neighbourhood consistently throughout the whole time period, but the differences between high- and low-income neighbourhoods have not been growing. In rural low- and high-income neighbourhoods the development is somewhat similar but still drastically different. While also in these low-income rural areas there are more children growing up in families with unemployment, low education, foreign background and single parenthood compared to the high-income ones, the differences are smaller and they are growing slower than in the urban areas.

In the next figures we again show the shares of children living in families with a foreign background, single-parenthood, low parental education, and unemployment across neighbourhood income deciles on the primary y-axis, and the share of families with tertiary education is shown in each graph on the secondary y-axis. Neighbourhood income deciles are shown on the x-axis. The graphs are provided for all the variables for years 1987 and 2023 and they are done separately for urban (figures 6 and 7) and rural areas (figures 8 and 9). In these graphs, a steeper slope indicates a stronger gradient between low- and high-income neighbourhoods. A more detailed picture of how family-level characteristics vary across neighbourhoods over time during the whole time period from 1987 to 2023 is provided in the appendix figures A 14 and A 15. Homeownership rates in urban areas do not seem to follow a similar trend of socio-spatial accumulation, at least not on the same scale as other kinds of family-level characteristics, for which reason they are only shown in the appendix figure A 18.

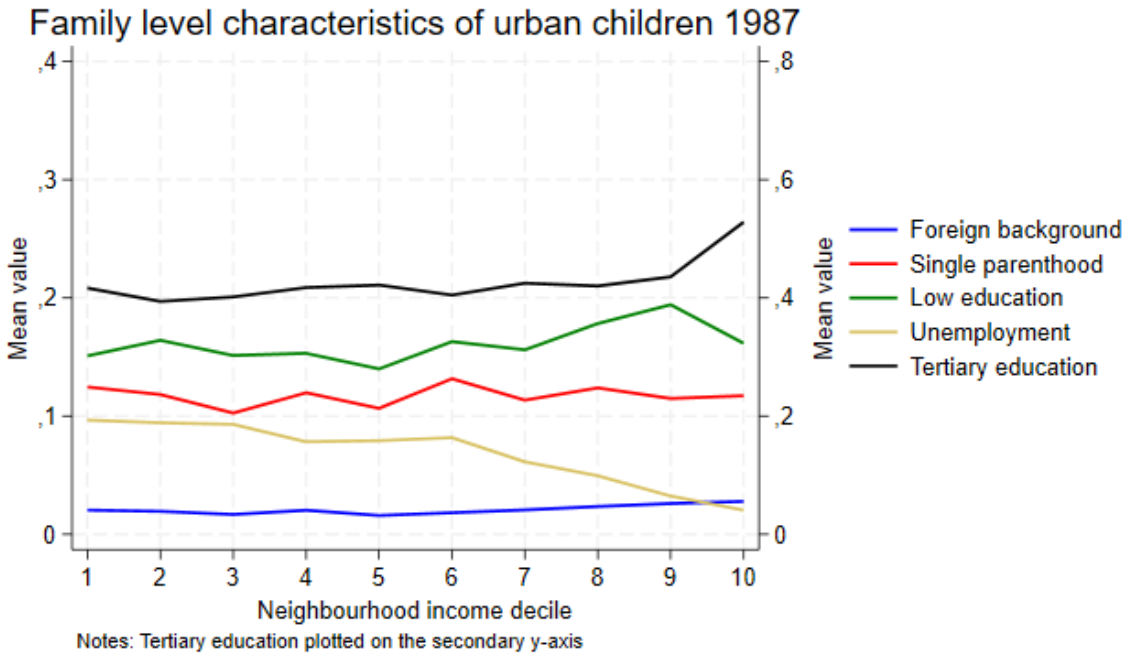

Figure 6. Family level characteristics of urban children 1987

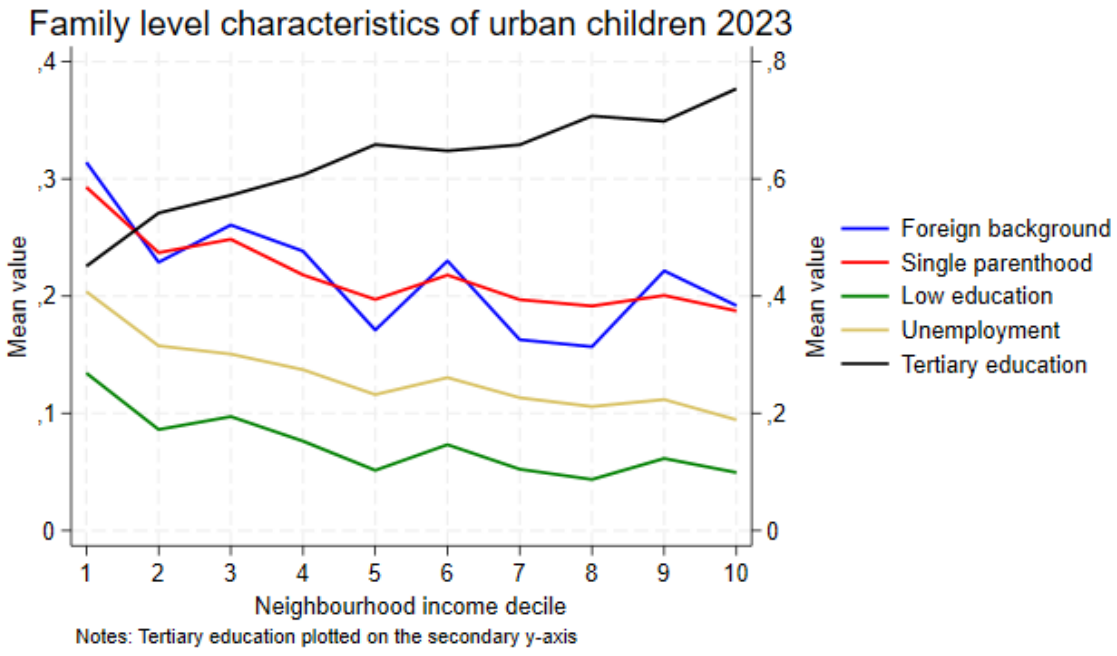

Figure 7. Family level characteristics of urban children 2023

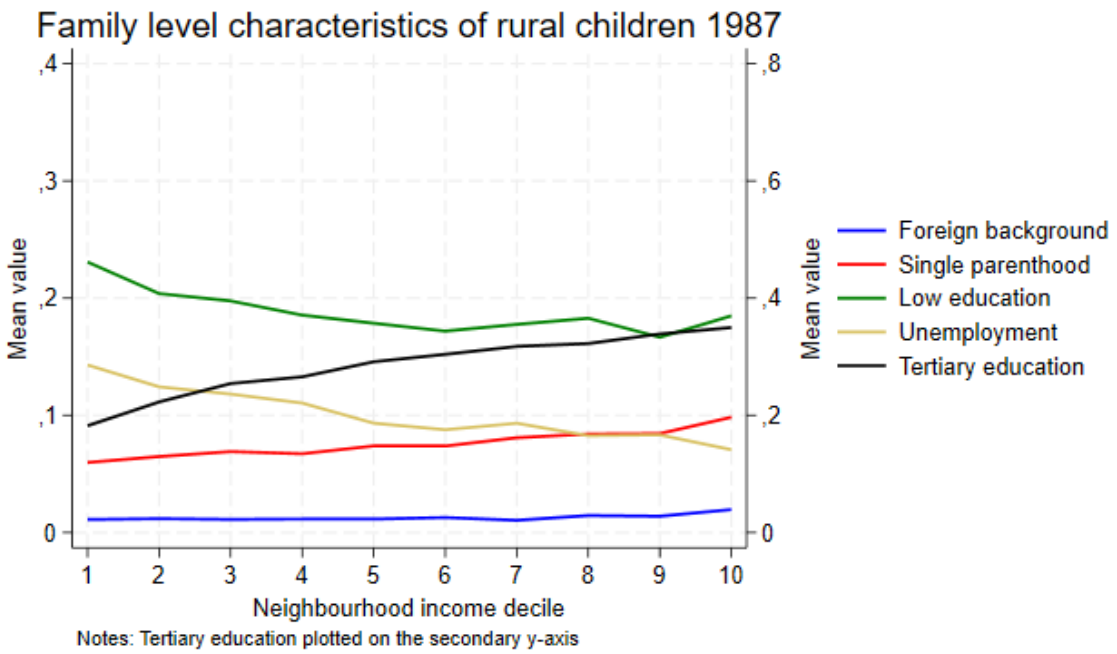

Figure 8. Family level characteristics of rural children 1987

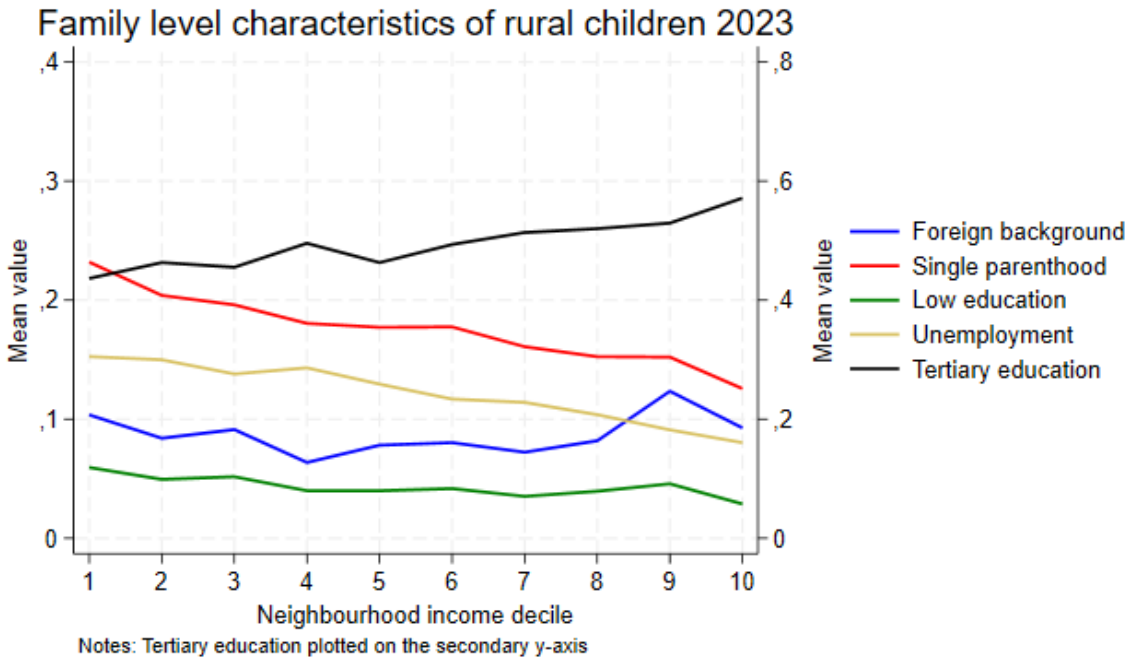

Figure 9. Family level characteristics of rural children 2023

Firstly, for children living in urban areas the most prevalent family level risk factors have shifted from low parental education and unemployment to foreign background and single parenthood. All through the years unemployment has been clearly negatively associated with the neighbourhood median income. The unemployment levels are again the highest during the 1990s recession years. Perhaps most

strikingly, family tertiary education has shifted from having only a small uptick in the highest income decile neighbourhoods to forming a consistent socio-spatial gradient throughout the neighbourhood income deciles.

