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*Published in:*  
Population, Space and Place

*DOI:*  
[10.1002/psp.2515](https://doi.org/10.1002/psp.2515)

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*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2022

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Kuyvenhoven, J., Das, M., & de Valk, H. A. G. (2022). Towards a typology of childhood internal mobility: Do children of migrants and non-migrants differ? *Population, Space and Place*, 28(2), [e2515].  
<https://doi.org/10.1002/psp.2515>

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# Towards a typology of childhood internal mobility: Do children of migrants and non-migrants differ?

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## Funding information

European Union's Horizon 2020, ERC Consolidator Grant, Grant/Award Number: 819298

## Abstract

Moving during childhood is an important life event that is often stressful and potentially disruptive. With the majority of existing studies on childhood internal mobility using a one-dimensional measure of mobility and focusing on the total population, there is still limited knowledge on differential childhood mobility patterns for children of different migrant origins. In this study, we acknowledge the multidimensional nature of mobility by covering frequency, timing, distance, and change in place type to understand internal mobility patterns for children aged 0–16 without and with different second-generation migrant backgrounds. Internal mobility is analysed for children born in the Netherlands between 1995 and 2003 using longitudinal full population register data. K-means cluster analysis reveals five types of mobility: nearby preschool-aged, nearby school-aged, long-distance to more densely populated areas, long-distance to less densely populated areas, and frequent movers. Results of multinomial logistic regressions show that having a second-generation migrant background increases the likelihood of being in any of the mobility clusters and reveals variation in types of mobility patterns for different migrant origin groups. We conclude that childhood mobility patterns are diverse and overall more often experienced by children of second-generation migrant origin potentially adding to a more vulnerable situation and inequality over the life course.

## KEYWORDS

childhood, internal mobility, migrants, second-generation, the Netherlands

## 1 | INTRODUCTION

The majority of mobile people around the world are moving within countries (King, 2012). With international migration often being followed by subsequent moves in the country of settlement, people with a migrant background show especially high mobility rates. General studies, focusing on the adult or total population, indeed indicate higher internal mobility rates among the immigrant and ethnic minority population compared with the majority

population (Andersson, 2012 on Sweden; Finney & Simpson, 2008 on the United Kingdom). Descriptive work suggests that this also applies to children with a migrant background, both the first- and second-generation (de Valk, 2010). However, up to now, knowledge of different patterns of childhood mobility is limited, and even more limited for children of diverse migrant origin. It is important to extend our knowledge in this field because moving during childhood is an important life event that is often stressful and potentially disruptive.

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It is widely recognised that the environment in which children grow up influences life chances, and underlying this association is a complex set of interrelated individual, contextual, and structural factors (Jelleyman & Spencer, 2008). Internal mobility during childhood plays at the intersection of these different influences where mobility can be, and often is, accompanied by a change in family structure, housing conditions, neighbourhood context, and a disruption of social networks. Existing studies on childhood internal mobility generally show that moving during childhood has an adverse impact on child development, health, and well-being (for a review, see Jelleyman & Spencer, 2008 and Simsek et al., 2021). On the other hand, it has been argued that moving during childhood might actually have positive implications for later life chances when it involves a move to a better environment (Morris et al., 2018). Studies on childhood mobility outcomes are inconclusive regarding the negative or positive implications of moving. This can partially be explained by the various definitions used for mobility often also capturing just one dimension of moving (Garboden et al., 2017). For example, moving once at a young age over a short distance might have very different implications for a child and its related life chances compared with moving frequently to different places at multiple stages over the life course. Building on insights from the life course paradigm (Elder et al., 2003), we propose that at least four dimensions of childhood internal mobility are especially important and so far insufficiently covered: frequency, timing, distance, and change in place type.

Mobility patterns can furthermore be expected to vary for children of different migrant origins. Although some determinants of internal mobility (e.g., age and life stages) can be expected to be similar for different migrant origin groups, there might also be migrant-specific determinants of internal mobility (e.g., cultural factors or discrimination) (Andersson, 2012; Finney & Simpson, 2008). Furthermore, compositional differences such as family and socio-economic background may also explain higher mobility rates among migrant populations (Andersson, 2012; Finney & Simpson, 2008). Additionally, mobility often co-occurs with other important life events that are especially important to consider when studying childhood mobility (Garboden et al., 2017). These life events can be either disruptive (e.g., parental divorce and job loss) or more beneficial (e.g., improved parental employment) for a child and are potentially more common among certain groups of children (de Valk et al., 2009).

While the potential consequences of moving during childhood have been partially addressed, we identify three important gaps in the literature. First, patterns of mobility in childhood are largely absent as most studies primarily focus on only one dimension of mobility. Second, the existing literature primarily focuses on the majority group or makes no distinction between different (migrant) origin groups. Finally, so far, the existing studies are mainly on the United States, and only few studies focus on Europe. We argue that it is first of all important to gain better understanding of *childhood internal mobility patterns* across different groups of children, which may also point to different levels of vulnerability in childhood and later life. We go beyond a one-dimensional study of mobility and acknowledge its multidimensionality by covering frequency, timing, distance, and change

in place type to understand differential mobility patterns for children without and with different second-generation migrant backgrounds. We are interested in all types of within-country moves and use the term *internal mobility* throughout this paper to refer to any relocation including what scholars distinctively termed local residential mobility and long-distance interregional migration (Cadwallader, 1992).

Our study focuses on the Netherlands and aims to answer the following research questions: *Which patterns of childhood internal mobility can be identified in terms of frequency, timing, distance, and change in place type? How do these patterns differ for children with different second-generation migrant backgrounds and those without a migrant background?* Using full population register data of all children born in the Netherlands between 1995 and 2003, cluster analysis is applied to categorise the different childhood internal mobility patterns, and subsequently, multinomial logistic regression models are used to analyse who is more prone to certain mobility patterns.

## 2 | A LIFE COURSE PERSPECTIVE ON CHILDHOOD INTERNAL MOBILITY

While there is a growing interest in the link between international and internal migration, it is still a largely understudied field especially at the individual level (Bernard & Perales, 2021b). It is known that international migration is often followed by subsequent moves in the country of settlement (Bernard & Perales, 2021b), but relatively little is known about the diverse mobility patterns of different migrant origin and ethnic minority groups (Andersson, 2012; Finney & Simpson, 2008). Even less is known about these patterns for children of immigrants. Overall, children have long been largely ignored in migration research because they are not considered active agents in the moving process (Dobson, 2009). This is surprising, because children are not only often the reason for families to move—for example, with the birth of a child, to improve a child's quality of life by moving to a more child-friendly environment or to improve the economic situation for a child's well-being—but also the child's lives are likely influenced by it (McKendrick, 2001).

The potential consequences of childhood mobility have been addressed across several disciplines studying various outcomes (education, health, problem behaviour, development, and adult mobility) but show inconsistent results (Bernard & Vidal, 2020). The fact that studies are inconclusive on the effects of childhood internal mobility can potentially be attributable to at least two important aspects of studying mobility: (1) how mobility is measured (*types of mobility*) and (2) whether compositional differences between the mobile and non-mobile population are accounted for (*who is mobile*). We build on insights from the life course paradigm, developmental child psychology, environmental psychology, and geography to argue that it is theoretically relevant to acknowledge and include the multiple dimensions of mobility and the compositional difference between mobile and non-mobile children. Knowing more on patterns of childhood mobility is essential in order to also further understand its consequences in future studies.

## 2.1 | The multidimensional nature of childhood internal mobility

The multidimensionality of childhood internal mobility is best understood from a life course perspective. The five principles (lifespan development, agency, historical time and place, timing, and linked lives) central in the life course perspective (Elder et al., 2003) underline the importance of viewing internal mobility within a broader context and acknowledging its multidimensional nature. Building on this perspective, scholars increasingly understand mobility as dynamic, relational, and embedded in historical space and time (Bailey, 2009; Findlay et al., 2015) and conceptualise it as “a long-term trajectory that unfolds over the lives of individuals rather than a series of discrete events” (Bernard & Vidal, 2020, p. 2). Nevertheless, a large part of studies on childhood internal mobility still build on cross-sectional data in which especially the temporal dimension of mobility is ignored (Morris et al., 2018). From the life course perspective, four aspects of internal mobility can be argued to be especially important: the number of moves, the age of moving, the distance moved, and the change in place type.

