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Karen Haandrikman and Joeke Kuyvenhoven

ISSN 2002-617X | Department of Sociology



Stockholm
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Demography Unit

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Karen Haandrikman¹ and Joeke Kuyvenhoven^{1,2}

¹ *Department of Human Geography, Stockholm University*

² *Netherlands Interdisciplinary Demographic Institute (NIDI)-KNAW/University of Groningen*

Abstract

Sweden is known for its high residential mobility rates, especially among families. Moving in childhood may be associated with negative health and educational outcomes in adulthood, and effects tend to be larger for children who move frequently. Moving frequently is more common among children in families experiencing instability, poverty and with a migrant background. This paper is concerned with supermovers, children who move three times or more in childhood, in Sweden. The aim is to examine the extent to which recent cohorts of children are supermovers, and whether the frequency of moves is associated to migrant background, family stability and parental socioeconomic status. We also explore whether supermovers are more likely to move longer distances and move to worse neighbourhoods compared to those moving once or twice, as this might exacerbate the impact on later-life outcomes for these children. We use longitudinal register data, comparing the cohorts of children born in 1990 and 2000, following them from age 0 to 16. We find that it is very common for children to move: more than 70 percent of children moves at least once, while about a quarter of children can be labelled as supermovers across cohorts. Children with a migrant background, especially those from the Middle East, are more likely to be supermovers than other children, and are more likely to move longer distances. Children experiencing parental union dissolution are not only more likely to move but also to move very frequently. Socioeconomically disadvantaged children are more often supermovers, while children with high educated parents more often move a few times. Children move at all ages, but especially so before starting primary school. Most children move to better neighbourhoods, though supermovers are more likely to move to lower income neighbourhoods. Together, there are signs of childhood mobility being stratified by migrant background, family instability and parental socioeconomic status, implying that children in vulnerable situations face additional instability due to moving very frequently.

Keywords: childhood mobility; residential mobility; supermobility; neighbourhood change; second generation; Sweden;

Stockholm Research Reports in Demography 2024:15

ISSN 2002-617X

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Introduction

Though there is a large literature on internal migration and its determinants, children are seldom the focus of study. This gap in research is surprising as families with small children who move for better housing or due to union dissolution are the groups most often moving (De Groot et al. 2011; Warnes 1992). Examining childhood internal mobilities is important as moving in childhood has been associated with several negative outcomes such as poorer health, development and education (Jelleyman and Spencer 2007; Simsek et al. 2021). Especially frequent mobility has been linked to negative outcomes among children and adolescents, also after controlling for family instability and parental socioeconomic status (Leventhal & Newman 2010; Mollborn et al. 2018; Simsek et al. 2021). Research on moving very frequently is, however, limited, mostly due to data restrictions (Gillespie 2016).

Compared to frequent moves, moving only once or twice may not affect children in the same way. Families often move to adjust the household space to their changed or anticipated household size, not seldom to better neighbourhoods (Brown et al. 2012). The distance moved is generally perceived to play an important role, with longer distance moves seen as having more negative consequences, as children will have to change schools and find new peers (Gillespie 2013). However, long-distance moves may be more often motivated by more positive reasons such as improved family income because of a better job (Morris et al. 2018). Vogel et al. (2017) found that long-distance moves had a protective effect when disrupting troublesome peer networks (Vogel et al. 2017), and Kuyvenhoven et al. (2023) found that children moving long distances less often are exposed to increased neighbourhood deprivation. There is, however, a lack of studies on the frequency of childhood mobility and neighbourhood change, and how these are related to family instability and the distance moved.

The aim of this paper is to explore the extent of supermobility in Sweden, defined as moving three times or more often, and to explore the association of supermobility with migrant background, family stability and parental socioeconomic status, and with the distance moved and the extent of neighbourhood change.

Our study is inspired by a life course perspective on migration, seeing mobility as part of the life course, triggered by preferences and impacted by family resources and life events. We examine childhood mobility for two recent cohorts of children, those born in 1990 and in 2000. These cohorts are likely differing in terms of migrant composition, the extent of urbanisation and the educational attainment of their parents, which makes it interesting to examine how these may affect their likelihood to move.

The focus on migrant background is based on recent findings that migrants are more likely to move than natives (Andersson 2012; Finney and Simpson 2008), and that moving frequently is more common among children with a migrant background (Kuyvenhoven et al. 2022), suggesting that some migrant groups may be more vulnerable to mobility effects, increasing the inequalities between groups of children. We appeal to the quest for studies combining international with internal migration in countries of destination (Bernard and Perales 2021; Wiggins et al. 2011), based on the idea posed by the life course perspective to migration that earlier migration transitions may be linked to later events, and that hence, children of migrants may be more likely to move and therefore more likely to be affected by high rates of mobility. Some studies have for instance suggested that mobility among migrants may be less based on own intention but more on external factors (Crowder 2001; De Groot et al. 2011).

Sweden is an interesting case as first, it has a relatively high rate of migration in childhood (Bernard and Vidal 2020) and especially so among the children of migrants (Statistics Sweden 2020). The country has experienced relatively large inflows of international migrants leading to a large generation of children with parents born abroad. The share of children with Nordic and European parents has decreased for recent cohorts of children, while the share with parents from Asia and Africa has increased. Especially non-European migrants live in the most ethnically segregated neighbourhoods (Malmberg et al. 2018), and migrants are more inclined to stay in deprived areas or to move to other deprived neighbourhoods compared to natives (Vogiazides and Chihaya 2020). Second, the divorce rate is relatively high in Sweden, which makes for an interesting case to examine the associations between parental union dissolution and childhood residential mobility. Third, Sweden is a large country meaning that moves out of urban areas may be over relatively long distances, and therefore the expected effects on children may be larger. Fourth, we use rich geocoded longitudinal register data enabling an analysis of children's mobility over time for all children in certain cohorts, and its sociodemographic, migrant and other types of determinants. Fifth, the data allows us to examine mobility by age, which is important as school ages may impact childhood mobility, especially since there is wide geographical variation in the type of schools offered.

Childhood mobility: A life course perspective

Most internal and international migrants are adults, as already noted by Ravenstein at the end of the 18th century (1885). Migration as influenced by stage in the life cycle was later added by Rossi (1955), in his influential work on why families move. If we consider moves that involve children, the most important motives for residential mobility were seen to be household

dissolution and moving for improved housing or for employment - transitions that are clearly linked to stages in the life course. Later on, researchers acknowledged the increasing diversity among the life patterns of groups in society, leading to the life course perspective becoming a research paradigm in the social sciences (McCollum et al. 2020).

The life course perspective views residential mobility as just one part of a person's life course. Mobility transitions are seen as part of different types of trajectories, such as the household and the labour market trajectory. The increased likelihood of mobility in early childhood is linked to parents either anticipating childbirth or wanting to adapt their housing situation to the changed family situation (De Groot et al. 2011; Warnes 1992). The risk of moving generally decreases with increasing age of children and especially so after children have started primary school (Michielin and Mulder 2008, using Dutch data).

Though age-migration schedules are quite universal, there are differences in the mobility patterns of couples with children between countries, as well as over time. Despite the overall high levels of mobility, the likelihood of migration in childhood decreased over time between 1970 and 2001 in Sweden (Lundholm 2007), which tends to be associated with reduced mobility for people who are more settled, such as couples with children (Fischer and Malmberg 2001).

Life events are generally seen as triggers for residential mobility, such as union formation, childbirth, family expansion, union dissolution, change in employment or retirement. Such events are embedded in the individual's life course trajectories and linked to the trajectories of important others in their life, such as their partner. On a micro level, resources and restrictions impact the ability to realize housing preferences, while at the macro level, opportunities and constraints in the housing market affect the same (Mulder and Hooimeijer 1999). Both immobility as well as mobility might also reflect less stable family conditions, such as instable employment, income or housing (Coulton et al., 2012; Kuyvenhoven et al. 2023).

Moves undertaken by parents with children are often short-distance moves, within the same labour market area, or from urban to rural areas (Clark 2013). The reasons for moving shorter distances and a decline in moving with increasing age of children are to minimize disruption in social ties and to provide children with stability. However, long-distance moves may be more often undertaken because of labour market reasons, and therefore may be associated with improved circumstances, while short-distance moves might be more often related to instability and stressed circumstances (Morris et al. 2018).

Low-income households may have to move frequently due to instable and insecure circumstances (Coulton et al. 2012). A recent Swedish study showed that a small but consistent

flow of families moves out of urban areas nowadays (Sandow and Lundholm 2020), with Swedish-born low-income but high educated households more likely to make such lifestyle moves, suggesting a clear social stratification of residential mobility among couples with children.

While mobility among married couples tends to be low in many contemporary societies, an important reason for increased mobility among couples with children is union dissolution. Separation or divorce is usually associated with a move out of the joint home and often to a move out of home ownership for one or both partners (Feijten and Van Ham 2010; Mikolai et al. 2019) and not seldom followed by other moves such as a moving into a stepfamily (Andersson et al. 2017). Moving to renting is common in such cases, with the lower educated more inclined to move into social or private renting (Mikolai et al. 2019).