The share of families with a foreign background mostly remains under 10% until the early 2000s and forms a slightly U-shaped pattern also after these years meaning that families of foreign origin have historically been more likely to live in either the lowest- or highest-income neighbourhoods. From around 2015 onward, the relationship becomes more linear, and after 2020 foreign background is increasingly concentrated in the lowest-income deciles. Similar strengthening gradients appear for single parenthood and low parental education, both of which become more negatively associated with neighbourhood income over time.

In rural areas, unemployment is also consistently negatively associated with neighbourhood income. However, the dominant risk factors differ slightly: the shift is mainly from low parental education to single parenthood. The concentration of parental tertiary education in higher income neighbourhoods is positive, similarly to the urban children, but the connection is weaker and hasn’t changed much over time. Unlike in urban areas, the connection between foreign background and neighbourhood income is positive and substantially weaker. Their overall share of the child population is also consistently smaller in the rural areas. The results show an increasing level of socio-spatial polarisation of the different family level characteristics and show that many disadvantages are accumulating to the children who grow up in the lowest income decile neighbourhoods.

Figures 10 and 11 show the family median equivalised income across deciles in 1987 and 2023 for both urban and rural families. Results for other years are shown in the appendix figures A 16 and A 17. Income gaps between neighbourhoods have widened steadily, especially in urban areas. The difference between the lowest and highest income deciles now exceeds €10,000 in terms of median equivalised family income in the highest earning urban areas. Whereas the median equivalised family income in the highest neighbourhood income decile has risen considerably, in the lowest income decile neighbourhoods it has hardly risen. On the other hand, neighbourhood income differences in the rural areas have decreased overtime. As an increasing share of children grow up in urban areas, the meaning of the increasing

income differences between neighbourhood income deciles becomes all the more important. This means that the family income difference between the children who grow up in the lowest and highest income decile neighbourhoods has grown and the childhood environments more polarised in terms of family resources.