### 2.1.1 | Frequency

According to the life course perspective, sequences or additional life events may result in an accumulation of positive or negative effects (Elder & Shanahan, 2007). Hence, it has been argued that children who move frequently are more negatively impacted due to the cumulative effect of multiple disruptions in their lives (Bernard & Vidal, 2020). Mollborn et al. (2018) argue that “instability/chaos occurs when a child's environment changes repeatedly, at particularly high frequencies, or across multiple domains” (p. 486). This “instability perspective” (Mollborn et al., 2018, p. 489) emphasises the negative impact of multiple disruptions (repeatedly/across multiple domains) on a child's life especially when there is little time between changes. Moving frequently with a short time in one place of residence gives children little chances and resources to adjust to the new environment and engage in new friendships (Vogel et al., 2017). Additionally, it has been suggested that frequent moving is a marker of family problems and other instabilities causing stress in a child's life as well as more common among social and economically disadvantaged families (Rumbold et al., 2012; Simpson & Fowler, 1994), potentially adding to an accumulation of stress and disadvantage.

Although frequent moving (three times or more) during childhood is generally rare, existing empirical studies indeed suggest an accumulation effect for those who do move frequently (Bernard & Vidal, 2020). Multiple moves are found to have negative effects on educational outcomes (Ersing et al., 2009; Hutchings et al., 2013; Simpson & Fowler, 1994; Tonnessen et al., 2016; Wood et al., 1993), physical and mental health (Busacker & Kasehagen, 2012; Gilman et al., 2003; Paksarian et al., 2015; Price et al., 2018; Tseliou et al., 2016), socioemotional development and problem behaviour (Anderson & Leventhal, 2017; Mollborn et al., 2018; Nathan

et al., 2019; Rumbold et al., 2012; Simpson & Fowler, 1994; Wood et al., 1993), delinquent behaviour (Cotton et al., 2017; Vogel et al., 2017), and substance use (Brown et al., 2012; DeWit, 1998; Lee, 2007; Stabler et al., 2015). Additionally, the number of moves during childhood increases the likelihood to move in adulthood (Bernard & Perales, 2021a), indicating that frequent moving during childhood might also result in higher instability in adulthood. However, it remains unclear whether the negative effects of frequent moving are due to the multiple moves or to selection, that is, specific characteristics of frequent movers such as poverty, parental unemployment, single parents, or particular life events such as changes in parental employment or union formation or dissolution (Gasper et al., 2010; Murphey et al., 2012; Vidal & Baxter, 2018). These findings demonstrate the complexity of mobility and its relation to other life events, underlining the importance of understanding the accumulation of (dis)advantage across the life course as embedded in the broader context of a child's life.

### 2.1.2 | Timing

An important principle in life course theory is *timing*. It is argued that the impact of an event might depend on the timing at which it happens (Elder et al., 2003); there might thus be different meanings and impacts of moving depending on the age at which the move occurs (Findlay et al., 2015). Focusing specifically on children, psychological literature emphasises that the impact of internal mobility might be more disruptive for later life chances when occurring at key developmental stages (Li et al., 2019). Neuropsychological studies show that during the first years of their lives (from birth to age 5), children are especially sensitive to environmental changes (Minh et al., 2017), and developmental theories emphasise that during these early years, instability can be detrimental for development (Coley & Kull, 2016). Given that children in those early years mainly rely on their primary caregivers, the impact of family disruptions and stress might be more severe (Anderson et al., 2014), whereas the impact of the disruption of broader social ties will most likely be less severe (Li et al., 2019). Scholars who view the disruption of social networks as the key explanation for mobility effects argue that children are particularly vulnerable to moving after age 6 when friendship ties are established and becoming more important (Coley & Kull, 2016; Li et al., 2019). Adolescents might face additional challenges, because this is a developmental stage where the development of self-identity is very important. This development might be challenged by the stress caused by moving and losing friendships (Li et al., 2019) as self-identity in adolescence is formed very much under the influence of relationships with peers.

A growing body of studies focuses on this age-specific effect of mobility during childhood on different developmental domains, indeed suggesting a negative impact of moving during key developmental stages. Most studies find adolescents to be especially susceptible to the impact of moving, with adolescent moves negatively affecting problem behaviour (Anderson et al., 2014; Fowler et al., 2014), mental health and psychotic disorder (Li et al., 2019; Paksarian et al., 2015;

Price et al., 2018), cognitive skills (Coley & Kull, 2016), academic performance (Li et al., 2019), and high school dropout, income, and early parenthood (Tonnessen et al., 2016). There is some indication that early childhood moves also negatively affect problem behaviour (Fowler et al., 2014; Rumbold et al., 2012), but the study by Anderson et al. (2014) suggests that this is an indirect effect through family processes. Whereas these findings suggest differential impacts of mobility by age on the short term, little is known on the age-specific long-term effects. Nevertheless, these findings underline the importance of taking the temporal dimension of mobility into account.

### 2.1.3 | Distance

The principle of linked lives in the life course perspective highlights the importance of social relations in individual lives (Elder & Shanahan, 2007). Internal mobility during childhood has the potential to disrupt important social relations. It is important to consider both local and long-distance moves because “local moves still tend to shape individuals’ personal experiences, routines, habits and identity” (Gillespie, 2017, p. 4). It can be argued that this applies even more to children, for whom the home and immediate surroundings are of crucial importance (Chawla, 1992) and whose geographical orientation is much smaller than that of adults. Building on social capital theories, it is argued that long-distance moves are more disruptive to social networks and friendship ties than short-distance moves (Gillespie, 2013). From this perspective, some scholars perceive long-distance moves to be more detrimental for children as they cause a larger disruption of social ties, education, and family life. However, with the smaller geographical orientation of children (Chawla, 1992), even short-distance moves might disrupt important relations. Moreover, in some situations (e.g., for delinquent youth), long-distance moves might actually be a protective factor when disrupting negative peer relations (Vogel et al., 2017).

In addition to the disruption of social ties, there are arguably different motivations for short- and long-distance moves. Short-distance moves are more often motivated by housing preferences, changes in the family structure, and housing conditions (Gillespie, 2013), but also more often forced and stressful due to, for example, unemployment or union dissolution (Morris et al., 2018). Long-distance moves, on the other hand, are more often motivated by employment and macroeconomic changes in the labour market (Gillespie, 2013; Morris et al., 2018). As such, the differential motivations for short- or long-distance moves might influence the extent to which the move is experienced positively or negatively.

Empirical evidence shows that long-distance moves increase the risk of problem behaviour (Gillespie, 2013) and psychotic disorder (Price et al., 2018), while decreasing the risk of poor school performance (Tucker et al., 1998; Vidal & Baxter, 2018) and delinquency (Vogel et al., 2017; Widdowson & Siennick, 2021). These findings suggest long-distance moves might work either as a risk or protective factor in child development depending on the domain studied, but the mechanisms explaining this negative or positive impact of long-distance moving are largely understudied. Gillespie (2013) does find

an interaction with age for long-distance moves, suggesting that the negative impact of moving long distance for problem behaviour weakens with age. This highlights the multidimensional nature of childhood mobility demonstrating the relevance of the life course perspective in mobility research.

### 2.1.4 | Change in place type

Following the life course principle of the embeddedness of individual trajectories in historical time and space, individual lives should be viewed in relation to the broader geographical and social context (Elder et al., 2003). In mobility, this is a complex interdependency emphasised in geographical literature, because people and their motivation to move are influenced by the context they live in and structural opportunities and constraints (Coulter et al., 2016), while at the same time, (im)mobility of people might influence the geographical context as well (Coulton et al., 2012). The importance of change in type of place for mobility effects has mainly been emphasised in literature focusing on the change in neighbourhood context, suggesting that moving into a more advantaged neighbourhood (upward mobility) might compensate for the negative impact of moving and ultimately result in more positive outcomes compared with moving to a more disadvantaged (downward mobility) or similar (lateral) neighbourhood (Gillespie, 2017; Scanlon & Devine, 2001). While a complete overview of this literature is beyond the scope of this paper, empirical evidence of the “Moving to Opportunity” experiment suggests that children only benefit from moving to a better neighbourhood when the move occurs at a young age (Chetty et al., 2016).