Shared physical custody practices have changed substantially over the last decades (Garriga et al. 2021), with Sweden having one of the highest rates of children in shared physical custody (Bjarnason and Arnarsson 2011). Children from lower socioeconomic strata more often experience parental separation in Sweden, but less often come across shared custody (Garriga et al. 2021). After union dissolution, parents increasingly live close to each other: about half of all children live within 2 kilometres from the non-resident parent after parental separation in Sweden (Turunen et al. 2023). As Sweden is a country with high rates of divorce and as family instability is more common among disadvantaged families (Garriga et al 2021; Garriga and Cortina 2017), it makes it an interesting case to study childhood residential mobility as experienced by different groups of children.

Supermobility: Previous studies

The frequency of moves is an important dimension of childhood mobility; others are timing, distance and change in neighbourhood type (Kuyvenhoven et al. 2022). There is a handful of studies on so-called “hypermobility”, generally defined as moving multiple times in a short time frame (Gillespie 2016; Ziolo-Guest and McKenna 2014), or moving at a rate that is much higher than the general population (Cohen and Wardrip 2011). Jelleyman and Spencer (2008) defined a cut-off of three or four moves as high mobility, independent of the time period under investigation. Murphey et al. (2012) used a cut-off of five moves or more, while Ziolo-Guest and McKenna (2014) used a definition of moving three times or more.

Bernard and Vidal (2020) compared European countries using survey data and found that Swedish children in the cohorts 1946-1957 have one of the highest frequencies of childhood mobility, with about 14 percent of children moving three times or more often during childhood,

and only about a third not moving. Tønnessen et al. (2016), found that 11 percent of all children born in Norway in the period 1965-1980 moved three times or more frequently, between Norwegian municipalities. For the US, Lawrence et al. (2015) found that 26 percent of U.S. based children moved three times or more often in their first five years of life.

In these studies, mobility is often measured by comparing addresses as recorded in census data for two periods of time, using different waves in panel data (e.g. Lawrence et al. 2015), or following children over time using register data (Tønnessen et al. 2016), using either any types of moves or moves between larger geographical units such as municipalities (Tønnessen et al. 2016), larger regions (Paksarian et al. 2015), or a combination of different mobility measures (Lawrence et al. 2015).

Descriptive analyses of frequently moving children have shown that they are more often born abroad (Kuyvenhoven et al. 2022), more often born in deprived neighbourhoods (Kuyvenhoven et al. 2023), more often had younger mothers (Tønnessen et al. 2016), or mothers who were not married (Mollborn et al. 2018), did not live with both parents (Speare and Goldscheider 1987), more often come from socioeconomically disadvantaged families (Mollborn et al. 2018; Tønnessen et al. 2016), but have also been found to have higher educated mothers (Tønnessen et al. 2016). Local hypermobility, i.e. frequent residential mobility over short distances, has been associated with poverty and instable home environments (Ziol-Guest and McKenna 2014), while long-distance hypermobility may be associated with moves motivated by changes in parental employment (Gillespie 2016).

As moving is generally seen as stressful, a consecutive number of moves is considered as exceptionally demanding (Hagan et al. 1996), in contrast to moving once or twice, which is generally not perceived to be harmful (Ziol-Guest and McKenna 2014). Indeed, frequent moving has been associated with several long-term educational, behavioural and health outcomes (for overviews see Jelleyman and Spencer 2007; Simsek et al. 2021). Examples include an increase in teenage pregnancies (Crowder and Teachman 2004), early parenthood (Tønnessen et al. 2016), obtaining lower education and income (Tønnessen et al. 2016), lower levels of well-being (Oishi and Schimmack 2010), emotional problems (Simpson and Fowler 1994), illicit drug use in adolescence (Brown et al. 2012), risk for schizophrenia in adolescence (Paksarian et al. 2015), and higher levels of offending (Vogel et al. 2017). A high frequency of moves, defined as moving at least three times during childhood, was found to be more than twice as detrimental compared to moving once or twice, for a range of educational and health outcomes (Simsek et al. 2021). Mobility in childhood is also associated with increased life-time mobility (Bernard and Perales 2021). Hypermobility may often be connected with other

risk factors at the household level, such as parental dissolution or lacking support systems (Gillespie 2016), that may confound the association between mobility and other outcomes. Family socioeconomic status is seen as a major confounder for both family instability as well as mobility outcomes, but even after controlling for socioeconomic status, hypermobility is still associated with negative health and behavioural outcomes later in life (Jelleyman and Spencer 2007).

In studies associating the frequency of mobility in childhood with later-life behavioural and educational outcomes, the timing of mobility is often seen as crucial. The impacts of childhood mobility are generally more detrimental when moves take place in adolescence (age 11 to 18) compared to moves in the first 10 years of life (Simsek et al. 2021; Tønnessen et al. 2016). Moves during early childhood might be less disruptive in terms of social networks compared to moves during adolescence, that are seen to cause more stress and disruption of social networks and friendships.

In addition, the distance moved affects the extent of disruption to family life, friendships and networks (Jelleyman and Spencer 2007). Long-distance moves imply a school change, which is generally found to have larger negative effects (Brown et al. 2012; Gillespie 2016). While there are some studies focussing on the implications of long-distance moves, there is not much research on hypermobility and distance effects, and findings are conflicting. Some find protective effects of long-distance moves due to the disruption of troublesome peer networks (Vogel et al. 2017), others find a negative effect of multiple distant moves for educational outcomes but only for children of low-educated parents (Long, 1975).

One mechanism through which childhood mobility may impact later life outcomes, is through neighbourhood change. When families move to better neighbourhoods with for example better housing quality and access to quality schools, there might be benefits involved in the move (Chetty et al. 2016; Morris et al. 2018). On the other hand, staying in or moving to deprived neighbourhoods may exacerbate existing vulnerability due to socioeconomic and demographic instability (Coulton et al. 2012; Jelleyman and Spencer 2008). In a study on childhood mobility in New Zealand, it was found that children from two ethnic groups moved more often and had lower upward residential mobility than other children; these children were more likely to move to the most deprived areas (Robertson et al. 2021). Though most children who move, move to neighbourhoods with higher socioeconomic status, Root and Humphrey (2014) found that those who moved frequently more often moved back to worse neighbourhoods later in childhood. Metzger et al. (2015) found for the US that for children moving at least once in adolescence, their educational outcomes were negatively affected,

regardless of whether they moved to a better or worse neighbourhood. Similar findings were found by Cordes et al. (2016) focusing on children in New York City and by Sweet et al. (2018) for the UK. The reasons for moving may also be associated with neighbourhood change. Moving short distances to more or equally deprived neighbourhoods may be forced by family instability, whereas long-distance moves to areas with lower densities may be undertaken because of parental employment changes or moving to rural areas for lifestyle-related reasons (Kuyvenhoven et al. 2022; 2023). Studies have encouraged for more research including the destination neighbourhood into studies of childhood mobility (Vogel et al. 2017).

DATA AND METHODS

Data and Variables

To examine childhood mobility, we use register data on the full population of Sweden. Data from the Total Population Register (RTB) is used to retrieve information on children and their parents. Children are linked to biological and adoptive parents. For parents, we include information on country of birth. Socioeconomic information comes from the Longitudinal Integrated Database for Health Insurance and Labour Market Studies (LISA), including information on employment, social benefits, and income of parents. LISA also provides information on family position. The Geography Database is used to retrieve information on DeSO (Demographic Statistical areas), and geographical coordinates of annual places of residence. Additionally, information on properties was obtained from the Property Register, while any moves within a year were retrieved from the Internal Migration Dataset. Information from these databases is linked using anonymized IDs of people and properties within the secure MONA environment of Statistics Sweden. For this study, the life course trajectories of all children born in Sweden in the years 1990 and 2000 were constructed, following them over time until age 16, in the years 2006 and 2016, respectively.

Annual place of residence is available as the property people reside in (which can be a house, or for instance a building with multifamily housing), the centroids of the grid-cell the property is in (250 by 250-meter squares for built-up areas, and 1000 by 1000-meter squares for rural areas), the DeSO someone lives in, or the municipality¹. The system of DeSO areas is the most recent classification of small-scale geographical areas by Statistics Sweden, based on population concentration, containing about 1000-3000 people. Using these detailed data, we

¹ There are around 200,000 populated grid cells, 5,985 DeSo areas, and 290 municipalities in the period of study.

use four different definitions of mobility: mobility as defined by a change of property, mobility as defined by a change in grid cell, mobility as defined by a change in DeSO area, and mobility as defined by a change in municipality. The four measures are based on annual change of residence. A fifth measure is based on a variable stating how many times a person moved within a year. Unfortunately, this variable does not state from and to what geographical area a person moved, so we will only use it to describe frequencies of any moves.