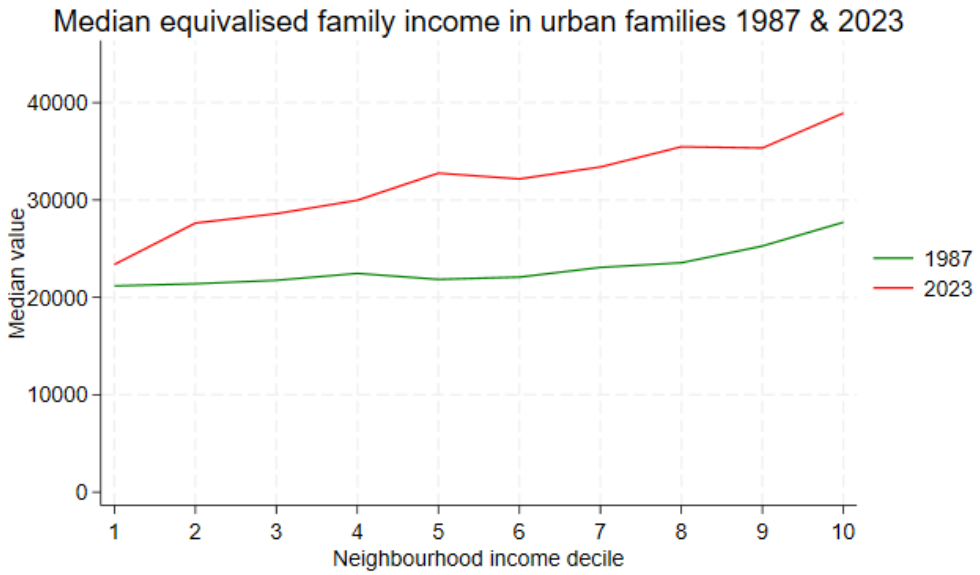

Figure 10. Family level earnings in urban families 1987 & 2023

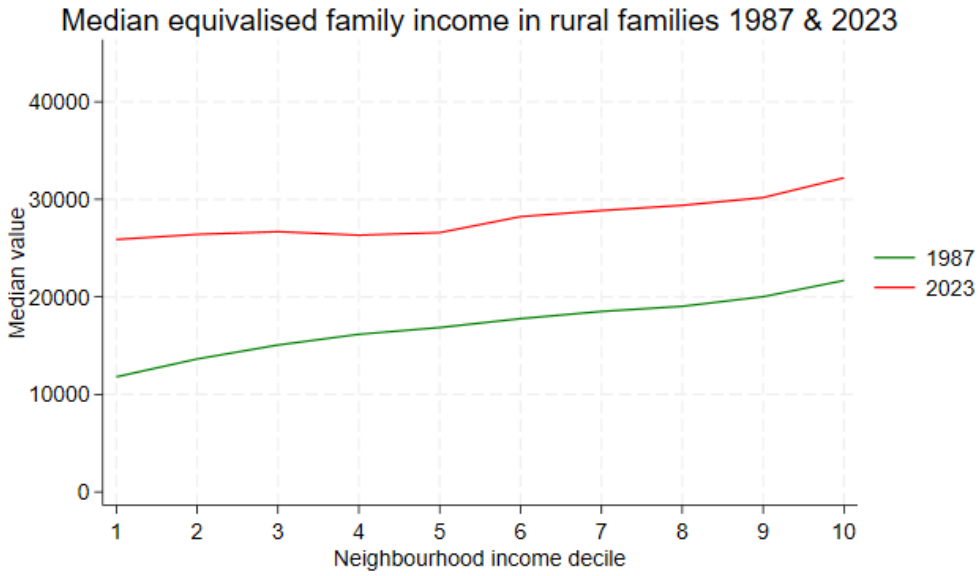

Figure 11. Family level earnings in rural families 1987 & 2023

5 Discussion

The results paint an interesting picture about the development of childhood environments in Finland since the late 1980s. The results show that the family and neighbourhood environments in which Finnish children grow up have faced notable structural changes, with many family-level disadvantages becoming increasingly connected to the neighbourhood socioeconomic status. Particularly in urban areas this socio-spatial differentiation shows an increasing pattern. This urban development is especially important given that the population is becoming increasingly urbanised and thus more susceptible to these urban patterns of inequality, although the distribution of children has shifted towards higher income brackets.

While some indicators, like unemployment in family, have always been aligned with neighbourhood income, others, like low parental education, single parenthood and foreign background, show increasingly steep gradients across neighbourhood income deciles, especially from the early 2010s onwards. Whereas in the early years of the study period these characteristics were more evenly distributed across neighbourhoods, over time they became more concentrated in the lower-income deciles. Overall, the prevalence of the three main risk factors; foreign background, single parenthood and unemployment have increased, but the share of children who grow up in families with low education has considerably decreased. These developments are in line with earlier findings that suggest increasing segregation based on ethnicity and education (Kauppinen, 2007; Saikkonen et al., 2018).

The results also show the increasing socio-spatial inequalities to be a primarily urban phenomenon. In urban childhood environments the income gradients across neighbourhood income deciles are more pronounced, family-level disadvantages are more socio-spatially concentrated and the differences between neighbourhood income deciles are stronger and more pronounced. Parental tertiary education has become increasingly associated to higher neighbourhood income between 1987 and 2023. The association growing stronger since the late 1990s suggests that educational stratification has become a more prominent characteristic of the Finnish childhood environments. This is in line with earlier results that suggest increasing socioeconomic segregation based on positive selection by income and education (Kurvinen et al., 2025). The consistent negative association of unemployment with

neighbourhood income suggests that employment shocks might be less spatially concentrated than other kinds of disadvantage.

In rural areas the gradients are weaker and less regular. Parental tertiary education and unemployment are still mildly associated with neighbourhood income across the whole period, but overall, the results are very different. At the same time, the connection between foreign background and neighbourhood income in rural areas is positive but modest, which is a sign of immigrant families in rural Finland not sorting into lower-income neighbourhoods in the same way as in cities. The less prominent results for rural areas can be a consequence of smaller communities and concentrations of housing, which reduce the spatial socioeconomic stratification. Another explication could be the larger scale of postal code areas and their even less important role in defining neighbourhoods compared to the urban areas.

However, some caution has to be taken when analysing the results, because the trends are not monotonous across neighbourhood income deciles. One distorting factor, that cannot be addressed with the methods used in this study, is that postal code areas might be too large units of inspection. In reality the same postal code area there could even include two neighbourhoods of very different characteristics. This doesn’t invalidate the meaningfulness of the results, quite the contrary. If the growing socio-spatial differences are visible on this crude level, a more detailed view into neighbourhood composition or focusing on specific urban areas might provide even stronger evidence in support of this study’s findings.

Income differences between the highest and lowest level neighbourhood income deciles have also grown markedly. This might be linked to the findings of income mobility being connected to residential mobility away from low-income areas (Vaalavuo et al., 2019). The growing gaps between income deciles support hypothesis 1: neighbourhoods have become more differentiated in socioeconomic terms over time and their role in shaping childhood inequalities has grown. This result is much clearer in urban areas. The results also support the second hypothesis: disadvantages have become increasingly concentrated within the low-income level neighbourhoods. Unemployment, single parenthood, parental education and foreign background show rising alignment with neighbourhood income, meaning that most disadvantages have become concentrated in the low-income level neighbourhoods.

This development has grown stronger after the early 2010s. This pattern is consistent with Finnish register-based evidence showing the accumulation of risks at the family level and the growing importance of parental income for children's long-term outcomes, as well as rising segregation (Hiilamo et al., 2025; Kurvinen et al., 2025; Rintala et al., 2025). The descriptive results of this study add a spatial dimension to these findings by demonstrating how such risks have become increasingly linked to the neighbourhood context. These developments concern mostly the growing number of children who grow up in urban environments. Overall, the results indicate that although Finland maintains comparatively low inequality, the alignment between childhood family disadvantage and neighbourhood income has strengthened over the past four decades, particularly in urban areas. These results highlight the importance of monitoring spatial dimensions of inequality even in the Nordic welfare-state context.

6 Conclusion

This thesis examined how childhood environments in Finland have changed between 1987 and 2023, with a particular focus on the evolution of family- and neighbourhood-level disadvantages. Using full-population Finnish register data, the study mapped long-term trends in key childhood family characteristics and analysed how these characteristics have become distributed across neighbourhood income levels over time.