These studies underline the importance of geographical context in people's lives and mobility patterns. The concept of place attachment emphasises the bond between people and places (Altman & Low, 1992). Because attachment to a place increases with the time spent in a place, mobility has often been perceived as a threat to people's place attachment (Westin, 2016). It has, however, also been argued that even highly mobile people preserve their sense of belonging by moving to similar types of places. Feldman (1990) emphasises that a “settlement identity,” referring to an attachment to a generalised type of place (e.g., city, suburb, small town, rural) rather than a specific place, can impact the types of places that people choose to move to. These types of places often “share similar, generalizable characteristics that become linked to the self-identity of the inhabitants” (Feldman, 1990, p. 189). Urbanity can be argued to be especially important in this settlement identity because degree of urbanity is an important determinant for the important “physical, sociocultural and/or economic characteristics” people seek similarity in when moving (Feldman, 1996, p. 423). Bailey et al. (2016) show that these settlement identities are influenced by residential patterns and relations to place across the life course, suggesting that childhood and adolescent mobility patterns influence later life place attachment as well. It could thus be expected that moving to a different type of place is more disrupting for a child's place attachment and might consequently have more impact on a child's development.

## 2.2 | Which children are mobile?

### 2.2.1 | Migrant background

Although there is a growing interest in linking international migration with internal migration, empirical evidence on this linkage has been limited because theories on internal and international migration have developed separately and due to limited data availability of full mobility patterns across and within borders (Bernard & Perales, 2021b). It is, however, recognised that international migration is often followed by internal moves within the country of settlement (Bernard & Perales, 2021b). Especially in the first years after settlement in the destination country, immigrants show high mobility rates to “meet their housing needs, maximise their employment opportunities, or simply ensure survival in hard conditions” (Bernard & Perales, 2021b, p. 2). Studies analysing differences in mobility rates, focusing primarily on the total or adult population, indeed find that people with a migrant background are more likely to move compared with the native population. Finney and Simpson (2008) find for the United Kingdom that the higher mobility rates among the migrant population are attributable to demographic and socio-economic differences between migrant groups. For the Swedish context, however, Andersson (2012) finds different mobility rates for migrant groups regardless of these compositional differences. These studies do suggest generational differences: Higher mobility rates of first-generation migrants may be triggered by their settlement trajectory in the destination country following international migration, whereas the higher mobility rates of second-generation migrants are mainly explained by their demographic and socio-economic characteristics.

Although we know little about the differential mobility patterns in childhood for those with a migrant background, a descriptive study in the Netherlands suggests higher internal mobility in childhood among children of immigrants for both the first- and second-generation (de Valk, 2010). More knowledge is needed to understand whether moving adds to the potentially higher risk of disadvantage for children of immigrant origin. In addition to growing up in more challenging position in terms of socio-economic disadvantaged home environments, these children may also face discrimination and marginalisation in society (Beelmann et al., 2021). With a higher internal mobility rate among immigrant populations and its possible negative impact on children, mobility might potentially add to the already more vulnerable position of children of immigrants. Given the diversity within and between different migrant origin groups, it is therefore important to assess the diversity of these patterns for different migrant origin groups.

The largest migrant origin groups in the Netherlands are those with a Surinamese, Antillean, Turkish, and Moroccan background. These groups have different migration histories and cultural backgrounds. Immigrants from Suriname and the Netherlands Antilles (former Dutch colonies) arrived in the Netherlands from the 1950s onwards mainly for educational reasons and later also employment (de Valk, 2010; van Mol & de Valk, 2016). Turkish and Moroccan immigrants arrived as labour migrants from the 1960s onwards, and

later, their families followed for reunification (de Valk, 2010; van Mol & de Valk, 2016). These different migration histories as well as the different cultural backgrounds have resulted in diverse settlement patterns, integration processes, and positions in society for the different migrant groups and their children (Crul & Vermeulen, 2003). While children of immigrants are generally found to have a more disadvantaged position in the Netherlands in terms of family stability, poverty, and parental education and employment, there are also substantial differences between the different migrant origin groups (de Valk et al., 2009). For example, children of Surinamese and Antillean descent are more often growing up in single-parent households, whereas those of Turkish or Moroccan descent more often have low educated or unemployed parents. Given this diversity, we might expect mobility patterns also to differ for children of different migrant origins.

### 2.2.2 | Family characteristics and life events

Research on internal mobility has shown that several other individual background characteristics and important life events influence the decision to move (Morris et al., 2018). In general, important background characteristics driving mobility are age, socio-economic status (employment, income), housing tenure, and marital status, and important life events include family expansion, union formation and dissolution, and change in employment (see Morris et al., 2018 for an overview of drivers of mobility). Although having children in the household tends to tie people to places and thus reduce mobility (Bailey & Livingston, 2005), some groups of children are more likely to move than others. Very young children have higher mobility rates, which is often attributed to the arrival of a new child in the household, so the parents move due to family expansion (Bailey & Livingston, 2005). Furthermore, higher mobility rates in childhood are found to be associated with poverty, parental unemployment, parental union dissolution, and single parenthood (Jelleyman & Spencer, 2008; Murphey et al., 2012). This suggests that children who are already disadvantaged or experiencing detrimental life events are also more likely to move.

## 3 | STUDY CONTEXT, DATA, AND METHODS

### 3.1 | Study context

The Netherlands is a country with a relatively high internal mobility: Bernard and Vidal (2020) found that Dutch people in the SHARE study moved on average 4.6 times during their lifetime (age 0–50) and 1.1 times during childhood (age 0–17), which is relatively frequent compared with the other European countries in their study (on average 2.6 and 0.7 times, respectively, across all 11 countries). Furthermore, whereas frequent moves (three times or more) during childhood are rare across all countries, it is most common in

Denmark (20%), Sweden (14%), and the Netherlands (12%). Although mobility is high in the Netherlands, moves generally occur over short distances (Stillwell et al., 2016). Given that the Netherlands is a small country, even moves to other NUTS-2 regions can be considered relatively short distance compared with other countries.

Descriptive work on childhood internal mobility in the Netherlands suggests higher levels of internal mobility among migrant groups (both first and second generation) compared with the majority group (de Valk, 2010). The population with a migrant background is furthermore geographically concentrated in urban areas. In 2020, over a quarter of the children aged 0–15 in the Netherlands had a first- or second-generation migrant background, with the majority being second-generation migrants and the largest non-western migrant origin groups being those with a Turkish, Moroccan, Surinamese, or Antillean background. In the four largest Dutch cities, Amsterdam, Rotterdam, The Hague, and Utrecht, over half of the children aged 0–15 had a migrant background. Put differently, around a third of children with a migrant background lived in the four largest cities compared with only a tenth of the native Dutch children (Statistics Netherlands, 2020). Within the four largest cities of the Netherlands, people with a migrant background also often concentrate in specific areas and neighbourhoods. While those neighbourhoods are often very diverse in terms of migrant origin (Hartog & Zorlu, 2009), there are differences in segregation levels between migrant origin groups and across different spatial scales (Sleutjes et al., 2018).

### 3.2 | Data and sample

This study used linked data from administrative registers from the System of Social Statistical Datasets (SSD) of Statistics Netherlands (Bakker et al., 2014). The registers include among others the population register and tax registers and contain demographic, socio-economic, and spatial data for the entire Dutch population. The main data from the population register are available from 1995 onwards. The research population consisted of nine cohorts of children born between 1995 and 2003 and living in the Netherlands at age 16, a total of 1,814,782 children. We selected those children who were born in the Netherlands, thus excluding first-generation migrants. Additionally, we excluded children who died, had an international migration between ages 0–16, or lived in an institutional household for over half a year. This reduced the research population to 1,651,522 children who can be followed from birth until age 16. From this population, a random sample of one child per household was selected ( $N = 1,079,399$ ), and records with missing values on one or more of the variables were discarded, reducing the total sample to 995,917 children. The subsequent cluster analysis was conducted only for those children who moved at least once during childhood ( $N = 607,657$ ). Those who did not move were considered a separate cluster per definition.