For each move, we examined the distance moved, the age at moving, and the neighbourhood of origin and of destination. For moves between grid-cells, we calculated the number of short distance moves (<10 km), medium distance moves (10-50 km) and long-distance moves (>50 km), based on commonly used definitions of distances moved in Swedish research on mobility (for instance Malmberg and Pettersson 2007). Age was categorized as pre-school ages (0-6); early school-ages (7-11); and late school-ages (12-15). In order to examine neighbourhood change before and after moves, the neighbourhood of residence was compared for age 0 and age 16. Type of neighbourhood was defined by the average disposable household income of the population in the DeSO area the child lived in, dividing neighbourhoods in quintiles. By comparing the origin and destination neighbourhood, we assessed whether children who moved, experienced an increase or a decrease in neighbourhood deprivation. Frequency of childhood moves is the sum of moves between age 0-16 calculated for the different definitions of mobility and categorized as: no move, one or two moves, and three or more moves.

Foreign-born children and children who emigrated from Sweden between age 0 and 16 were removed from the analysis, as no information on moving dynamics abroad was available. In the analysis, Swedish-born children with parents born in Sweden are compared with Swedish-born children with at least one parent born abroad; the second generation. Region of origin of parents was stated as Sweden if both parents were born in Sweden. Otherwise, parental region of origin was defined by region of origin of the mother, and if that was not available or the mother was Swedish-born, region of origin of the father. Based on the most common migrant groups in Sweden in the time periods under investigation, we used the classification: Sweden, West/Central/Southern Europe; East/Southeast Europe; Middle East; Horn of Africa, and the rest of the world. In addition, region of residence in Sweden was included as metropolitan area, large cities, towns, and rural areas using the municipality classification of the Swedish Association of Local Authorities and Regions (2011) applied to the child's place of birth.

Parental socioeconomic status was examined using completed education, reception of social benefits, and family income. The highest completed level of education was compared for both parents, with the following categories: both parents compulsory educated, at least one parent higher educated, and other. We also included whether none, one or both parents received any social benefits in the year the child was born. Family disposable income was measured in the year the child was born, as disposable income in the lowest or highest quintile or in the middle three quintiles.

Parental union dissolution status is based on comparing the family composition of the family the child resides in at age 0 and 16. If children did not live with both parents at age 0 or if the parents were not living together when the child was 16, the child is assumed to live at least part of their childhood in a non-intact family.

Analytical Strategy

Our analytical strategy consisted of first, examining internal mobility patterns from age 0 to 16 among children with Swedish-born parents and children with foreign-born parent(s), exploring the frequency, timing and distance of moving. Second, two types of multivariate regression analyses were conducted using different dependent variables measuring mobility: 1) a multinomial analysis comparing supermovers (moving 3 or more times in childhood) versus those moving once or twice; 2) multinomial regression analyses comparing the likelihood of being a short-, medium- or long-distance mover among supermovers. In these models we pool both birth cohorts and include year of birth, family composition, parental socioeconomic status and migrant characteristics as independent variables, together with gender and place of residence.

Finally, the relationship between childhood internal mobility and neighbourhood change was examined by investigating whether those children moving, and especially so supermovers, experienced downward or upward neighbourhood socioeconomic status.

Population Description

Table 1 shows descriptive statistics of the cohorts of children born in 1990 and 2000, who remained in Sweden for their first 16 years of life. Fertility in 1990 was at one of the peaks in Sweden's roller coaster fertility with more than 120,000 births. Ten years later, fertility had decreased to about 90,000 births. In the cohort born in 1990, 83 percent of the children born in Sweden had two parents who were born in Sweden. In 2000, this had decreased to 78 percent. The different waves of immigration to Sweden are reflected in the migrant backgrounds of their

children. The share of children with parents born in West, Central or South Europe decreased in 10 years' time, with especially children with Finnish mothers decreasing. The share of children with parents born in East or Southeast Europe increased, especially so the share of children with fathers from former Yugoslavia. The number of children with parents from the Middle East has increased over time; with decreases in children with parents from Turkey and Iran, and increases in the number of children with parents born in Iraq. The majority of children with African backgrounds originate in the Horn of Africa, in recent years especially Somalia. There is a large variety of country backgrounds for children from other areas, with over time, an increase in children with parents from Thailand and Afghanistan, among others.

In these 10 years, we do not only see effects of immigration, but also of urbanisation and increasing levels of education among the population. The share of children born in metropolitan areas increased with 5 percentage points, and the share of children with at least one parent who is higher educated increased with 9 percentage points, while it has become increasingly uncommon to have two parents with only compulsory education. It is not so common to live in families living on social benefits; this applies to about 10 percent of all children and did not change between the cohorts. Only a small share of children was born in families belonging to the highest income quintile of the total population, while about a third was born into families with the 20 percent lowest family incomes at that time. An important determinant of childhood mobility is parental dissolution. Around 40 percent of children of each cohort experienced parental dissolution in their childhood.

Table 1. Descriptive statistics of children born in 1990 and 2000

		Cohort 1990 (%)	Cohort 2000 (%)
Gender			
	Men	51.2	51.6
	Women	48.8	48.4
Parental region of origin			
	Sweden	83.4	78.3
	West/Central/South Europe	8.1	5.8
	East/Southeast Europe	2.0	3.8
	Middle East	2.8	5.5
	Horn of Africa	0.3	1.1
	Rest of the world	3.4	5.5
Region of residence at birth			
	Metropolitan areas	30.0	35.0
	Large cites	32.7	32.8
	Towns	31.2	27.0
	Rural areas	6.1	5.1
Parental educational attainment			
	Both compulsory education	7.1	3.7
	At least one parent higher education	28.9	37.7
	Other	64.0	58.5
Parental social benefits			
	No parent receiving social benefits	90.3	89.2
	One parent receiving social benefits	2.2	2.6
	Two parents receiving social benefits	7.5	8.2
Family income			
	Lowest quintile	33.9	32.1
	Middle quintiles	61.2	60.4
	Highest quintile	4.9	7.4
Experienced parental dissolution			
	Yes	41.2	39.8
	No	58.8	60.2
N		115,814	85,364

Source data: register data, authors' calculations

RESULTS

Frequencies of Childhood Internal Mobility using Different Definitions of Mobility

Figure 1 shows the percentage of children moving at least once for the cohorts born in 1990 and 2000, according to five different definitions of mobility. The first bars represent any moves, measured as the total number of moves, also including several moves within the year, showing that 72-73 percent (across cohorts) of the children move at least once during childhood. This mobility measure is very close to mobility measured as yearly moves between properties (69-74 percent) and moves between grid-cells (69-70 percent). These latter two moves between small geographical units are more common than moves between DeSO areas (61-62 percent) and municipalities. Only a quarter of children moves between municipalities during childhood. We will focus our subsequent analyses on moves between grid-cells, as this is one of the most

meaningful measure of mobility while still being sufficiently detailed, and is comparable to moves between properties.

When considering those who move between grid-cells, many children move once (27-28 percent across cohorts), a smaller share moves twice (17-18 percent across cohorts), but quite many children move three times or more often: this applies to 26 percent of the 1990 cohort and 23 percent of the 2000 cohort. Thus, in between 23 and 26 percent of recent cohorts of children may be considered as supermovers. Among the most recent cohort of children, the share of supermovers has decreased slightly, though the share of children moving once increased.

These measures are in line with existing literature showing the high rate of mobility among children in Sweden (Bernard and Vidal 2020) and Scandinavia (Tønnessen et al. 2016), but these results make clear that the definition of mobility significantly impacts the rate of mobility, especially as the number of administrative units such as municipalities vary greatly across and within countries in terms of size and number.