The results show that childhood environments in Finland have become increasingly polarised, especially since the beginning of the 2000s. Although living standards have mostly improved across income levels, the alignment between family disadvantage and neighbourhood income has strengthened. The difference in household income between the highest and lowest neighbourhood income deciles have increased and so has the accumulation of disadvantages to the neighbourhoods with the lowest median income. This development has been mostly gradual and especially evident in urban areas. A general trend is that family characteristics such as parental education, single parenthood, and immigrant background sort children now more clearly into lower-income and higher-income neighbourhoods than in earlier decades.

In conclusion, the results support the hypotheses that socio-spatial inequality has increased over time and that the childhood environments have become increasingly polarised. Income differences between neighbourhoods have increased and risk factors are becoming increasingly concentrated in low-income neighbourhoods. In rural areas, these associations remain weaker and more heterogeneous, which might highlight the different economic structures and settlement patterns compared to Finnish urban environment. While some previous literature suggests that family characteristics continue to explain most variation in children’s environments, neighbourhood context has become more closely connected with family disadvantage over time. This thesis does not imply any causal neighbourhood effects but highlights the growing spatial polarisation of inequality in childhood living conditions.

The major contribution of this thesis is that it provides long-run descriptive results on childhood environments have evolved in a Nordic welfare-state context. Despite relatively strong redistributive institutions and long-standing social mixing policies, Finland has not been immune to processes of socio-spatial differentiation. Apart from being purely descriptive, another big limitation of this thesis is that it concentrates on neighbourhoods as postal code areas, which is quite an arbitrary way to define neighbourhood limits. This might hide some small-scale variation and true extent of the socio-spatial neighbourhood differentiation. However, this does not diminish the importance of the findings of this study.

In sum, the thesis shows that childhood environments in Finland have become more unequal and more spatially differentiated over the past four decades. As this trend is predominantly urban, the continuing process of urbanisation increases the share of children exposed to these polarised childhood environments. Over time, family disadvantages increasingly cluster within specific neighbourhoods, which might adversely affect children’s life course outcomes through neighbourhood effects, even in the relatively egalitarian Finnish welfare-state context.

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Appendices

Appendix 1 Notes

(1) I used an AI tool (ChatGPT) for conventional proofreading (spell and grammar check) in this thesis.

Appendix 2 Figures

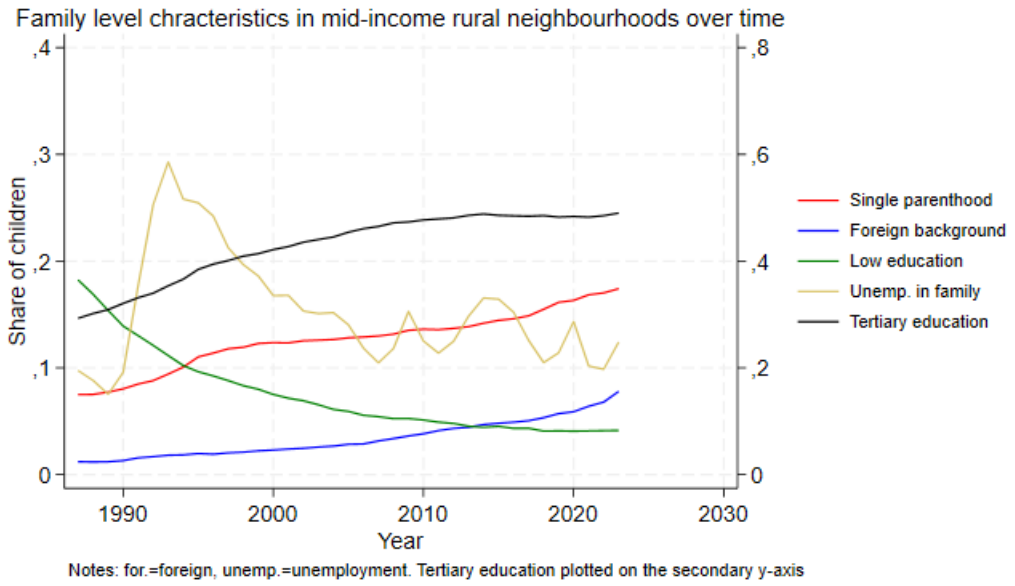

Figure A 12. Family level characteristics in mid-income rural neighbourhoods over time

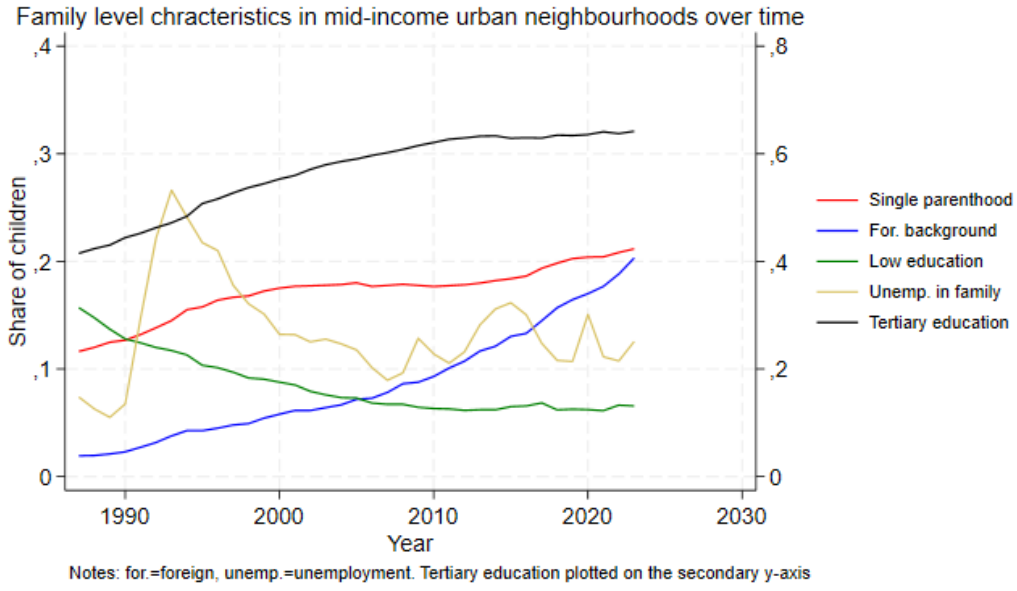

Figure A 13. Family level characteristics in mid-income urban neighbourhoods over time