### 3.3 | Analytical strategy

To analyse childhood residential mobility patterns, two types of analysis were combined. First, cluster analysis was used to develop a typology of childhood internal mobility including the four mobility indicators frequency, timing, distance, and change in place type (specified below). This typology was subsequently used as a dependent variable in a multinomial logistic regression with migrant background as the main independent variable and individual (cohort, gender), family (parental socio-economic status, household composition), and geographical (degree of urbanity) control variables.

We used k-means clustering to classify the mobile children into groups, which is an exploratory technique clustering cases based on their distance from the group observation on a set of variables. All mobility variables included in the clustering were standardised around the mean. We used the Euclidean distance to group the cases, and the optimal number of clusters was determined by looking at the weighted sum of squares (WSS), the eta-coefficient, the proportional reduction of errors (PRE), and the pseudo- $F$  statistic. Five clusters were identified as the optimal solution with a reduction of the WSS by 60% and a PRE of 16% compared with four clusters. The analysis was conducted using cluster k in Stata.

Non-movers and the five clusters of movers were subsequently used as a dependent variable in a multinomial logistics regression using Stata `mlogit` analysing the likelihood for different migrant groups to experience the five types of mobility patterns relative to the base outcome of non-movers. The first model included only individual background characteristics (migrant background, birth cohort, and gender). In the second model, socio-economic family characteristics, household composition, and degree of urbanity were added to control for compositional and geographical differences.

### 3.4 | Operationalisation

Data including all addresses were used to identify all moves between ages 0 and 16. We consider all moves to be of importance in a child's life and therefore include all moving instances (both residential and interregional moves) in our analysis. A move is operationalised as a change of address<sup>1</sup> under the condition that the child has lived on that address for at least 45 days. Based on this definition of moving, *frequency* was measured as the number of moves between ages 0 and 16. *Timing* was measured as the age of the first move, which gives a comparable measure for all mobile children. *Distance* was calculated for all moving instances as the Euclidean distance between the coordinates of two addresses and averaged over the total number of moves. Although this means losing information on the distance of specific moves, it does add valuable information whether the general mobility pattern of a child was local or over longer distances. In the cluster analysis, the variable was specified as the log of the average distance moved in kilometres. Lastly, the *change in place type* was measured continuously as the difference in municipal population density

(population per km<sup>2</sup>) between the first and last place of residence, capturing the change in socialising context between the start and end of childhood.

The main individual characteristic of interest is migrant background. With the exclusion of children who have had an international migration between the ages 0 and 16, the dataset contained children without and with a second-generation migrant background.<sup>2</sup> Country of origin<sup>3</sup> was categorised into seven groups: (1) no migrant background; (2) Moroccan; (3) Turkish; (4) Surinamese; (5) Antillean; (6) other non-western; (7) other western. Other individual characteristics included are birth cohort and gender.

Three indicators of *family socio-economic status* were controlled for: labour force participation mother, labour force participation father, and average disposable household income. Parental labour force participation was measured continuously for both parents separately as the years of employment averaged over 9 years (child aged 4–12).<sup>4</sup> Household income was measured as the disposable household income averaged over 6 years (child aged 7–12).<sup>5</sup> For the analysis, the log of household income was used and centred around the mean. Two indicators of *household composition* were included: parental union between age 0 and 16 and the number of children in the household at birth. Parental union at birth was compared with parental union at age 16 and categorised as (1) stable union (parents remained together throughout childhood); (2) union dissolution (parents divorced or separated); (3) one parent (and partner) (parents never lived together throughout childhood); (4) start living together (parents lived apart at birth and started living together). The number of children in the household at birth was those living in the same household as the child at birth.

Finally, to account for geographical differences in mobility rates, we included an indicator for the degree of urbanity for the municipality of birth. Municipalities were classified into five categories based on the average address density within the municipality as (0) no urbanity; (1) low urbanity; (2) intermediate urbanity; (3) high urbanity; (4) very high urbanity.<sup>6</sup>

## 4 | RESULTS

### 4.1 | Population and descriptive findings

Table 1 shows the childhood mobility indicators and second-generation migrant background for the total study population and the mobile children. Overall, 61% of the children move at least once during childhood. Of those who move, the majority moves once (59%) or twice (25%) during childhood, at a relatively young age (4.8 on average), over a short distance (median of 2.3 km), and on average to a somewhat less densely populated municipality compared with their municipality of birth (on average a decrease of 224 in population density). Around one-fifth of the study population has a second-generation migrant background, of which 5% has a western and 14% a non-western migrant background. The proportion of children with a second-generation migrant background is slightly larger among the

**TABLE 1** Description childhood internal mobility indicators and second-generation migrant background total and mobile research population

	Total population	Movers
	Mean (SD)	Mean (SD)
Childhood internal mobility (0–16)		
Frequency	1.03 (1.18)	1.70 (1.08)
No moves	0.39	
1 move	0.36	0.59
2 moves	0.15	0.25
3 moves	0.06	0.10
4 moves	0.03	0.04
5 moves	0.01	0.02
>5 moves	0.01	0.01
Age first move		4.77 (3.93)
Distance (median)		2.34
Change address density		–224 (1,129)
Migrant background		
No migrant background	0.81	0.78
Moroccan	0.03	0.04
Turkish	0.04	0.04
Surinamese	0.02	0.03
Antillean	0.01	0.01
Other non-western	0.04	0.05
Other western	0.05	0.06
Total (N)	995,917	607,657

Source: Statistics Netherlands (CBS), own calculations.

movers (22%), with 6% of western and 16% of non-western migrant origin.

Regarding other background characteristics, there are no substantial differences between the total and mobile study population on individual and family socio-economic characteristics and somewhat larger differences on household composition and geographical location (see Table A1 for the description of the control variables). The children are roughly equally distributed across the birth cohorts (10–12% per cohort), and around half of the children is male (51%). Fathers have a somewhat higher labour force participation (91%) than mothers (72%). The average disposable household income is around 24,000 annually. The proportion of children living with both parents throughout childhood is higher among the total group of children (75%) compared with the mobile children (66%). Among the mobile children, there is a higher proportion with divorced or separated parents (29%) and single parents (3%) compared with the total population (respectively 21% and 2%). At birth, there were on average 1.7 children in the household. A somewhat higher proportion of children in the total population lives in a municipality with no or a low degree of urbanity (37%) than in the mobile population (31%), who live more often in a municipality with a high or very high degree of urbanity (48%) than the total population (42%).