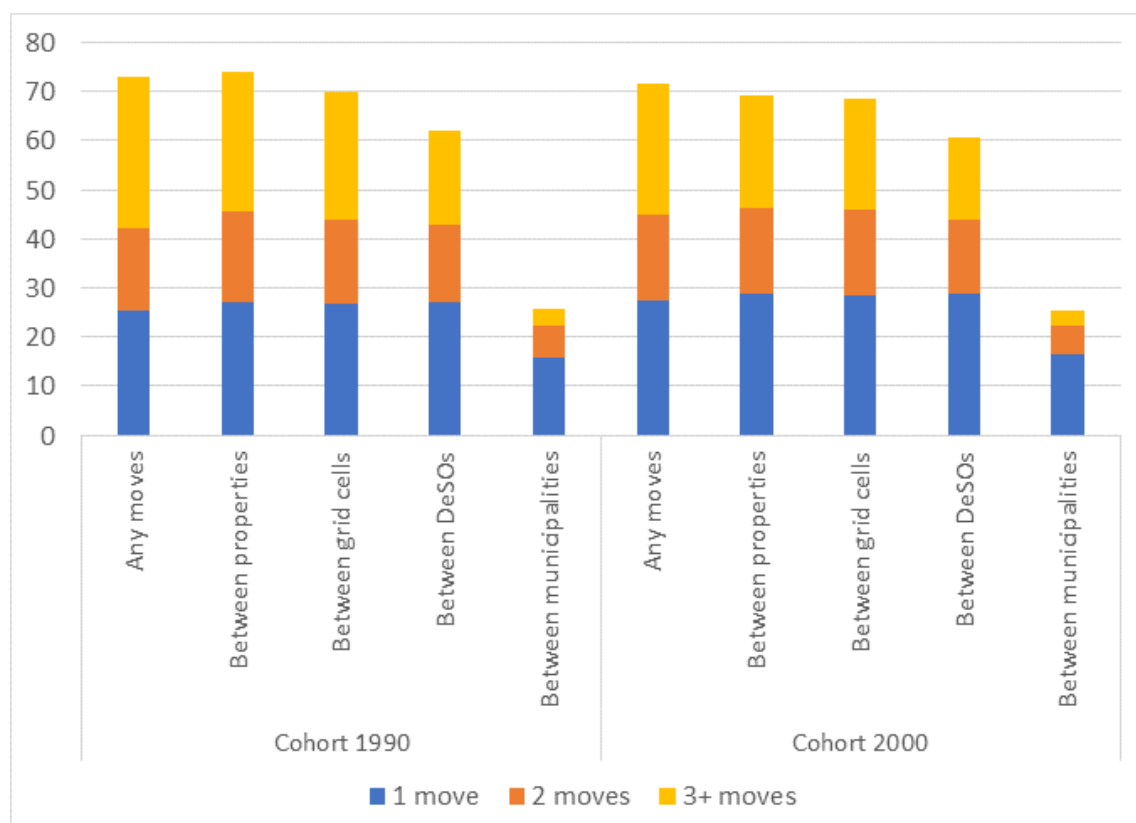
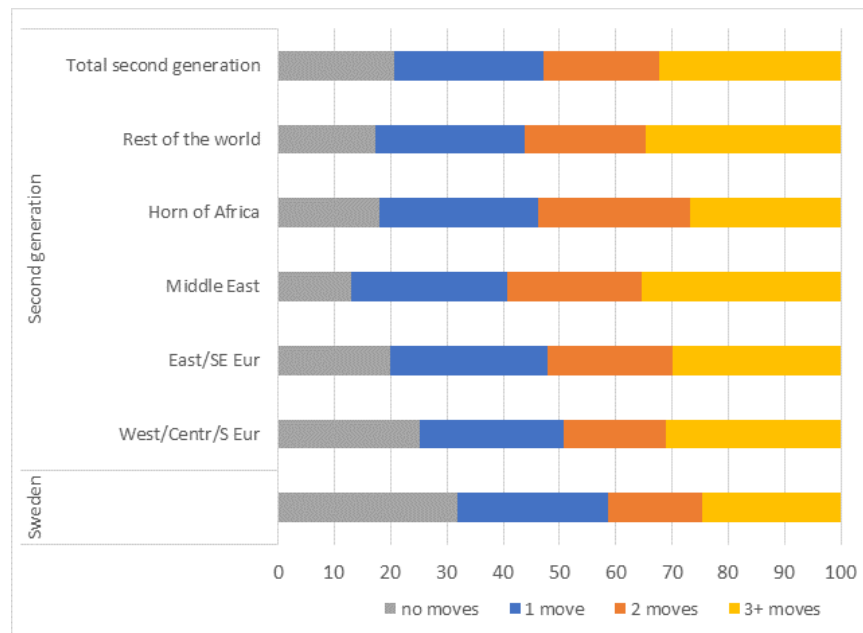


Figure 1. Percentage of children moving at least once for different definitions of mobility for cohorts 1990 and 2000

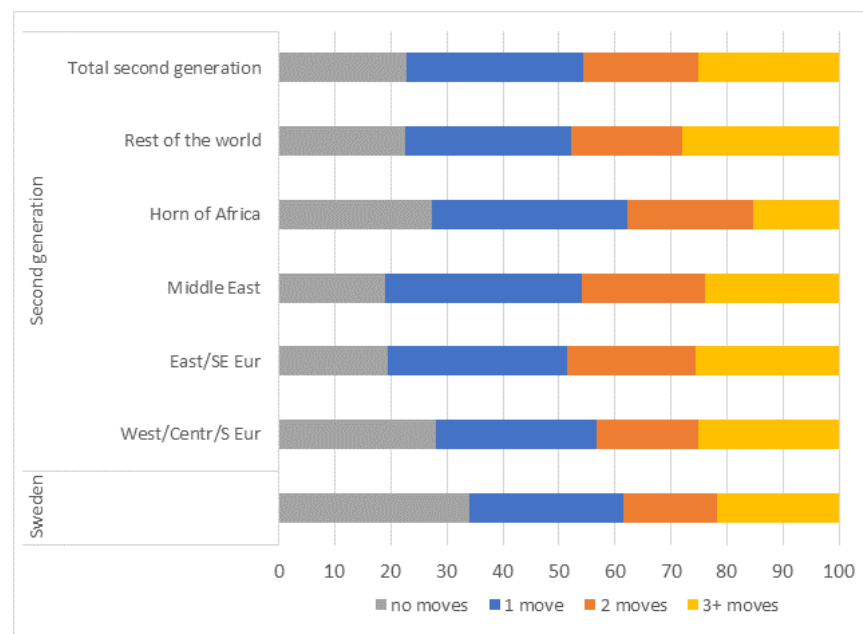
Source data: register data, authors' calculations

Frequencies of Childhood Internal Mobility by Migrant Background

Moving in childhood is thus very common in Sweden, with 69 percent of children moving at least once during childhood, using the definition of mobility as moves between grid cells. Here, we examine childhood mobility for the cohorts 1990 and 2000 for those children with Swedish-born parents and those with foreign-born parents.



2a: Cohort 1990



2b: Cohort 2000

Figure 2. Frequency of moves by migrant background for children from cohorts 1990 and 2000

Source data: register data, authors' calculations

Figure 2 shows that children of migrants move more compared to children with Swedish-born parents and children with a migrant background also move more often frequently – on average 77-79 percent compared to 66-68 percent among children with Swedish-born parents. There is much variation by migrant background. Moving is most common for those with a background from the Middle East (81-87 percent), the rest of the world (78-83 percent) and East/Southeast Europe (80-81 percent). These three groups are all more likely to be supermovers as well. For cohort 1990, children with parents from the Horn of Africa were very likely to move (82 percent) but for cohort 2000 this decreased to 73 percent; these children were less likely to be supermovers and more likely to not move at all compared to the 1990 cohort. Moving once is more common for children with a migrant background compared to those with a Swedish background though differences are not substantial. Children with parents from the Middle East, East/Southeast Europe and the rest of the world are more likely to move twice during childhood, compared to those with Swedish and Western European parents.

Table 1 in the appendix shows descriptive statistics for children's mobility patterns for the different cohorts, for those not moving, moving once or twice, and supermovers. All children were more likely to be supermovers when born in 1990 compared to being born a decade later, but especially so for children with parents from the Horn of Africa or the Middle East. The frequency of moves varies substantially by parental socioeconomic status. Supermobility among children is most common when both parents only have primary education (40-45 percent of these are supermovers), when a parent received social benefits (40-61 percent of these are supermovers) or when the child was born in a low-income household (31-32 percent of these are supermovers). A clear difference between the cohorts is that over time we see a decrease in frequent moving among children in families where parents receive social benefits, while frequent moving has become more apparent among children with lower educated parents. Another clear marker for children to become supermovers is if their parents separated during the children's youth; among children whose parents separated, 40-43 percent moved once or twice, and 42-48 percent became supermovers.

Timing

As the timing of childhood mobility is seen as crucial in terms of later-life effects, figure 3 shows for each age-group the percentage of children who moved at least once by migrant background for both cohorts². Childhood internal mobility is relatively common even among

² Children can appear in several of these age groups if they move at different ages.

older ages in childhood. Over half of children move at least once before the age of 7, when children are partly at home with their parents, partly at preschool³ while starting primary school around age 6 (55-56 percent moved). However, moving during childhood is not only concentrated in very young ages, as 28-32 percent of children, across cohorts, move between ages 7-11, which is the first part of primary school⁴, and 23-25 percent moves between ages 12-15, the second half of compulsory, primary, schooling. This partly confirms the discourse or norm that it may be better to move when children have not started primary school yet, though a substantial proportion of children also moves during school-ages.