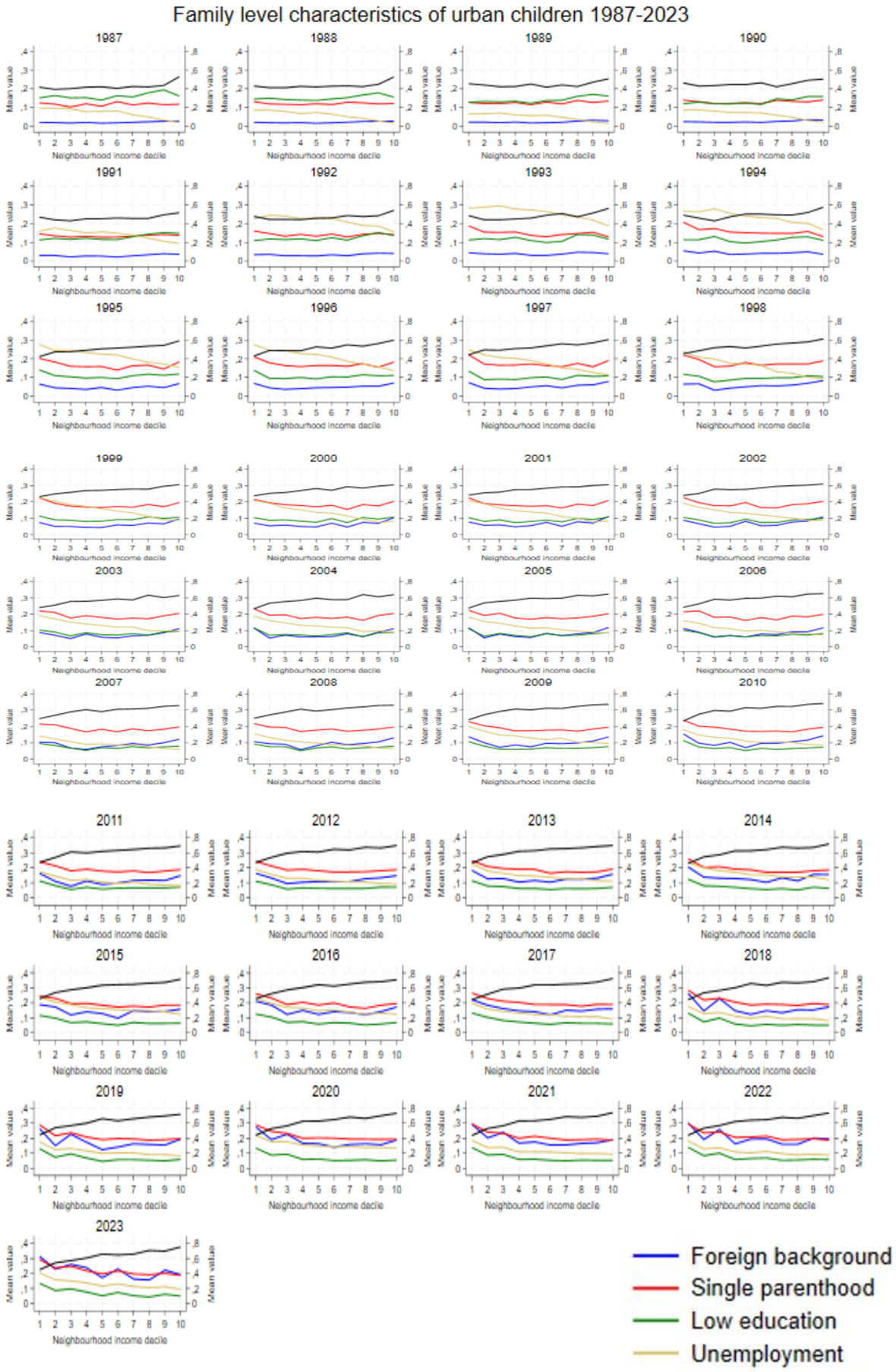

Figure A 14. Family level characteristics of urban children 1987-2023

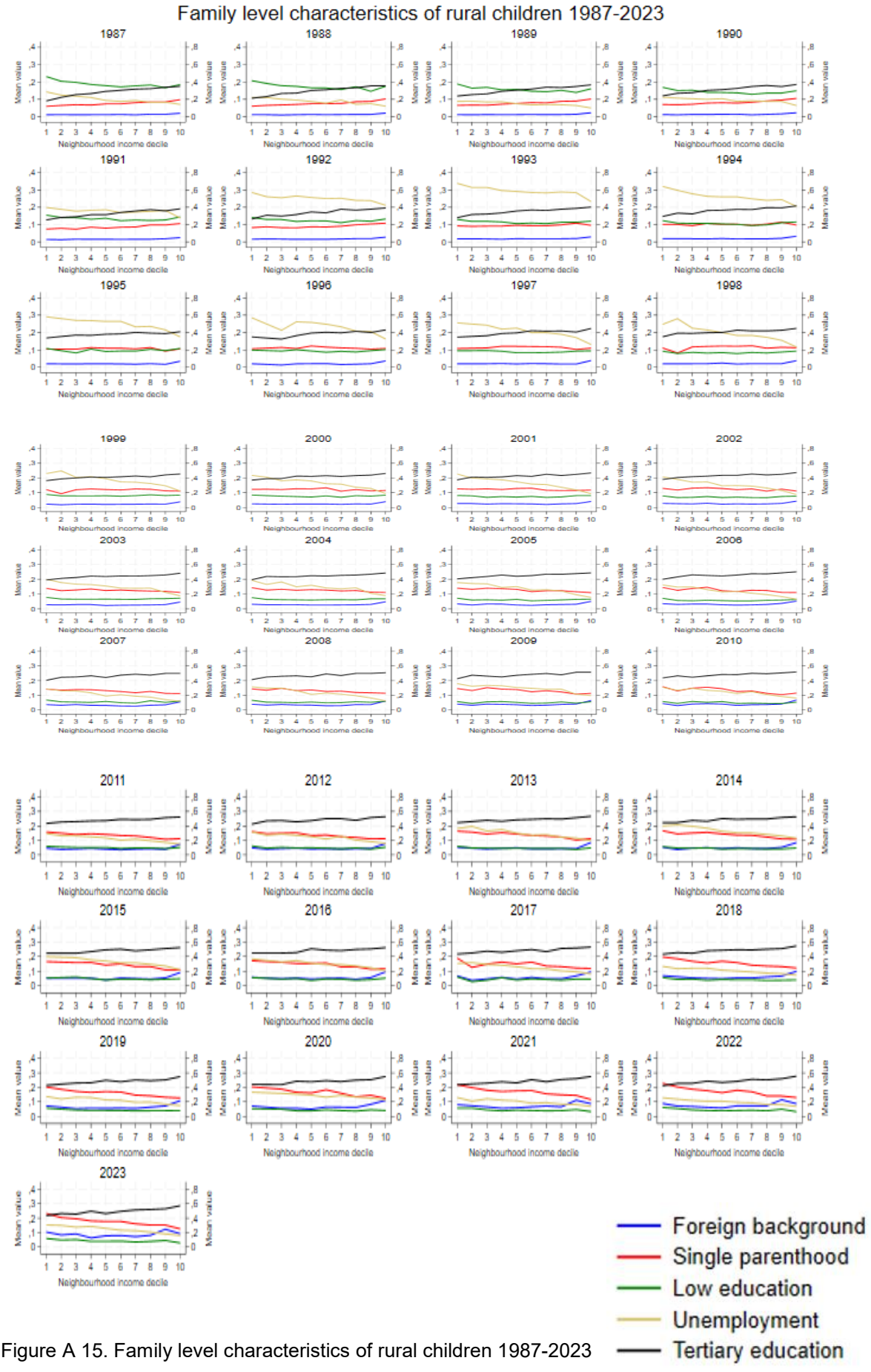