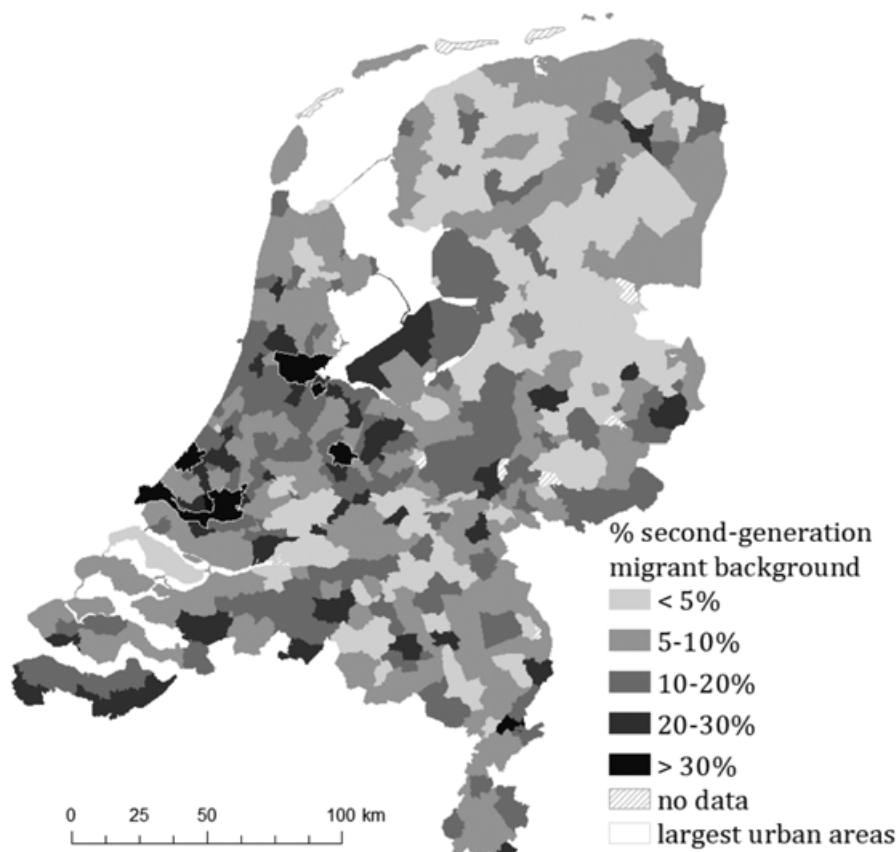


Children with a second-generation migrant background in the study population are not equally distributed across the country, with 67% born in areas with a high or very high degree of urbanity compared with 37% of the children without a migrant background. Especially, children with a Surinamese (80%) or Moroccan (77%) second-generation migrant background are very much concentrated in urban areas at birth. Figure 1 shows for each municipality the proportion of children with a second-generation migrant background by municipality of first residence. It clearly shows a high concentration of children of immigrants in urban areas and border regions. Especially in the four largest urban areas (outlined in the map), we see a high concentration, where over 30% of the children born in these cities have a second-generation migrant background.

## 4.2 | Types of childhood internal mobility patterns

The cluster analysis reveals five types of movers among the children: nearby preschool-aged movers (31%), nearby school-aged movers (20%), long-distance movers to more densely populated areas (25%), long-distance movers to less densely populated areas (10%), and frequent movers (14%). Table 2 shows the descriptive statistics for the mobility indicators for each of these clusters. The majority of the mobile children (51%) move *nearby* (Clusters 1 and 2); they primarily move once during childhood (respectively, 73% and 81%) over short distances (median of, respectively, 0.7 and 1.4 km). The *nearby*

*preschool-aged movers* (Cluster 1) make their first move at a young age (3.4 on average), before starting primary education. The *nearby school-aged movers* (Cluster 2), on the other hand, make their first move at a relatively old age (11.2 on average) around the end of primary education. Over one-third of the mobile children move long distance and can be distinguished further between those moving to a somewhat more densely or similar populated municipality (Cluster 3) and those moving to a less densely populated municipality (Cluster 4). All children moving to a *more densely populated area* (Cluster 3) move once (59%) or twice (41%) during childhood, make their first move at a young age (3.1 on average), over a somewhat longer distance (median of 6.4 km) compared with the total mobile children (2.3 km), and to a somewhat more densely populated municipality with an average increase of 130 persons per km<sup>2</sup>. Among children moving to a *less densely populated area* (Cluster 4), the majority also moves once (49%) or twice (32%), and a relatively large proportion moves three times (13%). Those children also make their first move at a young age (3.4 on average), move a considerably longer distance (median of 13.4 km), and to a municipality with a considerably lower population density (average decrease of 2,903 people/km<sup>2</sup>). Finally, 14% of the mobile children move *frequently*; they all move three times or more during childhood, make their first move at a relatively young age (2.6 on average), move over a slightly longer distance (median of 4.8 km), and move on average to a municipality with a somewhat higher population density (average increase of 113 in population density).



**FIGURE 1** Proportion of children with a second-generation migrant background by municipality of first residence. Source: Statistics Netherlands (CBS), own calculations

**TABLE 2** Description clusters by childhood mobility indicators

	Cluster 1 Nearby preschool-aged movers	Cluster 2 Nearby school-aged movers	Cluster 3 Distant movers to more dense area	Cluster 4 Distant movers to less dense area	Cluster 5 Frequent movers
Cases in cluster (N)	191,168	120,843	152,502	58,203	84,941
Cases in cluster (%)	31.5	19.9	25.1	9.6	14.0
Frequency	1.28	1.22	1.41	1.77	3.76
1 move	0.73	0.81	0.59	0.49	0.00
2 moves	0.26	0.17	0.41	0.32	0.00
3 moves	0.01	0.02	0.00	0.13	0.56
4 moves	0.00	0.00	0.00	0.04	0.26
5 moves	0.00	0.00	0.00	0.01	0.11
>5 moves	0.00	0.00	0.00	0.00	0.08
Age first move	3.43	11.19	3.12	3.41	2.56
Distance (median)	0.74	1.37	6.43	13.39	4.81
Change population density	3.14	22.50	130.23	-2,903.43	112.71

Source: Statistics Netherlands (CBS), own calculations.

### 4.3 | Geographical distribution childhood internal mobility patterns

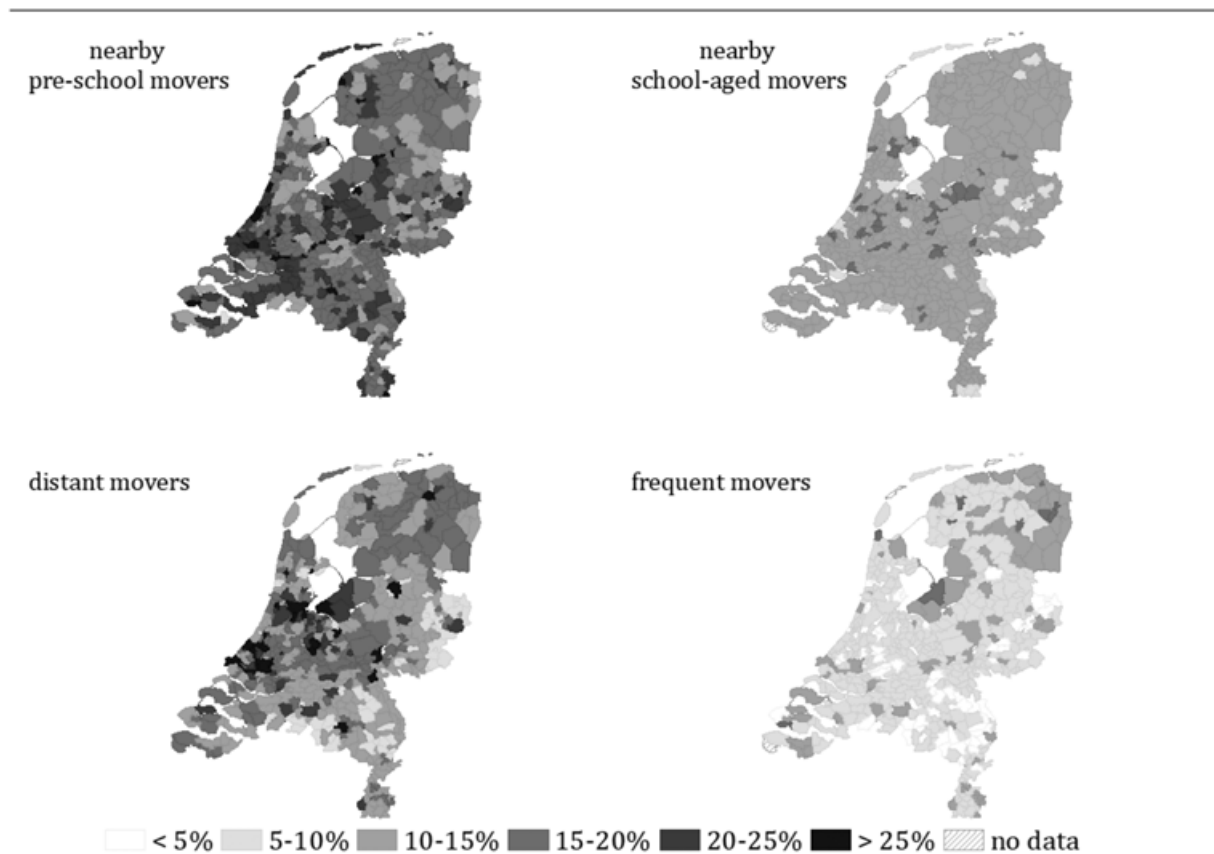
To better understand the geographical specificity of the found mobility patterns, we study the distribution of the clusters by municipality of first residence. Figure 2 shows the geographical distribution of each of the clusters<sup>7</sup> by visualising for each municipality the children in a particular mobility cluster as the proportion of all children (in the study population) born in that municipality. There is no clear geographical pattern of nearby movers (Clusters 1 and 2), indicating that these types of moves are relatively similar across different parts of the country. Moving nearby at a preschool age (Cluster 1) seems to be somewhat more common among children born in medium-sized and suburban towns and moving nearby at a school age (Cluster 2) among children born in small towns. Moving over longer distances (Clusters 3 and 4) is clearly more common among children born in urban areas and to a somewhat lesser extent among children born in the northern part of the Netherlands. In the larger cities, this includes a large proportion of children moving longer distances to a less densely populated area (Cluster 4), which is indicative of the general pattern of suburbanisation of families with children. Finally, frequent movers seem to be somewhat more concentrated in the north of the Netherlands and the provinces Flevoland and Zeeland. These results indicate that especially for children moving over longer distances and moving frequently, it is important to take geographical location into account.