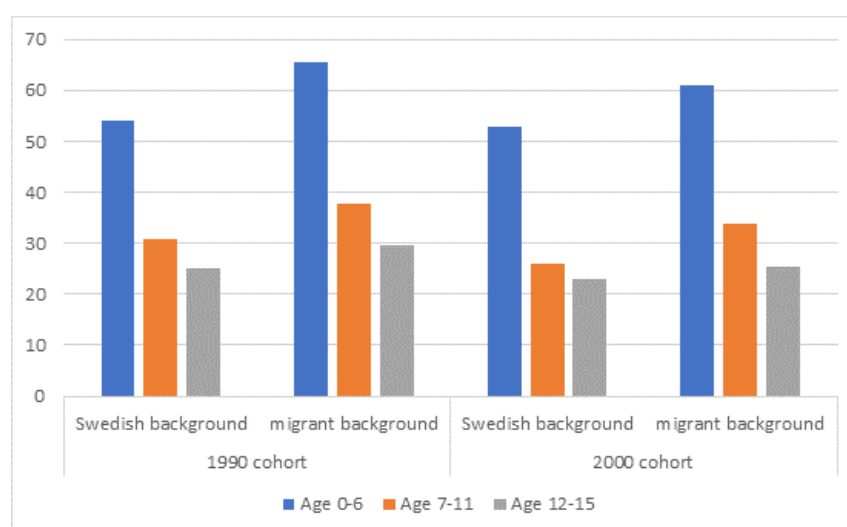


Figure 3. Percentage of children moving at least once by school period and migrant background, for cohort 1990 and 2000

Source data: register data, authors' calculations

Furthermore, across all age categories moving is more common among children of immigrants compared to children of Swedish-born parents, though the differences are largest

³ In recent years, more than 90 percent of 2-6-year olds attended preschool (Swedish Association of Local Authorities and Regions 2022).

⁴ A few important changes need to be reported here. First, an increasing number of children has enrolled in independent schools since their introduction in the 1990s. Independent schools are, like municipal schools, equally free for pupils to attend, but are funded privately (for an overview see Lundahl et al. 2013). In 1996-97, when cohort 1990 started grade 1, about 2 percent of children were enrolled in independent schools (and 98 percent in mostly municipal schools, which had changed to 8 and 92 percent, respectively, in 2006-07, when cohort 2000 started grade 1 (Swedish National Agency for Education 2023). Second, not all schools offer all 10 years of compulsory schooling. In 1996-97, half of all students in compulsory school were in schools offering only years 1-6, but this had decreased to 28 percent in 2006-07. The share of schools offering years 1-9, which are mostly located in metropolitan areas, increased from 22 to 34 percent for all students in this time period, and the share of schools offering only years 7-9 decreased slightly from 15 to 13 percent (Swedish National Agency for Education 2023). These different compositions of local schools may affect childhood mobility, as locally, not all years may be offered, and as independent schools are gaining in popularity, especially in metropolitan areas.

for the youngest children: 61-66 percent of children with a migrant background moves before the age of 7 (vs. 53-54 percent for children with Swedish background), 34-38 percent between ages 7-11 (vs. 26-31 percent) and 25-30 percent between ages 12-15 (vs. 23-25 percent). There is not much difference in the timing of moving across birth cohorts, although school-aged moves are slightly less common among children born in 2000.

Distance Moved and Geographical Patterns of Childhood Internal Mobility

Figure 4 shows that the average distance moved (calculated across all moves) tends to be short; for both cohorts, around half of the children moved on average over a distance shorter than 5 kilometres. Children of immigrants tend to move shorter as well as longer distances compared to children of Swedish-born parents, but differences are small and the general pattern is similar. In the most recent cohort, 55 percent of children of immigrants move over very short distances (≤ 5 km) compared to 51 percent for children with Swedish-born parents; 8-9 percent of children of immigrants move over very long distances (≥ 100 km) compared to 7 percent of children with Swedish-born parents.

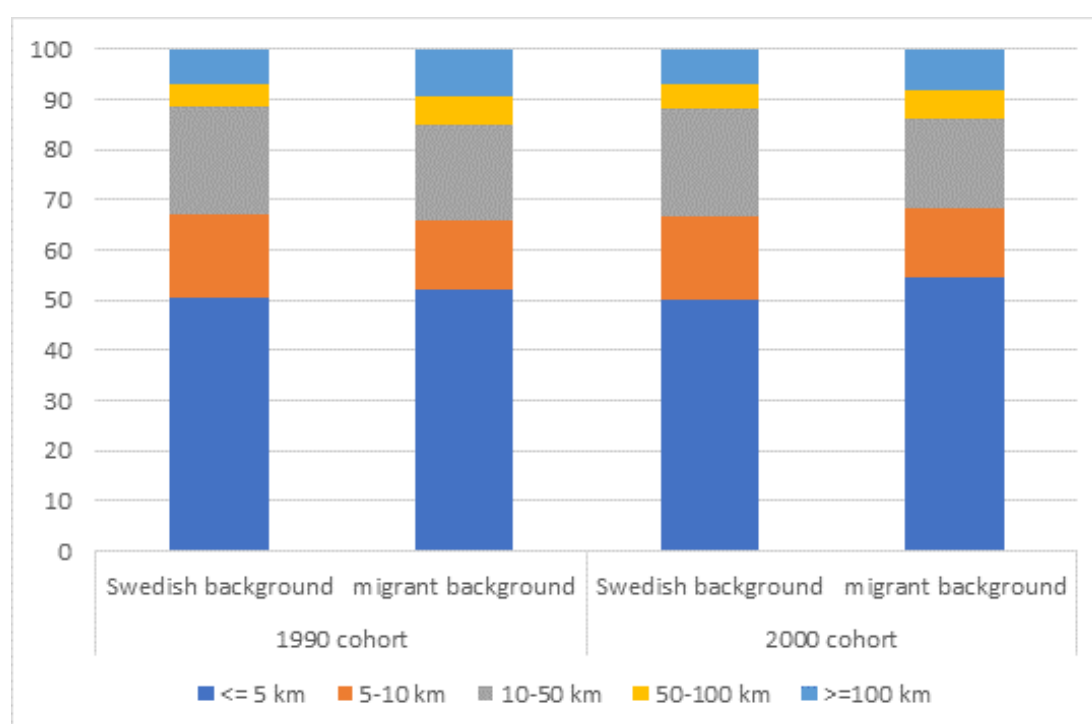


Figure 4. Average distance moved in childhood by migrant background, children who moved, cohorts 1990 and 2000

Source data: register data, authors' calculations

Figure 5 shows that the average distance moved increases with the frequency of moves. Children with a Swedish and a migrant background who move once, move on average 21 km, whereas supermovers move much longer distances: supermovers with a Swedish background on average move 31-32 km, and supermovers with a migrant background on average 40 km.

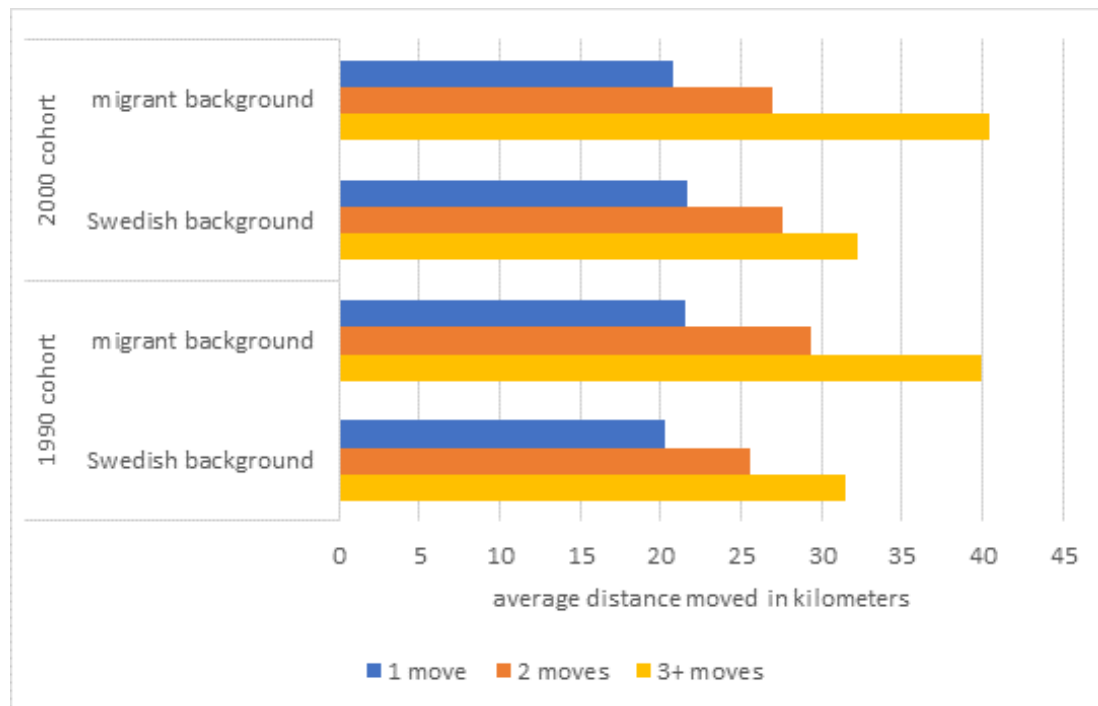


Figure 5. Average distance moved by frequency of moves and migrant background, cohorts 1990 and 2000

Source data: register data, authors' calculations

Figure 6A and 6B show the share of children moving at least once, and the share of children who are supermovers, for each DeSO area where at least 10 children were born, for cohorts 1990 and 2000. These maps show that the share of children moving at least once is somewhat larger in metropolitan areas, while this pattern is not visible for supermovers.