Figure A 15. Family level characteristics of rural children 1987-2023

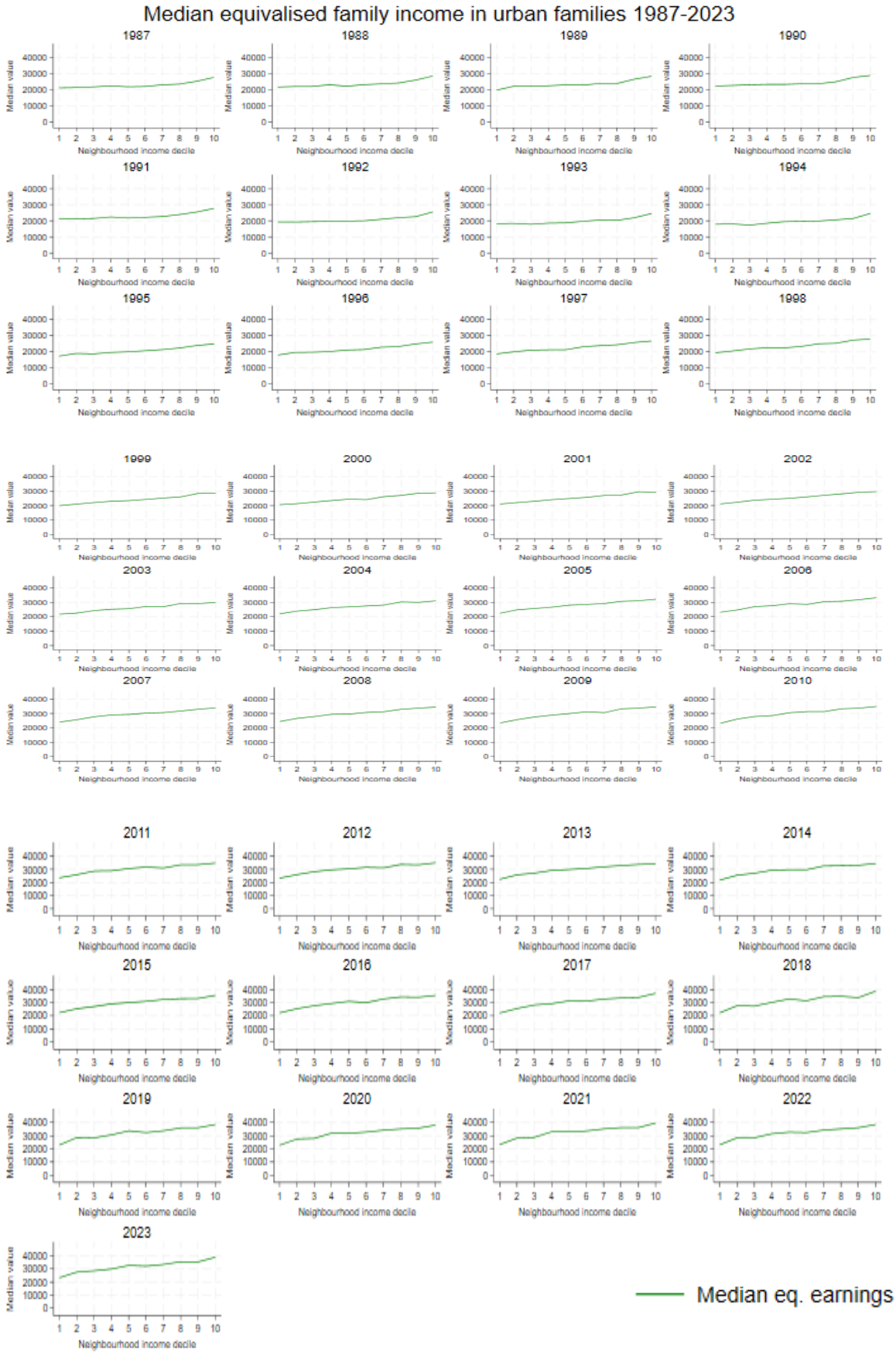

Figure A 16. Family level earnings in urban families 1987-2023

Figure A 17. Family level earnings in rural families 1987-2023

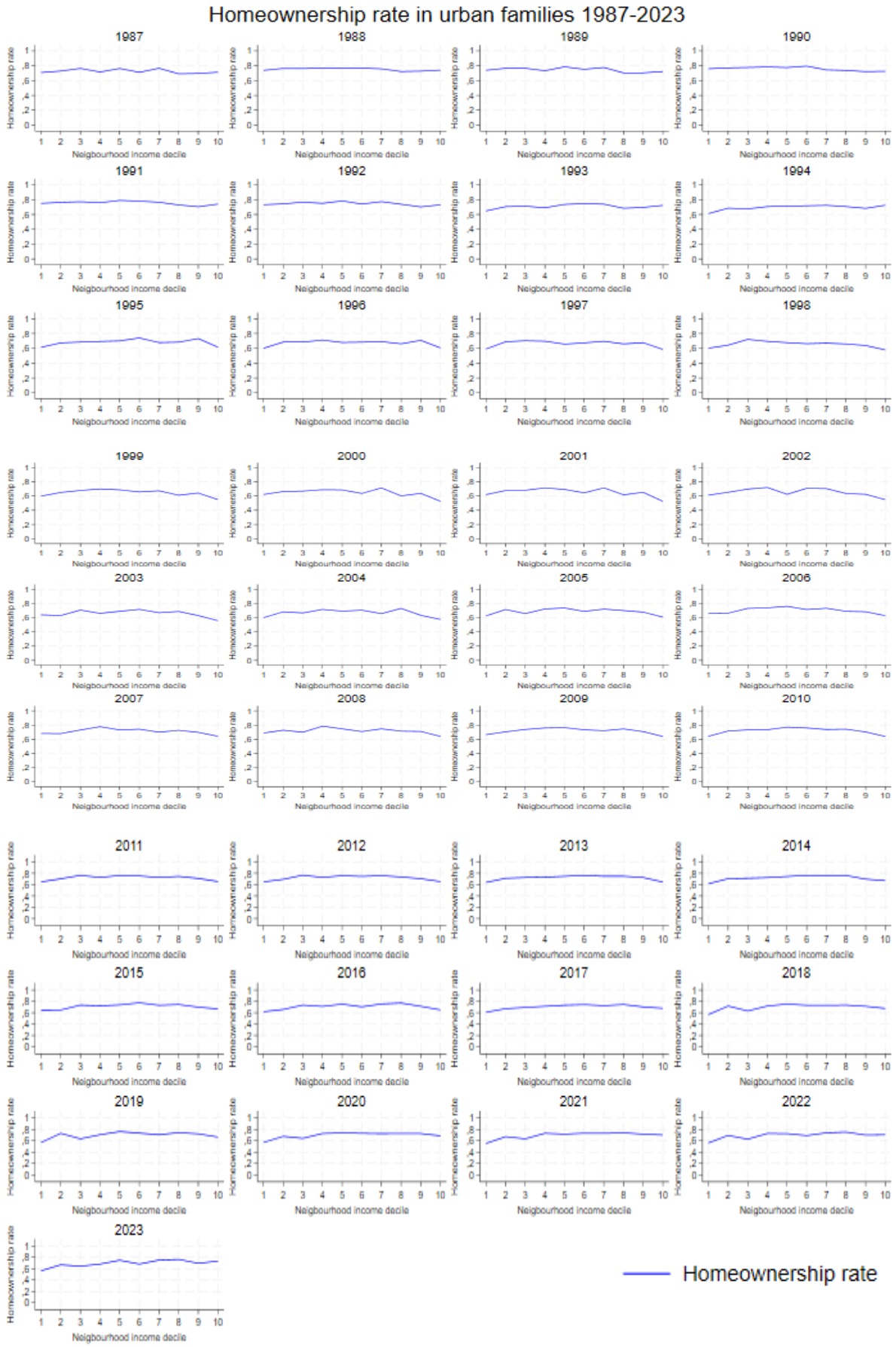

Figure A 18. Homeownership rate in urban families 1987-2023