### 4.4 | Childhood internal mobility patterns of second-generation migrants

Multinomial logistic models are conducted to analyse the likelihood of being in one of the mobility clusters compared with non-movers by

different migrant origin groups. Results of the first model (including only individual background characteristics) show that in general, children with a second-generation migrant background have a higher probability to be mobile during childhood compared with their peers without a migrant background. This applies to nearly all migrant origin groups and mobility clusters (see Table A2 for all results of the logistic model). After accounting for compositional differences in family socioeconomic status, household composition, and geographical location at birth (Model 2), children with a second-generation migrant background of nearly all migrant origin groups still have a higher probability than non-migrants to move (1) nearby at a preschool age; (2) nearby at a school age; (3) long distances to a more densely populated area; and (4) frequently. However, compositional differences seem to explain the difference between second-generation migrants and non-migrants for long-distance moves to a less densely populated area (see Table A3 for all results of the logistic model). Figure 3 shows the predicted probability for different migrant origin groups for Model 1 (Figure 3a) and Model 2 (Figure 3b), showing clear differences in childhood internal mobility patterns between the different migrant origin groups. These differences are discussed in more detail below for each of the mobility clusters separately in which non-movers are always the reference category.

Children of all migrant origin groups have a higher probability to move nearby at a preschool age than non-migrants do, and this remains after controlling for compositional differences. Especially children with a Moroccan or Turkish migrant background have a high probability to move nearby at a preschool age. When accounting for compositional differences (Figure 3b), children with a Moroccan (29%) or Turkish (34%) migrant background have a higher probability to move nearby at a preschool age compared with children without a migrant background (18%) or other migrant backgrounds (19–22%).



**FIGURE 2** Proportion of children in each of the mobility clusters by municipality of first residence. *Source:* Statistics Netherlands (CBS), own calculations

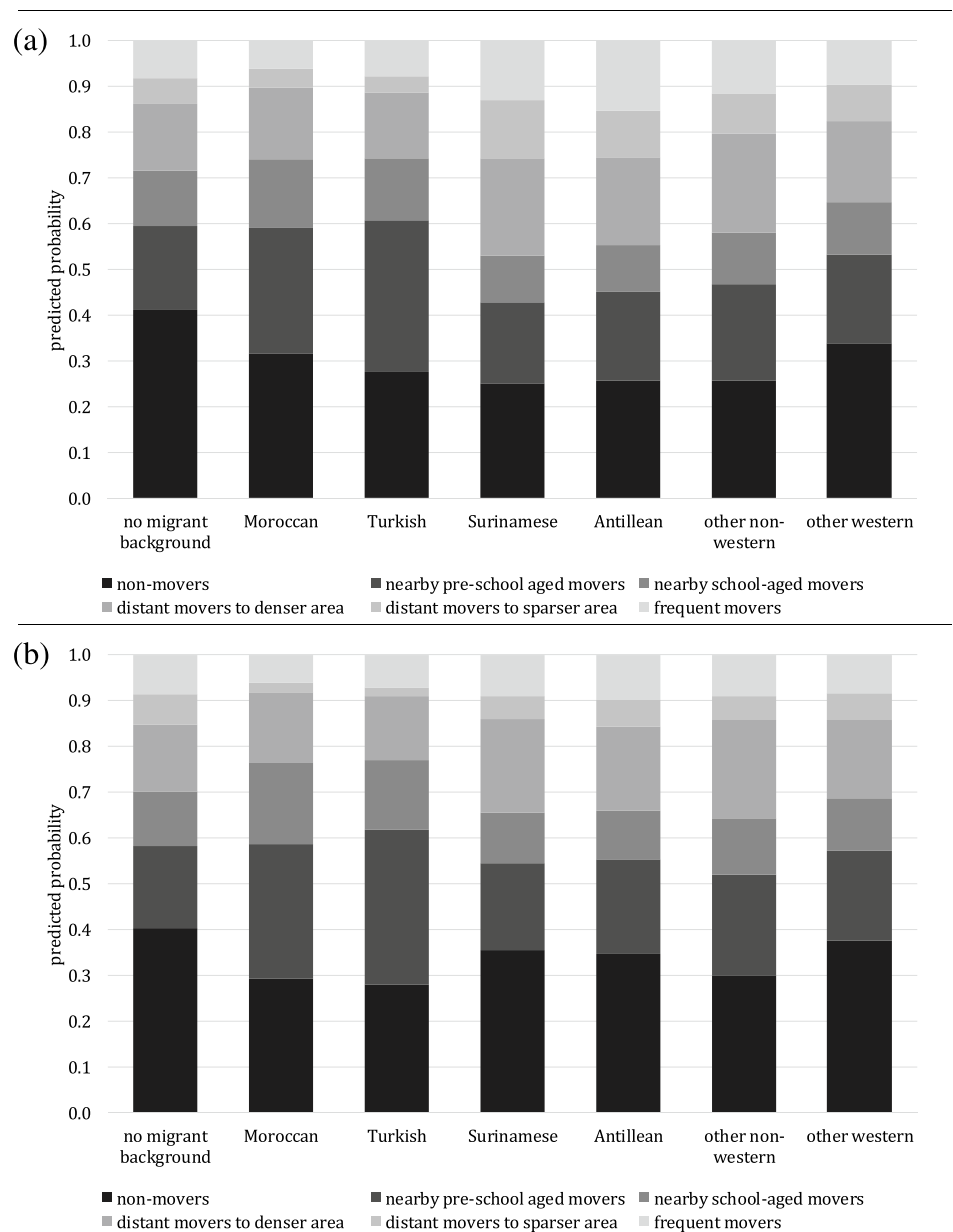
Children of all migrant origin groups have a higher probability to move nearby at a school age than non-migrants do. After controlling for compositional differences, this is reduced for children with a Surinamese, Antillean, and other western migrant background but remains significant for those with a Surinamese and other western migrant background (Table A3). Again, especially children with a Moroccan or Turkish migrant background have a high probability to move nearby at school ages. Taking compositional differences into account (Figure 3b), the probability of children with a Moroccan (18%) or Turkish (15%) migrant background to move nearby at a school age is higher compared with children without a migrant background (12%) or other migrant backgrounds (11–12%).

Children of all migrant origin groups have a higher probability to move long distance to a more densely populated area than non-migrants do, and this remains after controlling for compositional differences. Children with a Surinamese, Antillean or other non-western migrant background have a particularly high probability to move long distance to a more densely populated municipality. Controlling for compositional differences slightly reduces this probability (Figure 3b), but children with a Surinamese (20%), Antillean (19%), and other non-western (21%) migrant background still have a higher probability to move long distance to a more densely populated area compared with non-migrants (15%) and other migrant origin groups (14–17%).