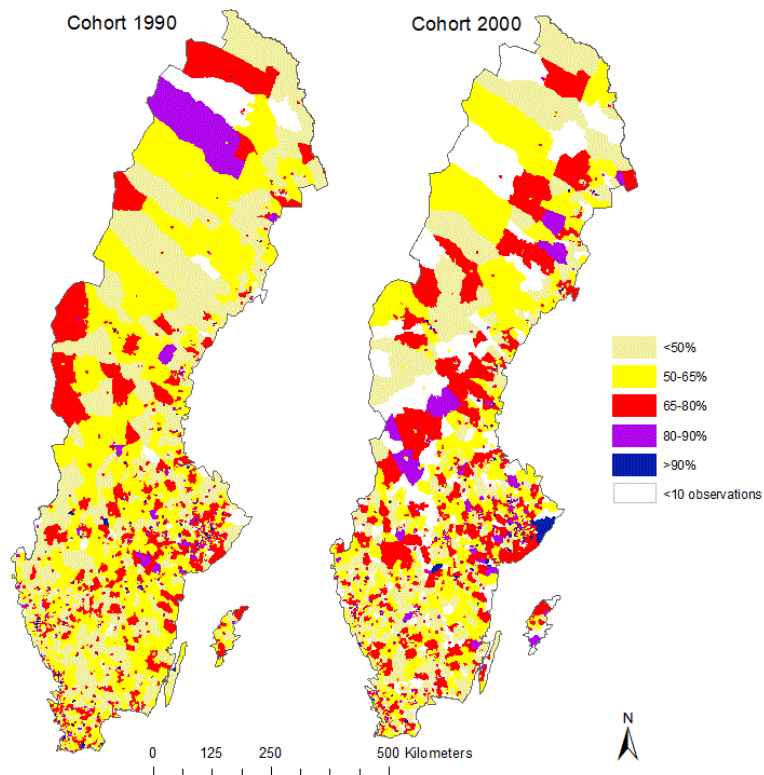


Figure 6A. Share of children moving at least once during childhood, DeSO areas

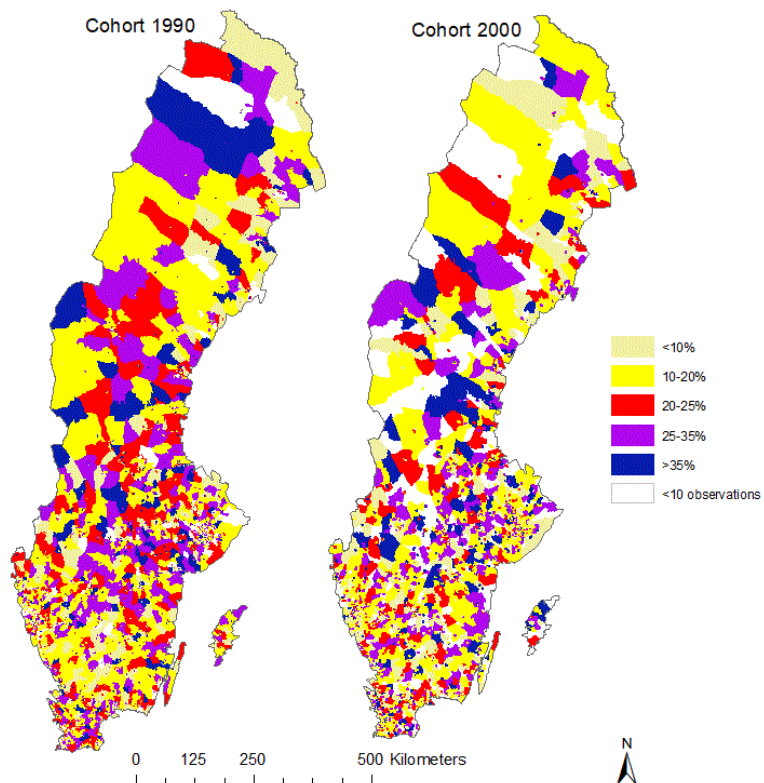
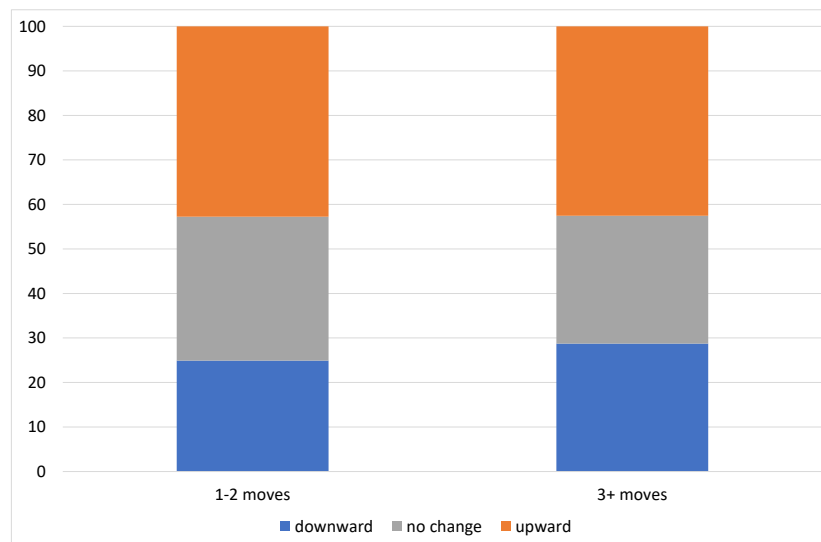


Figure 6B. Share of children moving at least three times during childhood, DeSO areas

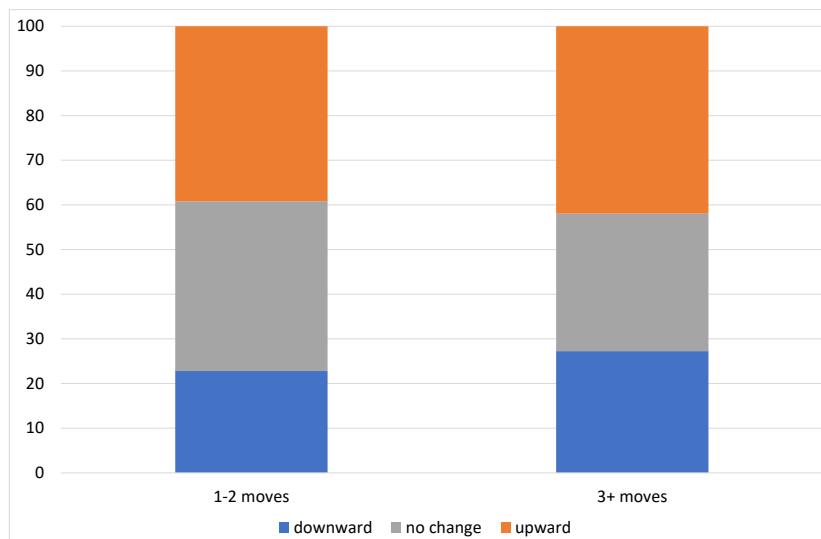
Source data: register data, authors' calculations

Neighbourhood Change

Since frequent moving is often associated with more disadvantageous situations, we examined changes in the neighbourhood socioeconomic composition for children moving frequently, compared to children moving once or twice. Figures 7A and 7B shows to what extent children experienced a downward or upward move when comparing their residential neighbourhood (DeSO) at birth and age 16.



a) Cohort 1990



b) Cohort 2000

Figure 7. Share of children moving to worse (downward), similar (no change) and better (upward) neighbourhoods in terms of average household income, by frequency of moves, for a) cohort 1990, and b) cohort 2000

Source data: register data, authors' calculations

Children who are supermovers, more often move downwards, to relatively lower income neighbourhoods, compared to children moving once or twice. However, children moving a few times or very frequently are equally likely to move to better neighbourhoods. In 2000, supermovers are even slightly more likely to move to better neighbourhoods throughout their childhood. It should be noted, however, that this analysis is not differentiated by neighbourhood of origin. It is reasonable to assume that children born in a deprived neighbourhood are more likely to move and particularly move frequently (see Kuyvenhoven et al., 2023), which might imply that a larger proportion of children moving frequently without neighbourhood change are moving within or between deprived areas compared to children moving once or twice without neighbourhood change.

Supermovers – Frequencies of Supermobility Explained

Here, we focus on children we label as supermovers: those who move at least three times in their childhood. The descriptive analysis has shown that children with a migrant background, especially from the Middle East, East/Southeast Europe and the rest of the world are more likely to be supermovers, as are children in more instable families, because of parents receiving social benefits, having a low family income or having separated. In this section, using multivariate models, we 1) scrutinize what the most important determinants of the frequency of childhood internal mobility are, using demographic, migrant and socioeconomic characteristics of these children's families; and 2) examine the determinants of the average distance children move during childhood, focusing on those moving frequently, as longer distances are associated with disrupted networks, and allegedly may have larger later-life effects. Analyses are conducted using mobility defined as moves between grid cells.

Table 2 shows the results of multinomial logistic regression analyses, with the frequency of childhood mobility as the dependent variable. In these first series of models, the dependent variable has three outcomes, comparing moving 3 times or more often and moving once or twice, versus those not moving. We employed a stepwise strategy with Model 1 including birth cohort, gender, parental region of origin, and region of residence at birth; Model 2 adds whether children experienced parental union dissolution, and Model 3 adds three variables measuring parental socio-economic status. All models are conducted for both birth cohorts together and year of birth is included as a covariate.

Results show that, even when adding geographical and socioeconomic determinants, children with a migrant background are more likely than children with a Swedish background to move, and to move frequently. This applies to all migrant groups except for children with

parents from the Horn of Africa: they are less likely to move compared to children with a non-migrant background. Children with parents from the Middle East are the most likely to move once or twice (RRR 2.142 in Model 3) as well as to move frequently (RRR 1.774 in Model 3). Similar patterns are found for children with a background from the rest of the world or East or Southeast Europe, who are 1.426 and 1.776 more likely to move once or twice and 1.290 and 1.474 more likely to be supermovers compared to children with a Swedish background.

Model 1 includes besides parental region of origin, birth cohort, gender and region of residence at birth and does not explain a large share of the variance in childhood internal mobility (R^2 of 0.012). In the descriptive findings, we showed that there are no clear geographical patterns of supermovers. The multivariate models confirm this pattern showing that, when taking into account migrant and socioeconomic characteristics of families, children born in metropolitan areas more often move once or twice in childhood, while children in towns and rural areas are less likely to move once or twice, compared to children in large cities. Children born in metropolitan areas, on the other hand, are not more likely to be supermovers.

One obvious explanatory factor of moving in childhood is parental union dissolution. Parental separation is expected to lead to at least one move for either parent, but may also be associated to several moves, also for children. The results for including parental separation (Model 2) show that indeed, those children who experienced parental union dissolution are more likely to move a few times (RRR 2.860) and much more likely to move very frequently (RRR 15.194). The explained variance of this model is significantly improved (about 10 times as large) compared to the first model, implying that children who may already be vulnerable due to their parents' separation, may suffer cumulative disadvantage because of moving frequently after their parents' union dissolution. Adding parental union dissolution does not explain much of the differences between children of different foreign descent, as was found in the Netherlands (Kuyvenhoven et al. 2022), except for children with parents from the rest of the world, where supermobility is (partly) explained by their differing rates of union dissolution.

The final model (Model 3) adds several indicators for parental socioeconomic status, which improves the explanatory force of the model in a significant but subtle way. Having at least one higher educated parent is associated with an increased likelihood to move a few times, compared to not moving. The association between parental education and supermobility is different: those with at least one higher educated parent are less likely to be supermovers while children with two lower educated parents are more likely to be supermovers.

A second indicator for parental socioeconomic status is parental receipt of social benefits. Having two parents receiving social benefits in the year the child was born is associated with an increased likelihood to move a few times during childhood (RRR 1.710), and especially related to move frequently (RRR 3.607). Finally, family income also plays a role in childhood internal mobility. Children with parents in both the lowest and the highest income quintiles are less likely to move frequently, and children in low income families are less likely to move once or twice. Hence, supermobility can be associated with lower educated parents, middle-income families and families receiving social benefits. On the other hand, families who move a few times more often are higher educated, at the same time moving a few times is associated with living in a family receiving social benefits.

When we control for family socioeconomic status (Model 3), in the model for supermovers, the relative risk ratio for parental union dissolution is somewhat reduced but still very large (RRR 13.334). The relative risk ratios do change in strength for parental region of origin. The increased mobility of children with parents from the Middle East, East/Southeast Europe and the rest of the world is to some extent explained by their lower socioeconomic status.

Table 2. Results of multinomial logit models of the frequency of childhood internal mobility (mobility defined as moves between grid cells), cohorts 1990 and 2000, relative risk ratios

		1-2 moves			3+ moves		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant		1.446***	1.120***	1.140***	0.816***	0.254**	0.284***
Birth cohort (ref: 1990)	2000	0.927***	1.000***	1.000***	0.784***	1.000***	1.000***
Gender (ref: male)	Female	1.030**	1.028*	1.028*	1.068***	1.058***	1.061***
Parental region of origin (ref: Sweden)	West/Central/South Europe	1.219***	1.158***	1.158***	1.506***	1.304***	1.221***
	East/Southeast Europe	1.877***	1.893***	1.776***	1.989***	2.007***	1.474***
	Middle East	2.214***	2.390***	2.142***	2.430***	3.106***	1.774***
	Horn of Africa	1.454***	1.149*	0.969	1.035	0.587***	0.285***
	Rest of the world	1.614***	1.473***	1.426***	2.138***	1.673***	1.290***
Region of residence at birth (ref: large cities)	Metropolitan areas	1.304***	1.264***	1.259***	1.032*	0.937***	0.979
	Towns	0.708***	0.701***	0.707***	0.842***	0.822***	0.781***
	Rural areas	0.663***	0.641***	0.649***	0.849***	0.771***	0.736***
Experienced union dissolution (ref: no)	Yes		2.870***	2.860***		15.194***	13.334***
Parental education (ref: other)	At least one parent higher education			1.036**			0.679***
	Both parents compulsory education			1.005			1.277***
Parental social benefits (ref: no social benefits)	One parent receiving social benefits			1.326***			2.220***
	Two parents receiving social benefits			1.710***			3.607***
Family income (ref: middle quintiles)	Lowest income quintile			0.855***			0.905***
	Highest income quintile			0.961			0.833***
R²		0.0123***	0.1078***	0.1180***	0.0123***	0.1078***	0.1180***
N		201,178	201,178	201,178	201,178	201,178	201,178

Note: *p<0.05; **p<0.01; ***p<0.001.

Source data: register data, authors' calculations

Distance Moved Explained for Supermovers

In this final section, we examine the distance children moved in more detail, using multinomial logistic models. Table 3 shows the results of a multinomial logit model for different categories of average distances moved across childhood, including only those children categorized as supermovers (N=49,274, 24% of the total population). The reference category of the outcome is moving on average short distances (≤ 10 km).

Almost all children with a migrant background who are supermovers are more likely to move longer distances (>50 km) compared to children with Swedish-born parents with the exception of children with parents from East/south-East Europe who are slightly less likely to move longer distances. Such moves are generally seen as regional migration in the Swedish context, and this is most common for children with parents from the Horn of Africa. This may be related to their parents moving after being placed in rural areas under the refugee placement policy in place. Supermovers with a migrant background do not differ from children with Swedish-born parents in moving over middle-long distances (10-50 km), although children with East/Southeast European parents are slightly less likely to make those moves. Children born in rural areas who move very frequently throughout childhood, move the largest distances, but children born in metropolitan areas are also more likely to move longer distances if they move frequently.

Table 3. Results of multinomial logit model of childhood internal mobility (mobility defined by moves between grid cells), by distance categories, cohorts 1990 and 2000, only supermovers, relative risk ratios (ref:<10 km)

		10-50 km	>50 km
Constant		0.349***	0.264***
Birth cohorts (ref: 1990)	2000	0.234***	0.342***
Gender (ref: male)	Female	1.061*	1.039
Parental region of origin (ref: Sweden)	West/Central/South Europe	1.017	1.149**
	East/Southeast Europe	0.827*	0.819*
	Middle East	0.985	1.593***
	Horn of Africa	1.075	2.289***
	Rest of the world	0.955	1.225***
Region of residence at birth (ref: large cities)	Metropolitan areas	0.980	1.131***
	Towns	1.093**	0.996
	Rural areas	1.158**	2.258***
Experienced union dissolution (ref: no)	Yes	0.985	0.612***
Parental education (ref: other)	At least one parent higher education	1.315***	2.225***
	Both parents compulsory education	1.149***	0.981
Parental social benefits (ref: no social benefits)	One parent receiving social benefits	1.304***	1.446***
	Two parents receiving social benefits	1.565***	1.718***
Family income (ref: middle quintiles)	Lowest income quintile	1.216***	1.337***
	Highest income quintile	1.254***	1.635***
R²		0.0645***	
N		49,274	

Note: *p<0.05; **p<0.01; ***p<0.001.

Source data: register data, authors' calculations

Having experienced parental union dissolution is associated with slightly lower likelihoods to move longer distances; it is more common for these children to move very short distances, which seems in line with Swedish parents living in proximity to each other after a divorce (Turunen et al. 2023).

Parental socio-economic status also explains some of the differences between shorter and longer distance moves among supermovers. In the previous analyses, we showed that having higher educated parents was associated with moving a few times, but not with moving frequently. Table 3 shows that children with high educated parents who do move frequently are more likely to either move middle-long distances (RRR 1.315 for moving 10-50 km) or to move longer distances (RRR 2.225 for moving >50 km); and are less likely to move short distances. On the other hand, for families where both parents are lower educated, children are more likely to move middle-long distances. Children growing up in families receiving social benefits are generally more likely to move middle-long to long distances, and are less likely to move the shortest distances. The results for family income show that growing up in low-income and in affluent families is associated with moving middle-long to longer distances, while those in the middle-income classes who move frequently tend to move very short distances. Finally, table 3 shows that moving short distances has increased over time⁵.

Conclusions

This study has examined the prevalence and determinants of childhood mobility among recent cohorts of children in Sweden, using longitudinal full-population data for children born in 1990 and 2000. We have had a special focus on so-called supermovers, children moving at least three times. From the substantive literature linking childhood mobility to later-life outcomes, we know it is important to distinguish between frequency of moves, distance moved, timing of moving and direction of moves, as these dimensions have different associations with educational and behavioural outcomes later in life. In the first part we described mobility patterns across those different dimensions for children born to migrant and non-migrant parents, in the second part we explored the determinants of supermobility across different distances more in-depth.

In terms of frequency, we found that childhood mobility is common in Sweden. About 70 percent of children move during the first 16 years of life, if we defined mobility by change of

⁵ A robustness check was performed analysing the sum of all distances moved in childhood, instead of the average distance moved. This analysis showed a similar pattern.

grid cells. Moves between administrative areas are less common but still high: more than 60 percent has moved between DeSO areas and about 25 percent has moved between municipalities. These childhood mobility rates are high in an international perspective (Bernard and Vidal 2020). Supermovers, children moving at least three times during the first 16 years of life, are also a common phenomenon in Sweden: 26 percent of all children born in 1990 may be labelled supermovers, and 23 percent of the 2000 cohort. These shares are almost as high as the shares moving once in childhood.

Three sets of factors are associated with the frequency of childhood moves, and supermobility in particular. First, having a migrant background is associated with higher rates of childhood mobility. Our multivariate models showed that especially children with a background from the Middle East are more likely to move once, twice, or more than that, also after controlling for family socioeconomic status. Second, parental union dissolution not only leads to many children moving once, but is significantly associated with supermobility for children. Hence, children who already are in a vulnerable situation due to parental union dissolution, are exposed to cumulative disadvantage due to frequent moving during childhood. Third, parental socioeconomic status also contributes to explaining the frequency of childhood mobility, and supermobility. Having higher educated parents is associated with an increased likelihood to moving a few times, and a decreased tendency to move very often. On the other hand, lower educated parents may be a sign of vulnerability as this was found to be associated with supermobility. In addition, having parents who are social welfare recipients is related to increased moving during childhood, and especially so to moving very frequently. Growing up in families in the middle-income quintile is associated with supermobility and moving once or twice. Adding parental socioeconomic status explains some of differences in migrant background, but not much.

The second dimension of childhood mobility is the timing of moving. We found that childhood mobility is most common before children start compulsory school in Sweden, with more than half of all children moving before age 7. However, moving when being in compulsory schooling is not uncommon either, with almost a third of children moving between ages 7 and 11, and about a quarter moving between ages 12 and 16. Children with a migrant background move more often across all ages, but especially so during pre-school ages. These findings are important when considering the later-life outcomes of childhood mobility, as it is generally assumed that moving during adolescence is perceived more harmful compared to moving during earlier ages (Simsek et al. 2021).

The distance moved is the third dimension of childhood mobility considered in this paper. Moving long distances is generally perceived to be more disruptive to children's lives as they may have to change schools, and make new friends, though empirical research find mixed results. Here, we find that most children move short distances, with children with a migrant background more often moving both shorter and longer distances. Exploring the average distances moved across childhood among supermovers, we find that most children with a migrant background tend to move longer distances, i.e. over 50 kilometres. Children born in the most rural areas tend to move the longest distances, but also children born in the most urban areas move longer distances. The most surprising finding here was that especially children with parents from the Horn of Africa tend to move long distances, while we found this group to be less likely to move in general. These findings may indicate that these families might not move often, but when moving, move long distances as they may have been allocated to rural areas in their introduction programme to Sweden (Andersson and Solid 2003; Khaef and Haandrikman 2023). Children who move frequently after union dissolution are less likely to move longer distances, perhaps as most parents tend to live close together after separation (Turunen et al. 2023). Though families with higher educated parents might not move frequently, those who do move frequently tend to move longer distances. Children with parents receiving social benefits and parents with the lowest incomes who move frequently also tend to move longer distances.

The fourth dimension of childhood mobility, the direction of moving, was investigated by comparing the average household income of the neighbourhood at birth and the neighbourhood at age 16. The majority of moving children, move to higher-income neighbourhoods, but supermovers are more likely to move to lower-income neighbourhoods. At the same time, moving upwards is equally likely for those moving a few times or those moving frequently. These findings stimulate further research into the dynamics of neighbourhood change in relation to moving frequently, for different groups of children.

In summary, there is very clear evidence of supermobility being common among children in Sweden. Children in instable situations, such as families living on social benefits or with parents who separate during childhood, move more often. Families with parents from the Middle East are especially likely to be supermovers. Experiencing parental union dissolution leads to supermobility, and this may exacerbate already vulnerable families. These results indicate that children in vulnerable families and families with migrant backgrounds are at additional risk of suffering negative consequences due to the high number of moves they experience during childhood. These children may face increased adverse later-life outcomes, also as moves take place in adolescence to a substantial effect, such as negative psychological,

behavioural, educational or health outcomes, which should receive attention in future research on childhood mobility. On the other hand, relatively better-off families may move a few times, perhaps because of housing or employment-related reasons. The most positive finding may be that many families who move, move to better neighbourhoods, even those who move frequently, which perhaps compensates for other negative effects of moving frequently.

Acknowledgments

For the first author, this study was supported by the Swedish Research Council for Health, Working Life and Welfare (Forte) under grant number 2016—07105 and the Swedish Foundation for Humanities and Social Sciences (Riksbankens Jubileumsfond), grant registration number M18-0214:1. For the second author, this study is part of the MyMove project funded by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement number 819298, PI: Helga A.G. de Valk).

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Appendix Table 1. Descriptive statistics of children born in 1990 + 2000 by frequency of mobility (mobility defined as moves between grid cells)

		Cohort 1990			Cohort 2000		
		No moves	1-2 moves	3+ moves	No moves	1-2 moves	3+ moves
Gender							
	Men	30.5	44.0	25.4	31.8	46.0	22.2
	Women	29.4	44.1	26.5	31.2	46.0	22.8
Parental region of origin							
	Sweden	31.8	43.4	24.7	34.0	44.3	21.8
	West/Central/South Europe	25.1	43.9	31.0	27.9	46.9	25.2
	East/Southeast Europe	19.8	50.2	30.0	19.5	54.9	25.7
	Middle East	12.9	51.6	35.5	18.8	57.2	24.0
	Horn of Africa	17.9	55.2	26.9	27.3	57.3	15.4
	Rest of the world	17.2	48.2	34.6	22.5	49.6	28.0
Region of residence at birth							
	Metropolitan areas	22.8	51.7	25.5	27.8	52.1	20.1
	Large cites	29.1	44.4	26.4	30.5	46.3	23.1
	Towns	36.0	38.0	26.0	36.9	38.9	24.2
	Rural areas	38.7	35.3	26.0	35.6	38.7	25.7
Parental educational attainment							
	Both compulsory education	22.5	38.0	39.5	16.2	38.7	45.0
	At least one parent higher education	33.7	50.2	16.1	34.9	50.0	15.1
	Other	29.1	41.9	28.9	30.4	43.8	25.8
Parental social benefits							
	No parents receiving social benefits	32.2	45.1	22.6	33.7	46.3	20.0
	One parent receiving social benefits	7.3	31.5	61.2	9.7	37.0	53.3
	Two parents receiving social benefits	9.5	34.6	55.9	15.4	45.0	39.6
Family income							
	Lowest quintile	28.6	40.0	31.4	24.3	44.1	31.6
	Middle quintiles	30.7	45.7	23.7	34.7	46.3	19.0
	Highest quintile	31.5	51.6	16.9	36.8	51.4	11.8
Experienced union dissolution age 0-16							
	Yes	11.6	40.3	48.1	14.8	42.9	42.3
	No	42.8	46.7	10.5	42.6	48.0	9.4
N		34,726	51,013	30,075	26,925	39,240	19,199
%		30.0	44.0	26.0	31.5	46.0	22.5

Source data: register data, authors' calculations

Stockholm Research Reports in Demography
Stockholm University,
106 91 Stockholm,
Sweden
www.su.se | info@su.se | ISSN 2002-617X



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