Children with a Surinamese, Antillean, other non-western, and other western migrant background have a higher probability, and children with a Moroccan or Turkish migrant background have a lower probability to move long distance to a less densely populated area than non-migrants do. However, after controlling for background characteristics, this is clearly reduced and even reversed for most migrant origin groups. Taking compositional differences into account, children with a Moroccan or Turkish (2%) as well as Surinamese, Antillean, other non-western, and other western (5–6%) migrant background have a lower probability to move long distance to a less densely populated area compared with non-migrants (7%). This reduction is mainly driven by the degree of urbanity of first place of residence, indicative of the selection of children with a second-generation migrant background in urban areas and pointing to an urban–suburban movement of especially children without a migrant background.

Children of all migrant origin groups have a higher probability to move frequently compared with non-migrants, with the exception of children with a Moroccan migrant background who have a lower probability to move frequently. These results remain after controlling for background characteristics, albeit reduced for all migrant groups. This reduction seems to be driven by family socio-economic status for children with a Turkish and other non-western migrant background and family structure for children with a Surinamese and Antillean migrant background. This suggests that there are potentially different

**FIGURE 3** Predicted probability mobility clusters by migrant background Model 1 (a) and Model 2 (b). Note: additional control variables included in Model 1 (Figure 3a): birth cohort, gender; additional control variables included in Model 2 (Figure 3b): birth cohort, gender, labour force participation mother/father, average disposable household income, parental union, number of children in household, degree of urbanity first place of residence. Source: Statistics Netherlands (CBS), own calculations



mechanisms for the different migrant origin groups to explain frequent moving during childhood. Regardless of background characteristics (Figure 3b), however, children with a Surinamese (9%), Antillean (9.8%), and other non-western (9.1%) background still show a slightly higher probability to move frequently compared with children without a migrant background (8.6%).

## 5 | DISCUSSION AND CONCLUSION

Focusing on mobility in childhood, we find that the majority of children in the Netherlands move at least once during childhood, and moving is more common among children of immigrants. This study aimed at better understanding the diversity of mobility patterns for children of different migrant origins. We draw two general

conclusions: (1) Childhood mobility patterns are diverse in terms of frequency, timing, distance, and change in place type with potentially different implications, and (2) children of different second-generation migrant origin overall move more often, but the type of moving experienced differs between groups and is also partially related to compositional (socio-economic and family) and geographical differences. These findings are important because different patterns of mobility might have different effects on later life chances. Our analyses indicate that some migrant groups might be more vulnerable to mobility effects, which can potentially add to their already more vulnerable position in society and increase inequalities between different groups of children.

First, we conclude that childhood mobility patterns are diverse and have distinct characteristics. When taking multiple dimensions of mobility into account, we discern five types of mobility patterns

during childhood. Over half of the mobile children stay close to their first place of residence. These can be further distinguished into preschool-aged (1) and school-aged (2) nearby movers. Because short-distance moves are more often motivated by housing preferences, changes in the family structure and housing conditions (Gillespie, 2013), these moves possibly reflect a move to a better house or environment. Over a third of the mobile children move over considerably longer distances. The majority moves to somewhat more densely populated areas (3), possibly for job-related reasons because long-distance moves are more often motivated by employment and macroeconomic changes (Gillespie, 2013). A smaller portion moves to less densely populated areas (4), which could be indicative of suburbanisation of families. Lastly, 14% of mobile children are considered frequent movers (5) with three or more moves during childhood. This mobility pattern might reflect a specific group of children with an instable childhood, because it has been suggested that frequent moving is a marker of family problems and other instabilities and disadvantages (Rumbold et al., 2012; Simpson & Fowler, 1994).

Building on the principles of linked lives, timing, and time and place as emphasised in the life-course paradigm (Elder et al., 2003), these different types of mobility patterns may have different implications in itself and for child development and children's well-being. Acknowledging the importance of linked lives and social relations, long-distance and frequent movers are potentially more vulnerable to the disruption of social networks than nearby movers. In terms of timing, two important developmental periods are captured in the mobility clusters. In four of the clusters, children make their first move before starting primary education. It is for further studies to determine whether this is more disruptive due to vulnerability to environmental changes during these first years of their lives (Coley & Kull, 2016; Minh et al., 2017) or beneficial due to better housing and schools available (Morris et al., 2018). One mobility cluster captures those moving at school ages, an age at which friendships are established and thus also potentially lost due to a move (Li et al., 2019). However, because we find that school-aged moves are mainly nearby, those children might be able to preserve their friendship ties also after the move, especially if they stay in the same school. Future studies should therefore also consider whether a move involved a school change. Recognising the embeddedness of children (and their parents) in relations at the local geographical context, those moving long distance to a different type of place as well as those moving frequently can be expected to experience the largest disruption in their attachment to place. Qualitative studies providing more insight into place attachment of children are needed to understand these processes better. Children moving nearby might still be disrupted especially when it involves a move to a less favourable neighbourhood, whereas moving to a better environment might compensate for mobility effects (Gillespie, 2017). Future research should therefore also consider whether a move involved a downward, upward, or lateral neighbourhood change. Frequent movers experience the above-mentioned disruptions repeatedly and are therefore a group of children who are potentially most vulnerable to negative mobility effects, the cumulative effect of multiple disruptions in their

lives (Mollborn et al., 2018), and potentially less stability in adulthood as well (Bernard & Perales, 2021a). Our current data do not allow to shed more light on the (parental) considerations for moving and how they may mediate potential negative effects on the child. Future studies can use our typology as a starting point to study the effects of these different moves on children's outcomes.

Second, we conclude that diverse mobility patterns are experienced in varying degrees by children of different second-generation migrant origins. As expected, children with a second-generation migrant background generally move more, and compositional differences in socio-economic status, household composition, and geographical location only explain part of the difference between second-generation migrants and non-migrants. Our study indicates that it is crucial to take (parental) background characteristics and other (children and family) life events into account as otherwise differences between those of migrant and non-migrant origin are overestimated. Furthermore, we find that the different migrant origin groups have different mobility patterns. Children of Moroccan or Turkish descent more often move nearby at preschool ages and school ages. Children of Surinamese, Antillean, or other non-western descent more often move over longer distances to more densely populated areas, and they are more often frequent movers. This potentially makes them more prone to experience a loss of social ties, place attachment, and in case of frequent moving a cumulated impact of multiple disruptions. Children without a migrant background somewhat more often move long distance to a less densely populated area, indicative of an urban-suburban mobility pattern, which are often planned and motivated by a positive change in housing and environment. These findings point to the possible variation in mobility effects for different migrant origin groups as they experience different types of mobility in varying degrees. It is therefore important to consider migrant background in future research on mobility effects in order to unravel the effects of different types of mobility patterns for different groups of children.

While this study shows important variations in mobility patterns between different migrant origin groups, other aspects of the parental international migration history might also impact the different mobility rates. An important limitation of this study is that it does not take into account the motive and timing of the parents' migration to the Netherlands. The international migration and internal mobility may be interlinked. Internal mobility patterns of children of refugees are, for example, very likely different from those of children whose parents moved to the Netherlands for job-related reasons, due to governmental policies such as the "spreading" of asylum seekers with residence permits over the country (COA, n.d.). Furthermore, internal mobility rates of immigrants have been found to decrease with the increase of time in the country of settlement (Andersson, 2012). The second-generation migrant children in this study are diverse in terms of the parental timing of immigration so there is potentially even more variation within the different second-generation migrant origin groups than our study already shows. The variation is likely to be highest among children of other non-western and other western descent, capturing not only diverse international migration motives and timing but also a wide range of countries of origin. Because this study points to

important differences in internal mobility between migrant origin groups, future research should try to distinguish between other factors of the parental immigration history and break down even in more detail than we could do in our study. Qualitative work may also shed additional light on how decisions are made and how international and internal mobility are linked for different groups of migrants. An important factor we cannot assess directly from our data (we just could include some indirect indicators) is the motivation to move, covering several aspects such as a new job or loss of a job, parental divorce, and housing situation. Moreover, there are arguably different motivations for short- and long-distance moves (Gillespie, 2013; Morris et al., 2018), and there is potential variation on all these dimensions by migrant origin. Future research should therefore consider the circumstances under which the different types of moves occur, especially when trying to understand the impact of moving on children.

Notwithstanding these limitations, the study underlines the importance of acknowledging the multidimensional nature of childhood internal mobility and the variation in mobility patterns for different groups of children. So how does this typology help us understand mobility effects overall and especially for the children of immigrants? Clustering among some key dimensions reduces the complexity and is a useful point of departure for further analyses of types of movers. Each of these mobility patterns may be related to different (dimensions of) vulnerability of children, and the different patterns for different migrant origin groups might add to their already more vulnerable position in society. As such, this is an important starting point to unravel inequalities in the early life course, which may have larger consequences also later in life.

## ACKNOWLEDGEMENTS

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 No. 819298, PI: Helga A.G. de Valk). We are grateful to the anonymous reviewers and the editor for their valuable feedback on our work. Previous versions of the paper were presented at the Dutch Demography Week 2020, the Population Association of America (PAA) 2021 Annual Meeting, and the 18th IMISCOE Annual Conference 2021.

## CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

## ENDNOTES

- <sup>1</sup> In cases where a child has been registered on the same recurring address more than once, a change of address is not considered a move, and the first address is identified as the place of residence.
- <sup>2</sup> Following the definition of Statistics Netherlands, a child has a second-generation migrant background if a child is born in the Netherlands and at least one of the parents is not born in the Netherlands.
- <sup>3</sup> Following Statistics Netherlands, country of origin is determined by the mother's country of birth and if the mother is born in the Netherlands the father's country of birth.

- <sup>4</sup> Data on employment are available from 1999 onwards. To make the measurement comparable for all cohorts of children, we start measuring at age 4 at which data are available for all nine cohorts.
- <sup>5</sup> Data on income are available from 2003 onwards. To make the measurement comparable for all cohorts of children, we start measuring at age 7 at which data are available for all nine cohorts.
- <sup>6</sup> The classification is based on the number of surrounding addresses per km<sup>2</sup>: No: <500; Low: 500–1,000; Intermediate: 1,000–1,500; High: 1,500–2,500; Very high: ≥2,500.
- <sup>7</sup> The long-distance clusters (Clusters 3 and 4) are shown together due to small numbers of observations in certain municipalities.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this were accessed under strict privacy regulations applying to linked register data and are therefore not made publicly available by Statistics Netherlands. Restrictions apply to the availability of these data, which were used under approval for this study. Any further information can be obtained from the first author.

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**How to cite this article:** Kuyvenhoven, J., Das, M., & de Valk, H. A. G. (2022). Towards a typology of childhood internal mobility: Do children of migrants and non-migrants differ? *Population, Space and Place*, 28, e2515. <https://doi.org/10.1002/psp.2515>



## APPENDIX A. APPENDICES

**TABLE A1** Description individual, family, and geographical characteristics total and mobile research population

	Total population	Movers
	Mean (SD)	Mean (SD)
Individual characteristics		
Birth cohort		
1995	0.12	0.12
1996	0.12	0.11
1997	0.11	0.11
1998	0.10	0.10
1999	0.10	0.10
2000	0.11	0.10
2001	0.11	0.11
2002	0.12	0.12
2003	0.12	0.13
Gender		
Male	0.51	0.51
Female	0.49	0.49
Family socio-economic characteristics		
Labour force participation mother	0.72 (0.37)	0.71 (0.37)
Labour force participation father	0.91 (0.23)	0.89 (0.24)
Average disposable household income (×1,000)	23.98 (13.59)	23.91 (14.60)
Household composition		
Parental union		
Stable union	0.75	0.66
Dissolution	0.21	0.29
One parent (and partner)	0.02	0.03
Start living together	0.02	0.02
Number of children household at birth	1.76 (0.96)	1.67 (0.89)
Geographical location		
Degree of urbanity municipality of birth		
No	0.15	0.12
Low	0.22	0.19
Intermediate	0.21	0.21
High	0.25	0.27
Very high	0.17	0.21
Total (N)	995,917	607,657

Source: Statistics Netherlands (CBS), own calculations.

**TABLE A2** Relative risk ratio (RRR) multinomial logistic regression of mobility clusters Model 1 (individual characteristics)

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
	Nearby preschool-aged movers	Nearby school-aged movers	Distant movers to more dense area	Distant movers to less dense area	Frequent movers
	RRR	RRR	RRR	RRR	RRR
Individual					
Birthcohort (ref. = 1995)					
1996	0.976*	0.995	0.983	0.979	0.920***
1997	0.938***	0.949***	0.976	0.962*	0.909***
1998	0.944***	0.947***	0.989	0.997	0.923***
1999	0.928***	0.889***	0.986	0.990	0.908***
2000	0.966**	0.883***	1.027*	1.011	0.910***
2001	1.007	0.899***	1.068***	1.045*	0.963*
2002	1.017	0.944***	1.090***	1.118***	0.941***
2003	1.005	1.018	1.126***	1.184***	0.995
Migrant background (ref. = no migrant background)					
Moroccan	1.988***	1.642***	1.385***	0.993	0.975
Turkish	2.729***	1.676***	1.460***	0.929*	1.415***
Surinamese	1.605***	1.388***	2.382***	3.767***	2.603***
Antillean	1.731***	1.360***	2.104***	2.974***	2.967***
Other non-western	1.840***	1.484***	2.362***	2.569***	2.215***
Other western	1.297***	1.148***	1.468***	1.748***	1.409***
Gender (ref. = male)					
Female	0.995	1.017*	0.988*	1.006	1.042***
Cases in cluster	191,168	120,843	152,502	58,203	84,941

Note: Base-category outcome variable = non-movers.

Source: Statistics Netherlands (CBS), own calculations.

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

**TABLE A3** Relative risk ratio (RRR) multinomial logistic regression of mobility clusters Model 2 (full model)

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
	Nearby preschool-aged movers	Nearby school-aged movers	Distant movers to more dense area	Distant movers to less dense area	Frequent movers
	RRR	RRR	RRR	RRR	RRR
Individual					
Birthcohort (ref. = 1995)					
1996	0.958***	0.974	0.963**	0.977	0.894***
1997	0.896***	0.901***	0.919***	0.889***	0.829***
1998	0.869***	0.864***	0.883***	0.843***	0.780***
1999	0.832***	0.784***	0.847***	0.790***	0.725***
2000	0.846***	0.762***	0.857***	0.781***	0.700***
2001	0.863***	0.766***	0.867***	0.763***	0.737***
2002	0.859***	0.799***	0.864***	0.770***	0.725***
2003	0.843***	0.856***	0.881***	0.790***	0.779***
Migrant background (ref. = no migrant background)					
Moroccan	2.262***	2.089***	1.450***	0.383***	0.998
Turkish	2.724***	1.877***	1.354***	0.347***	1.255***
Surinamese	1.198***	1.072**	1.589***	0.847***	1.225***
Antillean	1.347***	1.064	1.485***	1.016	1.398***
Other non-western	1.699***	1.434***	2.019***	1.051*	1.546***
Other western	1.169***	1.036*	1.249***	0.920***	1.059**
Gender (ref. = male)					
Female	0.996	1.018**	0.988	1.001	1.045***
Family ses					
Labour force participation mother	1.039***	0.950***	0.834***	0.779***	0.685***
Labour force participation father	1.087***	1.097***	0.943***	1.191***	0.747***
Log average disposable household income	1.047***	1.143***	1.148***	1.242***	0.998
Household composition					
Parental union (ref. = stable union)					
Dissolution	2.423***	5.060***	2.881***	3.299***	19.844***
One parent (and partner)	2.034***	2.683***	2.512***	2.269***	16.250***
Start living together	3.536***	2.790***	4.516***	4.115***	13.480***
Number of children in household at birth	0.805***	0.869***	0.732***	0.679***	0.655***
Geographical location					
Degree of urbanity (ref. = no urbanity)					
Low	1.289***	1.119***	1.042***	38.861***	1.120***
Intermediate	1.510***	1.198***	1.343***	453.824***	1.421***
High	1.586***	1.209***	1.507***	3,206.29***	1.476***
Very high	1.671***	1.204***	1.737***	16,652.7***	1.311***
Cases in cluster	191,168	120,843	152,502	58,203	84,941

Note: Base-category outcome variable = non-movers.

Source: Statistics Netherlands (CBS), own calculations.

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .