Geographic immobility across three generations of natives in Finland

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Abstract

Research concerning internal migration increasingly acknowledge family members also outside the household as important factors in (im)mobility decisions. Through multi-generational support exchange and location specific capital, older generations and familiar environments have shown to constitute strong geographical attractors. However, less is still known about immobility across generations, whether it is transmitted between generations and under what conditions. Using Finnish register data spanning over five decades, we provide an overview of regional (im)mobility patterns across three generations. We then analyse who is more likely to live in one's birth region also as a grown up in relation to local ancestral ties. Finland offers a highly useful case due to its two official national languages, Finnish and Swedish, and thereby two main ethno-linguistic groups, characterized by historically different mobility patterns and geographical concentrations. Main findings show how local ancestral ties are indeed related to sedentary behavior, especially if stretching several generations back in time. In terms of effect sizes, ancestral ties have relatively large determinant roles behind individual's immobility behaviour. Significant differences between the ethno-linguistic groups are found, with a stronger relationship between ancestral local ties and sedentary behaviour among the Swedish speaking minority group than among the Finnish speaking majority population.

Keywords: immobility, intergenerational immobility, ethnicity, Finland

Introduction

In this paper, we add to a growing field of bringing older generation family members into the study of individual mobility behaviour within countries. Research concerning internal migration increasingly acknowledges the role of family members also outside the household as important factors in mobility and immobility decisions (Mulder 2018). Through multi-generational support exchange and location specific capital, older generations and familiar environment have been shown to constitute strong geographical attractors (Ermish & Mulder 2018; Ghosh et al 2018; Thomas & Dommermuth 2020; Thomas et al 2019). However, less is known about (im)mobility across generations, whether it is transmitted between generations, and under what conditions (Mulder 2018). Our analysis seeks ways to fill this gap.

The analysis in this paper is carried out from the perspective of immobility, thereby answering recent calls among geographers and migration scholars to acknowledge immobility and staying not merely as the absence of mobility, but as meaningful processes in their own right (Gruber 2021; Stockdale & Haartsen 2018). Within immobility research today, there is a particular need to understand processes of staying in relation to place-specific resources and privileges, especially for different subgroups (Gruber 2021) and in terms of long-term immobility (Cooke 2011; Gruber 2021; Mulder 2018). Using high-quality register data from Finland that span over five decades, we examine the intergenerational transmission of long-term geographical immobility across two native ethno-linguistic groups: Finnish speakers and Swedish speakers.

Our overarching research question is whether there is an intergenerational transmission of immobility. By this we mean if the geographic presence of parents and grandparents are reflected in the immobility of individuals. Finland offers a highly useful case due to its two official national languages, Finnish and Swedish, and thereby two main ethno-linguistic groups, characterized by historically different mobility patterns and geographical concentrations. Focus is therefore given to differences by ethno-linguistic affiliation and regional characteristics, such as different levels of urbanity, the ethno-linguistic population composition, and geographical scale.

(Im)mobilities are relational practices that link lives through time and space (Coulter et al 2016). With our analyses we contribute to the field of internal (im)mobility by analysing the prevalence and contexts of immobility not only at one point in time, but also as it unfolds over historical time and across generations. If immobility runs across generations, it has great

implications, as it would bear impact on local-specific ties, networks of social support, access to educational opportunities, and specialised job markets (Hünteler & Mulder 2020; Mulder 2018; Mulder et al 2020). If, in addition, generational immobility differs across regions or ethno-linguistic groups, this will not only affect the local ethno-linguistic population composition, but it will also be an influential factor behind different living conditions across population subgroups.

Previous research

Geographical proximity to family members outside the household

Internal migration, defined as a long distance move within a country, or a change of daily activity space (Roseman 1971), has traditionally been assumed related foremost to employment opportunities and educational attainment. Scholars have later pointed to the additional importance of family members. Life course research has shown how internal migration relates to the timing, occurrence, and interaction of life events within one or several individuals' lives, and often members of the same household (Cooke 2008). Still however, research lacks on the importance of family ties to members outside the household, that is, extended family members such as parents, adult children and siblings (Gillespie & Mulder 2020; Thomas & Dommermuth 2020).

The importance of extended family relations could be seen through aspects of mutual support exchange and care provision (Hünteler & Mulder 2020), for which geographical proximity is often essential. Previous research has shown how this type of support is usually more common among family networks than among friends, and especially in relations between parents and their children (Bengtsson 2001; Kolk 2017; Silverstein & Bengtsson 1997; Silverstein & Giarusso 2010). Extended family members can trigger moves closer to that family at different stages of the life course. Whereas some research findings show stable levels of intergenerational geographical proximity following the years of leaving the parental home (Kolk 2017), other findings show how parents and children are more likely to reside in the same region again – past teenage years and early adulthood – due to moves made either by the children or parents (Ghosh et al 2018). Family-related moves often occur in relation to household composition changes, when the need of support is higher. Illustrative findings include moves closer to grandparents in relation to marriage and childbearing (Gillespie & Mulder 2020) and in the presence of pre-school aged children (Thomas & Dommermuth 2020). Siblings at a destination also strengthens the propensity to move there (Ghosh et al

2018; Mulder et al 2020; Thomas & Dommermuth 2020). Additionally, geographical proximity to family members could function as a deterrent to mobility (Ermish & Mulder 2018; Mulder & Malmberg 2011; 2014) because it increases the psychological costs of moving (Sjaastad 1962) and include location-specific insider advantages (Fisher & Malmberg 2001). This is, for example, seen among older parents who have locally residing adult children (Thomas & Dommermuth 2020).

In addition, the extent to which family ties influence (im)mobility behaviour is dependent on other characteristics that influence the individual costs and benefits of migration, and will differ across institutional and geographical contexts (Mulder 2018). For example, we know how internal migration often occurs in conjunction with higher education and specialised job markets. Therefore, individuals with higher levels of education tend to live more distant from their family members (Kolk 2017; Lundholm & Malmberg 2009; Olofsson et al 2020). In the same vein, local social ties might relate stronger to geographical immobility among those who face the greatest need of support. This has been seen in the US among low income families (Dawkins 2006), and in Sweden among single parents and women after partner dissolution, with higher propensities to return to the parental neighbourhood (Olofsson et al 2020). Relatively few studies have examined the role of ethnicity. Exceptions include Spilimbergo and Ubeda (2004), who find that lower mobility levels among black US Americans are largely explained by local family ties, both within and outside the current household. These ties affect their mobility propensities much more than among their white individual counterparts. Similarly, the presence of parents and siblings in Amsterdam is found to significantly hamper out-migration from Amsterdam, especially among Moroccans and Turks compared to Dutch natives and Caribbeans (Zorlu 2009).

Housing structure and urban density influence possibilities to live closer to each other, at the same time as they meet the needs of education, work, housing and family careers (van der Pers & Mulder 2013). On the one hand, this can imply higher intergenerational proximity in metropolitan areas (Kolk 2017), especially from the perspective of parents living close to their adult children in urban areas or university towns (van der Pers & Mulder 2013). On the other hand, adult children may have stronger probabilities of living closer to their parents if they move to rural areas (van der Pers & Mulder 2013).

The relationship between the geographical proximity of family members and internal migration is endogenous by nature. Individuals with certain personality traits, for instance

those who prefer stability and to stay in one place, might also have closer family contact because of their geographical immobility. Additionally, the relationship is not necessarily limited to the lived present, but rather intertwined with longings and preferences for one's birth place or childhood's familiar environment (Ermish & Mulder 2018).

Intergenerational transmission of immobility

Whereas the geographical proximity of extended family members has attained increased attention, our knowledge of intergenerational transmission of (im)mobility is still limited. Within the broader literature on intergenerational mobility of socio-economic stratification, research addressing its spatial aspects find intergenerational persistence in the probability of living in low-income neighbourhood types (Gustafsson et al 2017; van Ham et al 2014; Hedman and van Ham 2021; Sharkey 2008; Vartanian et al 2007). Stronger such effects are found in the US context as compared to Scandinavia (see Hedman & van Ham 2021), and among minorities (van Ham et al 2014; Sharkey 2008). However, whilst supporting the idea of shared geographies across generations, that research strand has analysed neighbourhood typologies in relation to socio-economic mobility, rather than shared physical space and place in conjunction with actual geographic (im)mobility behaviour. The question thus remains whether geographic (im)mobility runs in families or not, and under what conditions (Mulder 2018).

Following the "mobility turn" within the social sciences, where mobility and movement were emphasized as defining features of contemporary society (Sheller & Urry 2006), the last decade has witnessed an increased research interest in processes of immobility. Additional to the increased management regulating international migration, the awakened interest in immobility follows the observed decline in internal migration rates within western societies, and mainly the US (Cooke 2011; Foster 2017). In one of few papers examining immobility across generations, Sharkey (2015) describes how families and places are linked over the course of a family's history in the US. Compared to previous generations, Sharkey notes how the most recent generation of black US Americans have remained in place, and a new geographically immobile generation has emerged. So far, there are few studies on staying, and even less studies on long-term staying across generations. Hence, there is today a great need to understand decisions of immobility – and especially long-term immobility – in relation to resources and privileges in connection with place, and particularly so for different population subgroups (Cooke 2011; Gruber 2021; Mulder 2018).

By reconceptualising immobility and staying as processes in their own right – which involves multiple definitions, actors and agency – scholars can enable new empirical, theoretical and analytical research within population geography and migration studies (Gruber 2021). Analyses of immobile populations are important for understanding places and communities, as they are key parts of regional development and community cohesion (Gruber 2021; Stockdale & Haartsen 2018). For example, Barcus and Shugatai (2018) show how stayers in rural Mongolia, rather than only left-behinds, play an important role in perpetuating place identities and in serving as anchors for rural ethnic identity, also for those who move.

From qualitative studies, we know that place attachment has functioned as an important framework for explaining staying preferences and immobility decisions, especially in the context of rural areas (Stockdale & Ferguson 2020; Stockdale et al 2018). In interviews with young adults from farm families in rural Northern Ireland and the Netherlands, strong insider advantages are found related to a sedentary lifestyle (Stockdale & Ferguson 2020; Stockdale et al 2018). In these case studies, young stayers show a strong desire to stay, informed by nostalgia and dwelling entangled with family history that goes back in generations, farm ownership, and continued family networks. In another small-scale study, Hjälm (2014) interviewed old-age stayers in an urban area of northern Sweden. Also in this case, staying is described in terms of an active choice renegotiated across time. Reasons for staying are complex and multi-layered, but include the significance of linked lives, and a sense of home that holds together not only living relatives, but also preceding and following generations.

To broaden our knowledge on immobility across generations, this paper provides rich new evidence related to staying in place in different geographical contexts and across ethno-linguistic groups. The comprehensive analysis is based on five decades of full population register data from Finland, and thus contribute to a more generalized view than before on staying across generations.

Finland – a country with two ethno-linguistic groups

Finland is a country inhabited by two native ethno-linguistic groups: Finnish speakers, who account for approximately 90% of the population, and Swedish speakers, who make up about 5%, or 290,000 individuals (Saarela 2021). The two groups function as separate ethnicities as in how ethnicity is commonly defined (cf. Gordon 1964), with distinguishable identities of both self-perception and perception of others, and distinct languages with different linguistic roots. The ethno-linguistic division includes separate social and cultural institutions and

parallel school systems (McRae 2007), provided by public authorities on equal basis, as both groups have equal constitutional rights. In the national population register, a person can be registered with only one mother tongue, which usually occurs recently after birth.

As a country with two official languages, Finland stands out in international comparison. Swedish speakers in Finland do not constitute an underprivileged minority, but rather a group with strong societal position (Saarela & Finnäs 2018). Historical roots of the Swedish-speaking population go back far in time, when Finland was part of the Swedish realm and Swedish was used as the main language of government, business and culture (Liebkind et al 2007). Today, a common presumption holds that Swedish speakers are overrepresented among those well-off. However, empirical findings show a more complex picture (cf. Saarela 2006; 2004; Saarela & Finnäs 2004), with strong regional variation (Saarela & Finnäs 2003).

In Finland, the share of the Swedish-speaking population has decreased rapidly in just a century, from 14% in 1880 to 5% in 2019 (Saarela 2021). The diminishing shares is perhaps even more reflected geographically, and stressed by the fact that (im)mobility patterns have been characterized by great differences in mobility levels by ethno-linguistic affiliation. Among the Finnish-speaking majority population, relatively high levels of urbanization, especially towards the metropolitan area of Helsinki in the Nyland region have been observed since the 1970s. Within the minority Swedish-speaking population, higher immobility levels have instead been accompanied with higher emigration rates as compared with Finnish speakers, with Sweden as the greatest destination (Hedberg & Kepsu 2008; Saarela 2021). As a consequence, the coastal regions of Finland's mainland, that historically had been inhabited by a Swedish unilingual population, were already in the 1980s characterized by increasing shares of unilingual Finnish speakers and a Swedish-speaking population in which most individuals could speak also Finnish (Allart & Miemois 1982; Saarela & Finnäs 2018; Tandefelt 1986). At the end of the nineteenth century, more than 80% of the Swedish speaking population lived in municipalities with Swedish as the majority language. In 2016, no municipality on Finland's mainland was longer unilingual Swedish in an official sense (Saarela 2021).

The survival of minority languages is highly dependent on individuals' immediate environment, regulating the acceptance and ability to use a language in everyday life (Allardt & Miemois 1982; Leinonen & Tandefelt 1986; Liebkind & Tandefelt 2007;). This is an issue that raised both linguistic and political concern already in the 1980s (Allardt & Miemois

1982; Tandefelt 2003). Signs of language loss within the minority group are found, especially in growing environments with a large Finnish-speaking majority (Leinonen & Tandefelt 2007). On the other hand, other processes witness about a maintained interest in the Swedish language. These include the fact that a majority of children with mixed Finnish-Swedish background are registered as Swedish speakers, and a higher share of children are registered within the Swedish-speaking school system than are actually registered as Swedish speakers (Saarela 2021).

Different from territorially bound language status, official languages are in Finland protected at state level, and municipalities' language classifications are bound to the residing individuals' ethno-linguistic affiliation rather than fixed territorial boundaries. With the exception of the autonomous archipelago of Åland, historically inhabited by a fixed territory with Swedish unilingualism, the mainland of Finland has been characterized by flexible territorial boundaries that have been re-shaped by population movements (McRae 2007; 1975; Myhill 1999). The changing language classification of a municipality bears impact on local communities, not only because it reflects the share of Swedish speakers, but also through the level of granted services provided in Swedish.

Today, a majority of the Swedish-speaking population resides in the capital region of Uusimaa (Nyland in Swedish), followed by Ostrobothnia (Österbotten). At the same time, large differences pertain to the relative shares of the Swedish-speaking population, with lower shares in Uusimaa than in the rest of the Swedish-speaking settlement area in Finland (Map 1). Whilst the region of Uusimaa is characterised by higher degrees of urbanised municipalities, including the capital of Helsinki and its metropolitan area, other regions of the Swedish-speaking settlement area include semi-urbanised, so called densely populated municipalities, as well as rural areas.
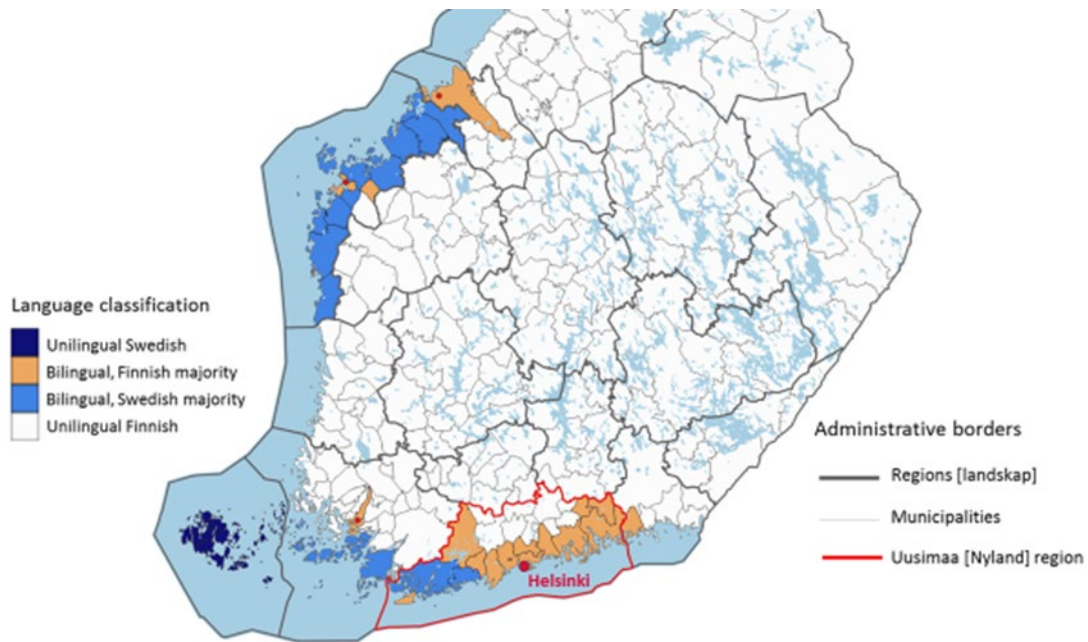
Map 1. Regions and municipalities of southern Finland.

Data and Method

We use register data of the entire Finnish population, meaning all individuals who ever had lived in Finland some time in the period 1970-2020. For all individuals, these administrative records include information on ethno-linguistic affiliation, measured through each person's unique mother tongue. Only one mother tongue can be registered, even though many Swedish speakers are in practice bilingual. Shifts in language registration over the life course are rare (Saarela et al 2022). We have coded individuals as Swedish speakers if they have ever been registered as such. All registered individuals have information on municipality and region of residence at birth, as well as links to the parents if they had not died before the end of 1970. Data are provided by Statistics Finland and used with permission *TK/1444/07.03.00/2021/U1054_al3*.

In order to observe individuals reaching adulthood and still be able to link them to parents and grandparents, the study population is derived from a focal cohort (G3) who were born in Finland 1970-1985 and alive at age 35. For the purpose of this study, we include only those who were living in Finland at ages 14 and 35.

To the index individuals in G3 we add information about their parents (G2) and grandparents (G1). By anchoring to the youngest generation, the study population is not defined by older age survival (cf. Kolk 2017). Instead, the fact that not all parents and grandparents were alive

(and residing in Finland) in 1970 imply missing information for some of our intergenerational variables. To the index persons, we are able to link more than 98% of their fathers, almost 100% of the mothers, 62% of the paternal grandfathers, 69% of the paternal grandmothers, 64% of the maternal grandfathers, and over 71% of the maternal grandmothers. For 45% of the study population we have information about both parents plus all four grandparents. In the paper, we present results based on the population with full information on both two parents and all four grandparents, which amounts to 394,981 index individuals.

Outcome variable

We consider immobility as "staying in place" as an adult in relation to childhood residency, rather than as the absence of any move. Immobility is consequently defined as living in the same place at age 35 as at age 14. This means that individuals who we consider as "stayers" may not be absolutely immobile, but they could have moved and returned to the same place (cf. Stockdale & Haartsen 2018).

It is a well-known fact that internal mobility is extremely age-dependent, with most migrations occurring in young adulthood. This is true also in the case of Finland, with internal mobility peaking at age 26, and then rapidly declining (Ghosh et al 2019). The observation ages 14 and 35 are motivated as they precede and follow ages of increased mobility propensity related to education, job search and family formation. Mobility before age 14 is not considered, as it rarely stems from the agency of the child but of the parents. The specific age of 14 is chosen because until 1993 in Finland, students enrolled in education outside their parental municipality where usually registered as living in their parents' household. Any mobility measurement in ages pertained by education related to moves out from the parental municipality, which would have occurred at age 15 and above, would thereby be underestimated and with risk of biasing the results.

In order to analyse eventual differences in relation to geographical scale (cf. Olofsson et al 2017; White & Lindstrom 2005), the outcome variable of immobility, that is, living in the same place at age 14 and 35, is measured in relation to municipality [kommun/kunta] and to region [landskap/maakunta], respectively. The administrative boundaries can be observed in Map 1. Results from the municipality-level models are presented in the paper, and those from the region-level models in the Appendix. Meaningful differences between these parallel analyses are commented upon in the result section.

Explanatory variable

Given the research question on intergenerational transmission of immobility, our main interest is whether individuals stay in places where their parents and grandparents also stayed. In the same way as for the dependent variable, intergenerational immobility is defined as "staying in place", rather than as "no move". From the registers, we have information about the birth place of all registered individuals. Hence, variables of ancestral ties are created with reference to the birthplace of parents and grandparents in relation to the index person. Dummy variables for living in the same place as the birthplace of each parent and grandparent are presented in the descriptive statistics.

The variable of ancestral ties that is used in the presented models is an aggregated variable referring to the index person's place of residence at age 14. Categories include i) having no ancestral ties, ii) having at least one parent but no grandparent born in the place of residence, iii) having at least one grandparent but no parent born in the place of residence, and iv) having at least one parent and at least one grandparent born in the place of residence. Through the local presence of previous generations, individuals are linked to places through family ties, common history, and evolving social networks (Sharkey 2015). The historical rootedness has moreover been found a defining feature of place specific resources and feelings of belonging, both influencing the geographical behaviour of individuals (Hjälm 2014; Stockdale & Ferguson 2020; Stockdale et al 2018). Through family presence, we thereby argue that the variable of ancestral birthplaces reflects a form of intergenerational place connection. Naturally however, the quality and nature of this form of place attachment may vary between individuals and families.

Control variables

Control variables are gender, birth cohort, any move during childhood (between birth and age 14), urbanisation level of the municipality of residence at age 14, educational level at age 35, living with a partner at age 35, living with children in the household at age 35, labour market status at 35, number of siblings, birth order, and whether any parent or grandparent at some point have had an occupation within agriculture (which generally is a strong marker for sedentary life). Similar to the outcome variable, the variable of ancestral ties and childhood moves either refer to the municipality level or to the region level, depending on the specification of scale used in the model.

Models

We run logistic regression models in which the binary outcome is immobility or not, as defined above. Central to our analysis of intergenerational transmission of immobility are differences across Finnish and Swedish speakers. Therefore, all models are run separately by mother tongue. To enable comparison across models, results are presented as discrete changes in the form of average marginal effects, also known as marginal effects at means (Mood 2010). To enable comparison of statistical significance across models for Finnish speakers and Swedish speakers, respectively, we run the logistic regressions using STATA's generalized structural equation modelling software (gsem), following by Mize et al (2019). The gsem framework combines the covariance matrices across the group specific models, and computes the cross-model covariance needed to properly compare the significance of effect differences between groups (Canette 2014; Lindsey 2016; Mize et al 2019). However, since we use data on the full population data, these should be interpreted as reflecting the spread of the estimates, rather than as strict tests of statistical significance.

Robust standard errors clustered according to region of birth are used to consider cross-group correlation. Several cluster variables were tested, and region of birth was associated with the largest standard errors.

To capture the importance of geographical context, models are run separately for different regions with Swedish-speaking settlement (along the southern and western coastlines, and the Åland Islands), alongside models run on a national level. The compared regions are the whole Swedish-speaking settlement area, the region of Uusimaa, and the Swedish-speaking settlement area outside Uusimaa (see Map 1). In this way, we can disentangle differences in relation to i) ethno-linguistic composition, foremost by comparing results from the Swedish-speaking settlement area to the whole country, and ii) relative levels of urbanity, primarily by comparing the region of Uusimaa to the whole country, and to other less urbanised regions of the Swedish-speaking settlement area.

Robustness checks

As a first robustness check, distributions have been compared and models have been run also including individuals with missing information on ancestral ties (Table A 2; Table B 2; Table C 1; Table D 2). Secondly, we check how sensitive the results are for emigration, by including individuals who had migrated after age 14 and not return migrated by age 35 into the analyses (Table A 3; Table B 3; Table C 2; Table D 3). These models exclude the

variables educational level, labor market status and household composition at age 35, because they are missing for persons who have emigrated.

As already mentioned, all descriptive statistics and models are additionally run using regional-level specifications of residential area, ancestral ties and immobility (Table A 1; Table A 2; Table A 3; Table B 1; Table B 2; Table B 3; Table D 1; Table D 2; Table D 3; Table E 1).

Meaningful differences are commented in the paper. However, as the main results stay the same, tables from the robustness checks are presented only in the Appendix.

Results

Ancestral ties

Table 1 shows the share of the Finnish-speaking and Swedish-speaking population, respectively, who at age 35 was living in a municipality where they, their parents, or their grandparents were born. Notable differences exist between the two ethno-linguistic groups. Swedish speakers have a consistently higher share of intergenerational ties than Finnish speakers, and this difference grows larger with each generation back in time. For example, only half as many Finnish speakers live in municipalities where at least one of their grandparents were born, compared to the Swedish speaking population. The ethno-linguistic difference is also larger in the Swedish-speaking settlement area than at the national level, which reflects historical (im)mobility patterns in Finland. A particularly large difference is seen in the Uusimaa region, which during the past decades has been shaped by urbanisation and an inflow of Finnish speakers without local family ties. In this region, the proportion of Finnish speakers living in a municipality where at least one of their grandparents was born is only one-fifth of the proportion among Swedish speakers.

For the presented study population, that is, those with non-missing parental and grandparental links in the registers, we find it more likely to live in municipalities of grandfathers than grandmothers, and more common to live in municipalities of paternal grandfathers than maternal grandfathers (Table 1). A similar trend is also visible when comparing paternal grandmothers with maternal grandmothers. This gender difference reflects higher internal migration rates of women than men in the parental and grandparental generations.

Table 1. Generational ties to the place of residence at age 35

At age 35 - living in the same municipality as:	Municipality level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	43.5	52.7	0.8	33.8	55.0	0.6	31.8	52.4	0.6	43.7	56.1	0.8
at birth (ego)	37.2	47.4	0.8	30.3	49.8	0.6	26.3	47.8	0.5	43.0	50.4	0.9
father's birthplace	24.3	36.0	0.7	16.0	37.9	0.4	12.5	34.8	0.4	25.5	39.8	0.6
mother's birthplace	21.9	31.5	0.7	14.8	33.3	0.4	11.6	33.5	0.3	23.7	32.1	0.7
paternal grandfather's birthplace	15.2	28.6	0.5	6.8	30.1	0.2	4.9	25.0	0.2	13.3	34.1	0.4
paternal grandmother's birthplace	12.9	24.8	0.5	5.8	26.1	0.2	4.2	22.2	0.2	11.1	29.1	0.4
maternal grandfather's birthplace	13.2	24.5	0.5	5.9	25.9	0.2	4.3	23.8	0.2	11.6	27.1	0.4
maternal grandmother's birthplace	11.5	21.9	0.5	5.2	23.1	0.2	3.8	21.1	0.2	10.0	24.4	0.4

Note: Population with full information on parents and grandparents, living in Finland at age 35.

Table 2 shows the main results from our regression models, for the whole country and the differently specified regions. For the whole country, we see that having ancestral ties in the residential municipality at age 14 relates positively to staying in the same area at age 35. Compared to having no ties, having at least one parent, but no grandparent, born in the municipality of residence increases the probability of staying with eight percentage points for Finnish speakers and ten percentage points for Swedish speakers. Having at least one grandparent, but no parent, born in the municipality of residence is found to have a notably stronger effect for Swedish speakers than for Finnish speakers, or 0.18 vs. 0.11. Having at least one parent and at least one grandparent born in the municipality of residence at age 14 is for Swedish speakers associated with an 18 percentage points increase in the probability of staying, as compared to having no local ancestral ties. The corresponding number for Finnish speakers is notably lower, or 11 percentage points.

For both Finnish speakers and Swedish speakers, the positive association between ancestral ties and immobility is particularly pronounced in Uusimaa, while it is attenuated in the Swedish-speaking settlement area excluding Uusimaa. Throughout the models, associations with ancestral ties including the grandparental generation are significantly higher among Swedish speakers than Finnish speakers. Having only parental local ties, and no grandparental local ties, has a roughly similar association with immobility for both ethno-linguistic groups, except for in Uusimaa where the association is five percentage points stronger for Swedish speakers.

Table 2. Average Marginal Effects of local ancestral ties on immobility

Population with full information on parents and grandparents, living in Finland at age 35 - municipality level

		Whole country		Swe. speaking settlement area		Uusimaa		Swe. speak. set. area w/o Uusimaa	
		AME	Sig.	AME	Sig.	AME	Sig.	AME	Sig.
Local ancestral ties at residence, age 14									
No parent and no grandparent (ref.)									
No parent but at least one grandparent	FI	0.06	***	0.08	***	0.09	***	0.03	***
	SV	0.13	***	0.12	***	0.15	***	0.09	***
	Diff.	-0.07	***	-0.05	***	-0.05	***	-0.06	***
At least one parent but no grandparent	FI	0.08	***	0.09	***	0.11	***	0.06	***
	SV	0.10	***	0.10	***	0.16	***	0.06	***
	Diff.	-0.02		-0.01		-0.05	***	0.00	
At least one parent and one grandparent	FI	0.11	***	0.10	***	0.15	***	0.08	***
	SV	0.18	***	0.17	***	0.21	***	0.12	***
	Diff.	-0.07	***	-0.07	***	-0.06	***	-0.04	***
Gender									
Man (ref.)									
Woman	FI	-0.05	***	-0.04	***	-0.04	***	-0.05	***
	SV	-0.07	***	-0.07	***	-0.04	***	-0.09	***
	Diff.	0.02	*	0.03	***	0.00		0.05	***
Birth cohort									
1970-1975 (ref.)									
1976-1980	FI	-0.02	***	-0.01	**	-0.01	***	-0.01	
	SV	-0.02	***	-0.02	***	-0.02	***	-0.02	
	Diff.	0.00		0.01		0.01	**	0.01	
1981-1985	FI	-0.03	***	0.00		-0.02	***	0.00	
	SV	-0.03	***	-0.03	***	-0.04	***	-0.02	**
	Diff.	0.00		0.03	**	0.02	**	0.02	
Childhood immobility									
No (ref.)									
Yes	FI	0.11	***	0.10	***	0.11	***	0.10	***
	SV	0.12	***	0.11	***	0.11	***	0.13	***
	Diff.	-0.02		-0.01		0.01		-0.03	*
Municipality type at age 14									
Urban (ref.)									
Denseley populated	FI	-0.14	***	-0.20	***	-0.14	***	-0.16	***
	SV	0.00		0.00		-0.03	***	0.05	***
	Diff.	-0.14	***	-0.21	***	-0.11	***	-0.21	***
Rural	FI	-0.19	***	-0.25	***	-0.24	***	-0.22	***
	SV	-0.10	**	-0.10	***	-0.22	***	-0.04	**
	Diff.	-0.10	**	-0.16	***	-0.02		-0.17	***

cont.

Agricultural ancestry								
No (ref.)								
Yes	FI	0.00		0.00		0.01	***	0.00	
	SV	0.02	***	0.03	***	0.02	***	0.04	***
	Diff.	-0.03	**	-0.03	***	-0.02	***	-0.03	***
Siblings								
No (ref.)								
Yes	FI	0.00		0.01	**	0.01		0.02	**
	SV	0.00		-0.01		-0.01		0.01	
	Diff.	0.00		0.01	**	0.01	***	0.01	
First born								
No (ref.)								
Yes	FI	0.00		0.01		0.01	***	0.00	
	SV	0.00		0.00		-0.01	**	0.01	***
	Diff.	0.00		0.01		0.02	***	-0.01	*
Educational level at age 35								
Primary (ref.)								
Secondary	FI	-0.03	***	-0.02	***	-0.01	***	-0.02	**
	SV	-0.05	***	-0.04	***	-0.06	***	-0.03	
	Diff.	0.01		0.03	*	0.05	***	0.01	
Tertiary	FI	-0.19	***	-0.06	***	-0.05	***	-0.14	***
	SV	-0.17	***	-0.17	***	-0.16	***	-0.18	***
	Diff.	-0.01		0.11	***	0.11	***	0.04	
Labour market status at age 35								
Employed (ref.)								
Unemployed	FI	0.00		-0.01		-0.03	***	0.02	
	SV	-0.04	**	-0.04	***	-0.02		-0.06	***
	Diff.	0.04	**	0.04	**	-0.01		0.08	*
Outside the labour force	FI	0.01	**	0.02	*	0.02	***	0.04	**
	SV	-0.01	**	-0.01	***	-0.02	***	-0.01	
	Diff.	0.02	***	0.03	***	0.03	***	0.05	***
Living with partner at age 35								
No (ref.)								
Yes	FI	-0.11	***	-0.13	***	-0.12	***	-0.15	***
	SV	-0.12	***	-0.12	***	-0.12	***	-0.12	***
	Diff.	0.01		-0.01		-0.01		-0.03	
Living with child(ren) at age 35								
No (ref.)								
Yes	FI	0.08	***	0.02	*	0.04	***	0.03	
	SV	0.09	***	0.09	***	0.07	***	0.10	***
	Diff.	-0.01		-0.07	***	-0.03	***	-0.07	*

Population with full information on parents and grandparents, living in Finland at age 35 - municipality level

***<=0.01, **<=0.05, *<=0.1

Other factors related to immobility

Women are generally less likely than men to stay in the residential municipality, and the gender difference is slightly larger for Swedish speakers than for Finnish speakers (Table 2). In models that include emigrants (Table C 2), the gender effect is emphasised, which reflects women's higher emigration rates.

Younger cohorts are slightly less likely to stay than older ones, whereas childhood immobility is positively related to staying put also later in life.

Compared to urban municipalities, residing in densely populated or rural municipalities at age 14 is associated with a strong negative effect on the probability of staying for Finnish speakers. This effect is particularly prominent in the Swedish-speaking settlement area, where Finnish speakers living in densely populated municipalities show a 20 percentage points lower probability of staying, and a 25 percentage points lower probability if living in rural areas. The negative effect of living in densely populated municipalities compared to urban ones cannot be seen among the Swedish speakers, for whom there is even a slight positive effect (0.05) in the Swedish speaking settlement area outside Uusimaa. Living in rural municipalities, as compared to urban ones, is related to a lower probability of staying also for Swedish speakers, although not with the same effect size as for Finnish speakers. In the Swedish-speaking settlement area, and especially outside Uusimaa, residing in rural municipalities compared to urban ones show substantial differences between the two ethno-linguistic groups. While Finnish speakers in this area experience a 22 percentage points lower probability of staying if living in a rural than in an urban municipality, the similar difference among Swedish speakers is only four percentage points.

Having an agricultural ancestry has a close to zero effect on the probability of staying among the Finnish speakers, while it is associatied with a two to four percentage points higher probability of staying among the Swedish speakers.

Having siblings or being the first born show close to zero effects on the probability of staying in both ethno-linguistic groups.

Having higher education, and especially tertiary-level education, is related to a notably lower likelihood of staying as compared to having primary education only. At the national level, the effect size is almost the same for Finnish speakers and Swedish speakers (-0.19 and -0.17), while it is more attenuated for Finnish speakers in Uusimaa (-0.05).

Unemployment is, as compared to being employed, related to a slightly lower probability of staying among Swedish speakers than among Finnish speakers. Being outside the labour force has a slight negative effect on immobility of Swedish speakers, and a slight positive effect on immobility of Finnish speakers.

Living with a partner at age 35, as opposed to not doing so, is related to a lower probability of immobility, and the effect size is practically the same in both ethno-linguistic groups (-0.11 to -0.15).

Living with children, as opposed to not doing so, is related to a higher probability of staying. At the national level, the effect size is practically the same for Finnish and Swedish speakers (0.08 and 0.09), while in the Swedish-speaking settlement area, the probability is notably lower for Finnish speakers than for Swedish speakers (0.02 vs. 0.09).

Results of robustness checks

Including also individuals (index persons) with missing generational links (the first robustness check) and those emigrating from Finland (the second robustness check), respectively, yield similar results as presented above, both in terms of descriptive findings (Table B 1; Table B 2; Table B 3) and regression results (Table C 1; Table C 2).

At age 35, Swedish speakers have consistently higher shares of generational ties, both at a municipality and regional level (Table A 1; Table A 2; Table A 3). However, the positive effect of having local ancestral ties on immobility behaviour is generally less pronounced at the regional level than at the municipality level (Table D 1), and these results are consistent independent of how the study population is defined (Table D 2; Table D 3). These differences can be seen in regressions without any control variables (Table E 1), and they become even more pronounced when control variables are included.

Discussion

In this study, we have analysed whether there is an intergenerational transmission of immobility, referring to whether the geographic presence of parents and grandparents are reflected in the immobility of individuals. Finland has offered a highly useful case due to its two official national languages, Finnish and Swedish, and thereby two main ethno-linguistic groups, characterized by historically different mobility patterns and geographical concentrations. Focus has been on differences by ethno-linguistic affiliation and regional

characteristics, such as different levels of urbanity, the ethno-linguistic population composition, and geographical scale.

We find that Swedish speakers have consistently higher shares of intergenerational ties than Finnish speakers, and that the differences grow larger with each generation back in time. We also find large regional variations in the proportion of the population who live in municipalities where they have ancestral ties. Local ancestral ties are found to be more common in the Swedish-speaking settlement area outside Uusimaa, while the ethno-linguistic differences in level of ancestral ties are particularly large in Uusimaa.

Results from our multivariate analysis show how local ancestral ties are indeed related to sedentary behavior, especially if stretching several generations back in time, including both the parental and grandparental generation. In terms of effect sizes, ancestral ties have relatively large determinant roles behind individual's immobility behaviour. Significant differences between the ethno-linguistic groups are found, with a stronger relationship between ancestral local ties and sedentary behaviour among the Swedish speaking minority group than among the Finnish speaking majority population. Within the Swedish speaking minority group, the correlations between ancestral ties and immobility is greater than the level of urbanity. In terms of effect size, having ancestral ties from two generations back show an almost twice as big correlation with immobility than living in a rural compared to an urban municipality, and a zero effect is even found in cases of densely populated municipalities. In contrast, urbanity levels are among the Finnish speaking majority found with a greater correlation to immobility propensities than ancestral ties. In the Finnish speaking group, even living in a densely populated municipality (i.e. not rural) decreases the probability of staying compared to if you lived in an urban one, and this effect is bigger than the increasing effect of having ancestral ties from two generations back.

Swedish speakers in Finland are known for their higher international migration rates as compared to Finnish speakers, especially through the historically high emigration to Sweden (Hedberg & Kepsu 2008; Saarela 2021). In this paper, we have revisited the question of ethno-linguistic mobility differences, looking specifically at regional immobility propensities. We have seen how Swedish speakers, in terms of internal regional mobility, are more sedentary than Finnish speakers, with higher shares of adult individuals residing within their municipality of birth or childhood. Moreover, we have been able to show how the immobility behaviour of Swedish speakers are pronounced by local ancestral ties from previous generations. In contrast to Finnish speakers, the immobility behaviour of Swedish speaking

individuals is not distorted by lower urbanisation levels. Similarly, agricultural ancestry play a small positive role for immobility within the Swedish-speaking subgroup in a way that is not found in the Finnish-speaking majority population.

The results from this study reflect a history of immobility particularly prevalent within the Swedish-speaking population, and which has been accumulated across generations. Our results are certainly marked by the time period examined. During the latter part of the twentieth century, urbanisation levels in Finland were characterised by Finnish speakers moving to the Uusimaa region. This coincide with early life trajectories of our study population, born 1970-1985. Among Swedish speakers, similar mobility flows occurred earlier, or already in the 1920's and 1930's (Finnäs 1997; Waris 1973), hence more prevalent for the mobility of the grandparental generation in our study.

Many Swedish speakers in Finland are today in practice bilingual, especially within the Uusimaa region. Language barriers are nevertheless likely to still affect the potential destinations of individuals, making Swedish speakers more likely to stay in Swedish dominating municipalities. Being historically more immobile, it is natural that Swedish speakers also show higher shares of local ancestry. However, this does not explain why, at an individual level, people are less likely to move from places where their grandparents were born, or more, where both their parents and grandparents have lived.

From previous literature we know that older generations function as important geographical attractors, as they provide an important social support network, especially in periods of family formation and change (Ermish & Mulder 2018; Ghosh et al 2018; Gillespie & Mulder 2020; Hünteler & Mulder 2020; Thomas & Dommermuth 2020; Thomas et al 2019). In our study, we have not been able to include the simultaneous presence of older generations in relation to individuals own residency. That is, we do not know if members of the older generations were residing in the same place and during the same *time* as the index person, or for how long. The active and simultaneous presence of older generations are however probably part of the mechanisms behind our results. From qualitative studies we also know that the historical as well as future presence of extended family members and ancestors are important for feelings of place attachment (Hjälm 2014; Stockdale & Ferguson 2020; Stockdale et al 2018). These mechanisms are likely to be important factors behind our results as well, and if so, it would be natural to think of them as to be more important in minority groups such as the Swedish population in Finland. Additionally, we can think of examples where land, dwellings and

other types of physical assets are inherited from one generation to the next, constituting strong insider advantages enabling immobility (Stockdale & Ferguson 2020; Stockdale et al 2018).

Taken together, this study has shine light on regional immobility across ethno-linguistic groups, showing how these are likely to be perpetuated across generations. In the case of Finland, it stands clear that the minority group of ethno-linguistic Swedish speakers have higher local immobility levels than the majority population of ethno-linguistic Finnish speakers. Since immobility levels, especially over generations, are related to place attachment and resources, including proximity to family network and kin is important for understanding life courses and living conditions of sub-populations. This is true both for ethno-linguistic Swedish speakers, who are more likely to live in places with ancestral ties, and for the Finnish speakers who live in the capital region of Uusimaa, with less ancestral rootedness. Future studies should elaborate on how differences in local ancestry relate to socioeconomic and demographic outcomes, such as labour market performance and fertility behaviour.

Acknowledgements

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Appendix A

Table A 1. Generational ties to the place of residence at age 35 – main study population

Population with full information on parents and grandparents, living in Finland at age 35

At age 35 - living in the same municipality as:	Municipality level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	43.5	52.7	0.8	33.8	55.0	0.6	31.8	52.4	0.6	43.7	56.1	0.8
at birth (ego)	37.2	47.4	0.8	30.3	49.8	0.6	26.3	47.8	0.5	43.0	50.4	0.9
father's birthplace	24.3	36.0	0.7	16.0	37.9	0.4	12.5	34.8	0.4	25.5	39.8	0.6
mother's birthplace	21.9	31.5	0.7	14.8	33.3	0.4	11.6	33.5	0.3	23.7	32.1	0.7
paternal grandfather's birthplace	15.2	28.6	0.5	6.8	30.1	0.2	4.9	25.0	0.2	13.3	34.1	0.4
paternal grandmother's birthplace	12.9	24.8	0.5	5.8	26.1	0.2	4.2	22.2	0.2	11.1	29.1	0.4
maternal grandfather's birthplace	13.2	24.5	0.5	5.9	25.9	0.2	4.3	23.8	0.2	11.6	27.1	0.4
maternal grandmother's birthplace	11.5	21.9	0.5	5.2	23.1	0.2	3.8	21.1	0.2	10.0	24.4	0.4

At age 35 - living in the same region as:	Regional level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	68.4	85.2	0.8	57.5	87.3	0.7	57.2	87.1	0.7	66.9	87.7	0.8
at birth (ego)	63.0	82.4	0.8	54.4	84.8	0.6	54.2	85.2	0.6	61.7	84.6	0.7
father's birthplace	49.2	72.4	0.7	32.0	74.5	0.4	29.6	71.8	0.4	46.2	77.0	0.6
mother's birthplace	47.6	70.7	0.7	30.4	72.9	0.4	28.0	72.8	0.4	44.4	73.0	0.6
paternal grandfather's birthplace	37.3	64.5	0.6	18.3	66.7	0.3	14.7	59.4	0.2	35.0	73.1	0.5
paternal grandmother's birthplace	34.7	60.3	0.6	16.2	62.4	0.3	13.0	55.4	0.2	31.3	68.4	0.5
maternal grandfather's birthplace	35.8	63.7	0.6	16.6	65.9	0.3	13.4	61.0	0.2	32.0	70.1	0.5
maternal grandmother's birthplace	33.6	60.4	0.6	14.8	62.4	0.2	11.7	58.0	0.2	29.6	66.4	0.4

Table A 2. Generational ties to the place of residence at age 35 – first robustness check

Population with full information on parents and grandparents, living in Finland at age 35

At age 35 - living in the same municipality as:	Municipality level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	43.5	52.7	0.8	33.8	55.0	0.6	31.8	52.4	0.6	43.7	56.1	0.8
at birth (ego)	37.2	47.4	0.8	30.3	49.8	0.6	26.3	47.8	0.5	43.0	50.4	0.9
father's birthplace	24.3	36.0	0.7	16.0	37.9	0.4	12.5	34.8	0.4	25.5	39.8	0.6
mother's birthplace	21.9	31.5	0.7	14.8	33.3	0.4	11.6	33.5	0.3	23.7	32.1	0.7
paternal grandfather's birthplace	15.2	28.6	0.5	6.8	30.1	0.2	4.9	25.0	0.2	13.3	34.1	0.4
paternal grandmother's birthplace	12.9	24.8	0.5	5.8	26.1	0.2	4.2	22.2	0.2	11.1	29.1	0.4
maternal grandfather's birthplace	13.2	24.5	0.5	5.9	25.9	0.2	4.3	23.8	0.2	11.6	27.1	0.4
maternal grandmother's birthplace	11.5	21.9	0.5	5.2	23.1	0.2	3.8	21.1	0.2	10.0	24.4	0.4

At age 35 - living in the same region as:	Regional level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	68.4	85.2	0.8	57.5	87.3	0.7	57.2	87.1	0.7	66.9	87.7	0.8
at birth (ego)	63.0	82.4	0.8	54.4	84.8	0.6	54.2	85.2	0.6	61.7	84.6	0.7
father's birthplace	49.2	72.4	0.7	32.0	74.5	0.4	29.6	71.8	0.4	46.2	77.0	0.6
mother's birthplace	47.6	70.7	0.7	30.4	72.9	0.4	28.0	72.8	0.4	44.4	73.0	0.6
paternal grandfather's birthplace	37.3	64.5	0.6	18.3	66.7	0.3	14.7	59.4	0.2	35.0	73.1	0.5
paternal grandmother's birthplace	34.7	60.3	0.6	16.2	62.4	0.3	13.0	55.4	0.2	31.3	68.4	0.5
maternal grandfather's birthplace	35.8	63.7	0.6	16.6	65.9	0.3	13.4	61.0	0.2	32.0	70.1	0.5
maternal grandmother's birthplace	33.6	60.4	0.6	14.8	62.4	0.2	11.7	58.0	0.2	29.6	66.4	0.4

Table A 3. Generational ties to the place of residence at age 35 – second robustness check

Including individuals who emigrated before age 35

At age 35 - living in the same municipality as:	Municipality level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	42.5	47.8	0.9	33.8	55.0	0.6	31.8	52.4	0.6	43.7	56.1	0.8
at birth (ego)	36.4	42.9	0.8	30.3	49.8	0.6	26.3	47.8	0.5	43.0	50.4	0.9
father's birthplace	23.7	32.8	0.7	16.0	37.9	0.4	12.5	34.8	0.4	25.5	39.8	0.6
mother's birthplace	21.4	28.7	0.7	14.8	33.3	0.4	11.6	33.5	0.3	23.7	32.1	0.7
paternal grandfather's birthplace	14.9	26.1	0.6	6.8	30.1	0.2	4.9	25.0	0.2	13.3	34.1	0.4
paternal grandmother's birthplace	12.6	22.7	0.6	5.8	26.1	0.2	4.2	22.2	0.2	11.1	29.1	0.4
maternal grandfather's birthplace	12.9	22.5	0.6	5.9	25.9	0.2	4.3	23.8	0.2	11.6	27.1	0.4
maternal grandmother's birthplace	11.2	20.0	0.6	5.2	23.1	0.2	3.8	21.1	0.2	10.0	24.4	0.4

At age 35 - living in the same region as:	Regional level											
	Whole country			Swedish speaking settlement area			Uusimaa			Swedish speaking settlment area w/o Uusimaa		
	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio	FI	SV	Ratio
at age 14 (ego)	66.8	77.2	0.9	57.5	87.3	0.7	57.2	87.1	0.7	66.9	87.7	0.8
at birth (ego)	61.6	74.7	0.8	54.4	84.8	0.6	54.2	85.2	0.6	61.7	84.6	0.7
father's birthplace	48.1	65.6	0.7	32.0	74.5	0.4	29.6	71.8	0.4	46.2	77.0	0.6
mother's birthplace	46.5	64.1	0.7	30.4	72.9	0.4	28.0	72.8	0.4	44.4	73.0	0.6
paternal grandfather's birthplace	36.4	58.5	0.6	18.3	66.7	0.3	14.7	59.4	0.2	35.0	73.1	0.5
paternal grandmother's birthplace	33.9	54.7	0.6	16.2	62.4	0.3	13.0	55.4	0.2	31.3	68.4	0.5
maternal grandfather's birthplace	35.0	57.7	0.6	16.6	65.9	0.3	13.4	61.0	0.2	32.0	70.1	0.5
maternal grandmother's birthplace	32.8	54.8	0.6	14.8	62.4	0.2	11.7	58.0	0.2	29.6	66.4	0.4

Appendix B

Table B 1. Distribution of independent variables – main study population

Population with full information on parents and grandparents, living in Finland at age 35

	Whole country			Swedish speaking settlement area			Uusimaa			Swe. speak. settlement area w/o Uusimaa		
	FI	SV	All	FI	SV	All	FI	SV	All	FI	SV	All
N	374408	20573	394981	73751	19709	93460	71177	8933	80110	20033	10967	31000
Local ancestral ties at age 14												
Municipality level												
No parent and no grandparent	38.1	25.7	37.4	55.5	24.2	48.9	64.6	33.3	61.1	36.9	17.4	30.0
No parent but at least one grandparent	4.4	6.9	4.6	3.2	7.0	4.0	3.3	6.6	3.7	3.8	7.3	5.1
At least one parent but no grandparent	12.3	8.0	12.1	16.2	8.1	14.5	14.5	8.4	13.8	17.3	7.7	13.9
At least one parent and one grandparent	45.2	59.4	46.0	25.2	60.8	32.7	17.6	51.6	21.4	42.0	67.6	51.1
Regional level												
No parent, no grandparent	16.7	4.9	16.1	29.4	3.9	24.1	33.0	4.3	29.8	20.2	3.7	14.4
No parent, at least one grandparent	3.0	2.3	3.0	3.6	2.1	3.3	3.7	2.3	3.5	3.1	2.0	2.7
At least one parent but no grandparent	7.1	2.1	6.9	15.5	1.9	12.6	18.5	3.1	16.8	6.8	1.0	4.7
At least one parent and one grandparent	73.2	90.8	74.1	51.4	92.1	60.0	44.8	90.4	49.9	69.9	93.3	78.2
Gender												
Man	51.2	53.0	51.3	51.1	53.1	51.5	51.5	52.7	51.6	50.0	53.2	51.2
Woman	48.8	47.1	48.7	48.9	46.9	48.5	48.5	47.3	48.4	50.0	46.8	48.9
Birth cohort												
1970-1975	18.6	20.1	18.7	18.2	20.1	18.6	17.1	20.8	17.5	21.2	19.5	20.6
1976-1980	34.1	33.7	34.1	33.7	33.7	33.7	33.5	33.2	33.4	33.9	34.3	34.0
1981-1985	47.3	46.2	47.3	48.1	46.2	47.7	49.4	46.0	49.1	45.0	46.2	45.4
Childhood immobility (region)												
No	14.0	6.4	13.6	12.0	5.3	10.6	12.1	4.2	11.3	13.1	6.3	10.7
Yes	86.0	93.6	86.4	88.1	94.7	89.4	87.9	95.8	88.7	86.9	93.7	89.3
Childhood immobility (municipality)												
No	29.7	25.5	29.5	31.4	24.2	29.9	37.8	26.3	36.5	22.6	23.1	22.7
Yes	70.3	74.5	70.5	68.6	75.8	70.1	62.2	73.8	63.5	77.4	76.9	77.3
Municipality type at age 14												
Urban	58.4	45.9	57.8	93.2	45.4	83.1	86.3	64.9	83.9	86.7	29.4	66.4
Denseley populated	20.5	22.0	20.6	3.6	22.2	7.5	11.4	29.4	13.4	4.3	16.2	8.5
Rural	21.1	32.1	21.7	3.2	32.5	9.4	2.3	5.7	2.7	9.1	54.4	25.1
Agricultural ancestry												
No	48.9	53.1	49.2	69.6	52.7	66.1	69.6	68.6	69.5	61.2	39.8	53.6
Yes	51.1	46.9	50.8	30.4	47.3	34.0	30.4	31.5	30.5	38.8	60.2	46.4
Siblings												
No	14.1	11.1	14.0	17.5	11.0	16.1	17.3	12.9	16.8	15.9	9.6	13.7
Yes	85.9	88.9	86.0	82.6	89.0	83.9	82.7	87.2	83.2	84.1	90.4	86.4
First born												
No	42.9	44.3	43.0	39.7	44.4	40.7	39.4	42.5	39.7	42.1	45.9	43.4
Yes	57.1	55.7	57.0	60.3	55.6	59.3	60.6	57.6	60.3	58.0	54.1	56.6
Educational level at age 35												
Primary	8.9	7.2	8.8	11.4	7.2	10.6	12.0	8.6	11.6	8.9	6.2	7.9
Secondary	45.0	40.7	44.7	41.7	41.1	41.5	41.5	37.8	41.1	44.9	43.7	44.4
Tertiary	46.2	52.2	46.5	46.9	51.7	47.9	46.5	53.7	47.3	46.3	50.2	47.7
Missing (only robustness 2)												
Labour market status at age 35												
Employed	82.7	88.5	83.0	82.7	88.5	83.9	83.1	87.2	83.5	82.8	89.6	85.2
Unemployed	7.4	3.8	7.2	6.8	3.8	6.1	6.5	4.3	6.3	7.1	3.4	5.8
Outside the labour force	9.9	7.7	9.8	10.5	7.7	9.9	10.4	8.5	10.2	10.1	7.0	9.0
Missing (only robustness 2)												
Living with partner at age 35												
No	29.5	25.2	29.2	31.6	25.0	30.2	32.3	27.7	31.8	28.5	22.9	26.5
Yes	70.6	74.8	70.8	68.4	75.0	69.8	67.7	72.3	68.2	71.5	77.1	73.5
Living with child(ren) at age 35												
No	38.8	34.2	38.5	41.5	33.9	39.9	42.6	36.7	42.0	37.4	31.6	35.3
Yes	61.2	65.9	61.5	58.5	66.1	60.1	57.4	63.3	58.0	62.6	68.4	64.7

Table B 2. Distribution of independent variables – first robustness check

Including individuals with missing ancestral links

	Whole country			Swedish speaking settlement area			Uusimaa			Swe. speak. settlement area w/o Uusimaa		
	FI	SV	All	FI	SV	All	FI	SV	All	FI	SV	All
N	902564	50215	952779	195178	47927	243105	191534	22777	214311	48051	25722	73773
Local ancestral ties at age 14												
Municipality level												
No parent and no grandparent	44.1	30.7	43.4	61.2	28.9	54.9	69.5	38.7	66.3	43.6	21.0	35.7
No parent but at least one grandparent	3.1	5.1	3.2	2.1	5.2	2.7	2.2	5.0	2.5	2.7	5.4	3.7
At least one parent but no grandparent	21.2	22.7	21.3	19.9	23.2	20.6	16.6	20.1	17.0	24.0	25.7	24.6
At least one parent and one grandparent	31.5	41.5	32.0	16.7	42.8	21.9	11.6	36.2	14.3	29.6	47.9	36.0
Regional level												
No parent, no grandparent	21.2	6.4	20.4	35.8	5.2	29.7	39.5	5.7	35.9	24.6	4.9	17.7
No parent, at least one grandparent	2.2	1.7	2.2	2.5	1.5	2.3	2.5	1.7	2.4	2.4	1.5	2.0
At least one parent but no grandparent	22.1	21.5	22.1	25.9	21.5	25.0	27.6	22.2	27.0	19.9	21.1	20.3
At least one parent and one grandparent	54.5	70.4	55.3	35.9	71.8	43.0	30.5	70.5	34.7	53.1	72.6	59.9
Gender												
Man	51.1	52.7	51.2	51.2	52.8	51.5	51.4	52.2	51.5	50.6	53.2	51.5
Woman	48.9	47.4	48.8	48.8	47.2	48.5	48.6	47.8	48.6	49.4	46.8	48.5
Birth cohort												
1970-1975	35.8	39.4	36.0	36.0	39.4	36.6	35.3	40.7	35.8	37.3	38.2	37.7
1976-1980	31.9	30.6	31.8	31.9	30.6	31.6	31.8	29.8	31.6	31.9	31.3	31.7
1981-1985	32.3	30.1	32.2	32.2	30.1	31.8	32.9	29.6	32.6	30.8	30.4	30.7
Childhood immobility (region)												
No	13.5	6.5	13.1	10.7	5.3	9.6	10.6	4.2	9.9	12.9	6.3	10.6
Yes	86.5	93.5	86.9	89.3	94.7	90.4	89.4	95.8	90.1	87.1	93.7	89.4
Childhood immobility (municipality)												
No	28.5	24.7	28.3	30.1	23.2	28.8	36.0	26.4	35.0	21.4	20.9	21.2
Yes	71.6	75.4	71.8	69.9	76.8	71.2	64.0	73.6	65.0	78.6	79.1	78.8
Municipality type at age 14												
Urban	62.0	48.7	61.3	93.8	48.1	84.8	87.2	67.5	85.1	87.7	30.8	67.9
Denseley populated	18.9	21.1	19.1	3.6	21.3	7.1	10.9	27.2	12.6	4.3	16.0	8.4
Rural	19.1	30.2	19.7	2.6	30.6	8.1	1.9	5.3	2.3	8.0	53.2	23.8
Agricultural ancestry												
No	60.1	64.8	60.4	78.5	64.5	75.8	78.7	77.6	78.6	70.7	52.9	64.5
Yes	39.9	35.2	39.6	21.5	35.5	24.2	21.3	22.4	21.4	29.3	47.1	35.5
Siblings												
No	15.1	12.1	14.9	19.5	12.0	18.0	19.4	14.8	18.9	17.0	9.7	14.5
Yes	84.9	87.9	85.1	80.5	88.0	82.0	80.7	85.2	81.1	83.0	90.3	85.5
First born												
No	51.6	53.5	51.7	47.2	53.6	48.5	46.8	50.0	47.2	50.4	56.7	52.6
Yes	48.4	46.5	48.3	52.8	46.4	51.5	53.2	50.0	52.9	49.6	43.3	47.4
Educational level at age 35												
Primary	10.3	8.7	10.2	13.5	8.8	12.6	14.0	10.4	13.6	10.4	7.5	9.4
Secondary	44.5	40.2	44.3	41.7	40.5	41.5	41.5	37.3	41.1	45.1	43.3	44.5
Tertiary	45.2	51.1	45.5	44.8	50.7	45.9	44.5	52.3	45.3	44.5	49.2	46.1
Missing (only robustness 2)												
Labour market status at age 35												
Employed	81.9	87.6	82.2	82.0	87.7	83.1	82.4	86.6	82.9	82.0	88.7	84.3
Unemployed	7.6	3.9	7.4	6.9	3.9	6.3	6.6	4.2	6.3	7.5	3.6	6.1
Outside the labour force	10.5	8.5	10.4	11.2	8.5	10.6	11.0	9.2	10.8	10.6	7.8	9.6
Missing (only robustness 2)												
Living with partner at age 35												
No	30.3	26.4	30.1	32.8	26.2	31.5	33.3	28.6	32.8	29.5	24.1	27.6
Yes	69.7	73.6	70.0	67.2	73.8	68.5	66.8	71.4	67.2	70.6	75.9	72.4
Living with child(ren) at age 35												
No	39.7	35.0	39.4	42.6	34.8	41.1	43.3	37.3	42.6	38.4	32.6	36.4
Yes	60.3	65.0	60.6	57.4	65.2	59.0	56.7	62.7	57.4	61.6	67.4	63.6

Table B 3. Distribution of independent variables – second robustness check

Including individuals who emigrated before age 35

	Whole country			Swedish speaking settlement area			Uusimaa			Swe. speak. settlement area w/o Uusimaa		
	FI	SV	All	FI	SV	All	FI	SV	All	FI	SV	All
N	383394	22693	406087	76435	21762	98197	73683	9644	83327	20643	12324	32967
Local ancestral ties at age 14												
Municipality level												
No parent and no grandparent	38.3	26.3	37.7	55.7	24.8	48.8	64.8	33.7	61.2	37.2	18.4	30.2
No parent but at least one grandparent	4.4	6.9	4.6	3.1	7.0	4.0	3.3	6.6	3.7	3.8	7.3	5.1
At least one parent but no grandparent	12.3	8.2	12.1	16.1	8.2	14.4	14.4	8.6	13.7	17.2	7.9	13.7
At least one parent and one grandparent	45.0	58.7	45.7	25.1	60.0	32.8	17.5	51.1	21.4	41.8	66.4	51.0
Regional level												
No parent, no grandparent	16.9	5.0	16.2	29.6	4.1	24.0	33.1	4.4	29.8	20.5	3.9	14.3
No parent, at least one grandparent	3.1	2.3	3.0	3.7	2.1	3.3	3.8	2.2	3.6	3.1	2.0	2.7
At least one parent but no grandparent	7.2	2.2	6.9	15.5	2.0	12.5	18.5	3.3	16.8	6.8	1.1	4.6
At least one parent and one grandparent	72.9	90.5	73.9	51.2	91.8	60.2	44.6	90.1	49.9	69.7	93.0	78.4
Gender												
Man	50.8	51.4	50.9	50.5	51.5	50.8	50.9	51.4	51.0	49.5	51.5	50.2
Woman	49.2	48.6	49.2	49.5	48.5	49.3	49.1	48.6	49.0	50.5	48.5	49.8
Birth cohort												
1970-1975	18.6	20.0	18.7	18.2	20.0	18.6	17.1	20.6	17.5	21.2	19.6	20.6
1976-1980	34.1	33.7	34.1	33.7	33.7	33.7	33.5	33.1	33.4	33.9	34.4	34.1
1981-1985	47.3	46.3	47.2	48.1	46.2	47.7	49.4	46.3	49.1	44.9	46.1	45.3
Childhood immobility (region)												
No	14.1	6.6	13.7	12.1	5.5	10.6	12.3	4.4	11.3	13.3	6.5	10.8
Yes	85.9	93.4	86.3	87.9	94.5	89.4	87.8	95.6	88.7	86.7	93.5	89.2
Childhood immobility (municipality)												
No	29.9	25.8	29.7	31.6	24.5	30.0	38.0	26.7	36.7	22.8	23.4	23.0
Yes	70.1	74.2	70.4	68.4	75.5	70.0	62.0	73.3	63.3	77.2	76.6	77.0
Municipality type at age 14												
Urban	58.7	46.2	58.0	93.2	45.7	82.7	86.5	65.3	84.0	86.6	30.3	65.6
Denseley populated	20.4	21.6	20.5	3.6	21.7	7.6	11.3	29.1	13.3	4.3	15.9	8.6
Rural	20.9	32.2	21.6	3.2	32.6	9.7	2.3	5.6	2.6	9.1	53.8	25.8
Agricultural ancestry												
No	49.1	53.2	49.4	69.8	52.9	66.0	69.8	69.0	69.7	61.3	40.3	53.4
Yes	50.9	46.8	50.6	30.3	47.1	34.0	30.2	31.0	30.3	38.7	59.7	46.6
Siblings												
No	14.1	11.0	13.9	17.3	10.8	15.9	17.2	12.7	16.7	15.8	9.4	13.4
Yes	85.9	89.0	86.1	82.7	89.2	84.1	82.8	87.4	83.3	84.2	90.6	86.6
First born												
No	42.9	44.3	43.0	39.8	44.5	40.8	39.4	42.4	39.7	42.1	46.0	43.5
Yes	57.1	55.7	57.0	60.3	55.5	59.2	60.6	57.6	60.3	57.9	54.0	56.5
Educational level at age 35												
Primary	8.7	6.5	8.5	11.0	6.5	10.0	11.6	7.9	11.2	8.6	5.5	7.4
Secondary	43.9	36.9	43.5	40.2	37.2	39.5	40.1	35.0	39.5	43.5	38.9	41.8
Tertiary	45.1	47.3	45.2	45.2	46.8	45.6	45.0	49.7	45.5	44.9	44.6	44.8
Missing (only robustness 2)	2.3	9.3	2.7	3.5	9.4	4.8	3.4	7.4	3.9	3.0	11.0	6.0
Labour market status at age 35												
Employed	80.7	80.2	80.7	79.8	80.2	79.9	80.3	80.8	80.3	80.4	79.7	80.1
Unemployed	7.3	3.5	7.0	6.5	3.4	5.8	6.3	3.9	6.0	6.9	3.0	5.5
Outside the labour force	9.7	7.0	9.5	10.2	7.0	9.5	10.1	7.9	9.8	9.8	6.2	8.4
Missing (only robustness 2)	2.3	9.3	2.7	3.5	9.4	4.8	3.4	7.4	3.9	3.0	11.0	6.0
Living with partner at age 35												
No	31.1	32.2	31.2	34.0	32.1	33.6	34.6	33.0	34.4	30.6	31.4	30.9
Yes	68.9	67.8	68.8	66.0	67.9	66.4	65.4	67.0	65.6	69.4	68.6	69.1
Living with child(ren) at age 35												
No	40.2	40.3	40.2	43.6	40.1	42.8	44.6	41.3	44.2	39.2	39.1	39.2
Yes	59.8	59.7	59.8	56.4	59.9	57.2	55.4	58.7	55.8	60.8	60.9	60.8

Appendix C

Table C 1. Average Marginal Effects of local (municipality) ancestral ties on immobility – first robustness check

Including individuals with missing ancestral links - municipality level

		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa
		AME Sig.	AME Sig.	AME Sig.	AME Sig.
Local ancestral ties at residence, age 14					
No parent and no grandparent (ref.)					
No parent but at least one	FI	0.05 ***	0.08 ***	0.09 ***	0.05 ***
grandparent	SV	0.09 ***	0.08 ***	0.11 ***	0.05 ***
	Diff.	-0.04 **	-0.01	-0.02 ***	0.00
At least one parent but no	FI	0.09 ***	0.09 ***	0.12 ***	0.06 ***
grandparent	SV	0.12 ***	0.11 ***	0.15 ***	0.08 ***
	Diff.	-0.03	-0.02	-0.04 ***	-0.01
At least one parent and one	FI	0.10 ***	0.10 ***	0.14 ***	0.08 ***
grandparent	SV	0.16 ***	0.15 ***	0.20 ***	0.10 ***
	Diff.	-0.06 **	-0.05 **	-0.06 ***	-0.02
Gender					
Man (ref.)					
Woman	FI	-0.06 ***	-0.04 ***	-0.04 ***	-0.05 ***
	SV	-0.07 ***	-0.07 ***	-0.04 ***	-0.09 ***
	Diff.	0.01	0.02 *	0.00	0.05 ***
Birth cohort					
1970-1975 (ref.)					
1976-1980	FI	-0.03 ***	-0.01 ***	-0.02 ***	-0.01 ***
	SV	-0.02 ***	-0.02 ***	-0.02 ***	-0.02 ***
	Diff.	0.00	0.01 ***	0.00	0.01 **
1981-1985	FI	-0.04 ***	-0.01 **	-0.02 ***	-0.01
	SV	-0.04 ***	-0.03 ***	-0.04 ***	-0.03 ***
	Diff.	0.00	0.03 ***	0.02 ***	0.02
Childhood immobility					
No (ref.)					
Yes	FI	0.10 ***	0.10 ***	0.11 ***	0.10 ***
	SV	0.12 ***	0.12 ***	0.11 ***	0.12 ***
	Diff.	-0.02 **	-0.02 *	0.00	-0.02 **
Municipality type at age 14					
Urban (ref.)					
Denseley populated	FI	-0.14 ***	-0.19 ***	-0.13 ***	-0.17 ***
	SV	0.01	0.01	-0.02 ***	0.07 ***
	Diff.	-0.15 ***	-0.20 ***	-0.10 ***	-0.23 ***
Rural	FI	-0.21 ***	-0.25 ***	-0.22 ***	-0.22 ***
	SV	-0.08 **	-0.08 **	-0.16 ***	-0.03 *
	Diff.	-0.13 ***	-0.17 ***	-0.06 ***	-0.19 ***

cont.

		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa
Agricultural ancestry					
No (ref.)					
Yes	FI	0.01 *	-0.01 *	0.00 **	0.00
	SV	0.03 ***	0.03 ***	0.02 ***	0.04 ***
	Diff.	-0.02 ***	-0.03 ***	-0.02 ***	-0.04 ***
Siblings					
No (ref.)					
Yes	FI	0.00	0.01 ***	0.00 **	0.01 ***
	SV	-0.01 *	-0.01	0.00	-0.01
	Diff.	0.01	0.02 ***	0.01 ***	0.03 ***
First born					
No (ref.)					
Yes	FI	0.00	0.00	0.00 *	-0.01 ***
	SV	-0.01 **	-0.01 **	-0.01 ***	0.00
	Diff.	0.01 **	0.01	0.02 ***	-0.01
Educational level at age 35					
Primary (ref.)					
Secondary	FI	-0.03 ***	-0.02 ***	-0.02 ***	-0.01
	SV	-0.03 ***	-0.03 ***	-0.04 ***	-0.02
	Diff.	0.00	0.01	0.02 ***	0.01
Tertiary	FI	-0.19 ***	-0.05 ***	-0.05 ***	-0.13 ***
	SV	-0.14 ***	-0.14 ***	-0.11 ***	-0.16 ***
	Diff.	-0.04	0.08 ***	0.06 ***	0.04
Labour market status at age 35					
Employed (ref.)					
Unemployed	FI	0.00	0.00	-0.03 ***	0.04
	SV	-0.04 ***	-0.04 ***	-0.03 ***	-0.05 ***
	Diff.	0.04 ***	0.04 *	0.00	0.09 **
Outside the labour force	FI	0.02 ***	0.02 ***	0.02 ***	0.04 **
	SV	0.01 *	0.01	0.02 ***	0.01
	Diff.	0.00	0.01	0.00	0.03 **
Living with partner at age 35					
No (ref.)					
Yes	FI	-0.11 ***	-0.14 ***	-0.13 ***	-0.16 ***
	SV	-0.13 ***	-0.13 ***	-0.12 ***	-0.14 ***
	Diff.	0.02	-0.01	-0.02 ***	-0.01
Living with child(ren) at age 35					
No (ref.)					
Yes	FI	0.07 ***	0.01	0.03 ***	0.03
	SV	0.08 ***	0.08 ***	0.06 ***	0.09 ***
	Diff.	-0.01	-0.06 ***	-0.03 ***	-0.07

***<=0.01, **<=0.05, *<=0.1

Table C 2. Average Marginal Effects of local (municipality) ancestral ties on immobility – second robustness check

Model specification excluding variablels meassured at age 35 - municipality level

		Excluding emigrants					Including emigrants			
		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa
		AME Sig.	AME Sig.	AME Sig.	AME Sig.		AME Sig.	AME Sig.	AME Sig.	AME Sig.
Local ancestral ties at residence, age 14										
No parent and no grandparent (ref.)										
No parent but at least one grandparent	FI	0.06 ***	0.08 ***	0.10 ***	0.03 ***	FI	0.07 ***	0.08 ***	0.10 ***	0.03 ***
	SV	0.14 ***	0.13 ***	0.15 ***	0.10 ***	SV	0.13 ***	0.13 ***	0.14 ***	0.10 ***
	Diff.	-0.07 ***	-0.05 ***	-0.05 ***	-0.07 ***	Diff.	-0.07 ***	-0.05 ***	-0.05 ***	-0.07 ***
At least one parent but no grandparent	FI	0.09 ***	0.09 ***	0.12 ***	0.07 ***	FI	0.09 ***	0.10 ***	0.11 ***	0.07 ***
	SV	0.11 ***	0.11 ***	0.17 ***	0.06 ***	SV	0.10 ***	0.10 ***	0.15 ***	0.07 ***
	Diff.	-0.02	-0.01	-0.06 ***	0.01	Diff.	-0.01	0.00	-0.04 ***	0.00
At least one parent and one grandparent	FI	0.12 ***	0.11 ***	0.15 ***	0.08 ***	FI	0.12 ***	0.11 ***	0.15 ***	0.08 ***
	SV	0.19 ***	0.18 ***	0.22 ***	0.13 ***	SV	0.18 ***	0.18 ***	0.21 ***	0.14 ***
	Diff.	-0.07 **	-0.07 ***	-0.07 ***	-0.05 **	Diff.	-0.06 ***	-0.07 ***	-0.06 ***	-0.06 ***
Gender										
Man (ref.)										
Woman	FI	-0.08 ***	-0.05 ***	-0.05 ***	-0.07 ***	FI	-0.08 ***	-0.06 ***	-0.05 ***	-0.08 ***
	SV	-0.09 ***	-0.09 ***	-0.06 ***	-0.12 ***	SV	-0.11 ***	-0.11 ***	-0.08 ***	-0.14 ***
	Diff.	0.01	0.04 ***	0.01 ***	0.05 ***	Diff.	0.03 **	0.05 ***	0.03 ***	0.06 ***
Birth cohort										
1970-1975 (ref.)										
1976-1980	FI	-0.03 ***	-0.01 **	-0.01 ***	-0.01	FI	-0.03 ***	-0.01 **	-0.01 ***	-0.01
	SV	-0.03 ***	-0.02 ***	-0.02 ***	-0.02	SV	-0.02 *	-0.02 *	-0.03 ***	-0.02
	Diff.	0.00	0.01	0.01 *	0.01	Diff.	0.00	0.01	0.01 **	0.00
1981-1985	FI	-0.03 ***	0.00	-0.02 ***	0.00	FI	-0.03 ***	0.00	-0.02 ***	0.01
	SV	-0.03 ***	-0.03 ***	-0.04 ***	-0.02 **	SV	-0.03 **	-0.03 **	-0.05 ***	-0.02
	Diff.	0.00	0.04 ***	0.03 ***	0.03	Diff.	0.00	0.03 *	0.03 ***	0.02
Childhood immobility										
No (ref.)										
Yes	FI	0.11 ***	0.10 ***	0.11 ***	0.10 ***	FI	0.11 ***	0.10 ***	0.11 ***	0.10 ***
	SV	0.12 ***	0.12 ***	0.11 ***	0.13 ***	SV	0.12 ***	0.11 ***	0.11 ***	0.12 ***
Municipality type at age 14	Diff.	-0.02	-0.02	0.00	-0.03 **	Diff.	-0.01	-0.01	0.00	-0.02
Urban (ref.)										
Denseley populated	FI	-0.14 ***	-0.20 ***	-0.14 ***	-0.15 ***	FI	-0.13 ***	-0.20 ***	-0.13 ***	-0.15 ***
	SV	0.01	0.01	-0.02 **	0.06 ***	SV	0.02	0.02	-0.01 **	0.06 ***
	Diff.	-0.15 ***	-0.22 ***	-0.12 ***	-0.21 ***	Diff.	-0.15 ***	-0.21 ***	-0.11 ***	-0.22 ***
Rural	FI	-0.19 ***	-0.26 ***	-0.24 ***	-0.22 ***	FI	-0.18 ***	-0.25 ***	-0.23 ***	-0.21 ***
	SV	-0.08 **	-0.08 **	-0.21 ***	-0.03	SV	-0.08 *	-0.08 *	-0.19 ***	-0.01
Agricultural ancestry	Diff.	-0.11 **	-0.17 ***	-0.03 **	-0.19 ***	Diff.	-0.10 **	-0.17 ***	-0.03 ***	-0.20 ***
No (ref.)										
Yes	FI	-0.01	-0.01	0.00 **	0.00	FI	-0.01	0.00	0.01 ***	0.00
	SV	0.02 ***	0.02 ***	0.02 ***	0.03 ***	SV	0.02 ***	0.02 ***	0.03 ***	0.03 ***
Siblings	Diff.	-0.03 ***	-0.03 ***	-0.02 ***	-0.03 ***	Diff.	-0.03 **	-0.02 ***	-0.02 ***	-0.03 ***
No (ref.)										
Yes	FI	-0.02 ***	0.00	0.00	-0.01	FI	-0.02 ***	-0.01 **	-0.01 **	-0.01
	SV	-0.02 ***	-0.02 ***	-0.03 ***	-0.01 *	SV	-0.03 ***	-0.03 ***	-0.04 ***	-0.02 **
First born	Diff.	0.00	0.02 **	0.03 ***	0.01	Diff.	0.01	0.02 **	0.03 ***	0.01
No (ref.)										
Yes	FI	0.00	0.01	0.01 ***	-0.01	FI	-0.01	0.00	0.01 **	-0.01
	SV	0.00	0.00	-0.01 ***	0.01 **	SV	0.00	0.00	-0.02 ***	0.01 *
	Diff.	0.00	0.01	0.02 ***	-0.01 *	Diff.	0.00	0.01	0.02 ***	-0.02 *

***<=0.01, **<=0.05, *<=0.1

Appendix D

Table D 1. Average Marginal Effects of local (regional) ancestral ties on immobility – main study population

Population with full information on parents and grandparents, living in Finland at age 35 - regional level

		Whole country		Swe. speaking settlement area		Uusimaa		Swe. speak. set. area w/o Uusimaa	
		AME	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*
Local ancestral ties at residence, age 14									
No parent and no grandparent (ref.)									
No parent but at least one grandparent	FI	-0.03	**	0.00		0.00		0.07	**
	SV	0.03		-0.02		-0.02		-0.01	
	Diff.	-0.06	***	0.01		0.02		0.08	
At least one parent but no grandparent	FI	0.06	***	0.02		0.01	***	0.07	***
	SV	0.05	**	0.03		0.01		-0.02	
	Diff.	0.01		0.00		0.00		0.08	
At least one parent and one grandparent	FI	0.02		0.00		0.02	***	0.12	***
	SV	0.11	***	0.05		0.05	***	0.05	
	Diff.	-0.09	***	-0.05	*	-0.03	***	0.08	
Gender									
Man (ref.)									
Woman	FI	-0.03	***	-0.02	***	-0.02	***	-0.03	**
	SV	-0.04	***	-0.04	***	-0.03	***	-0.04	***
	Diff.	0.01		0.01		0.01	**	0.01	
Birth cohort									
1970-1975 (ref.)									
1976-1980	FI	-0.01	***	0.00		0.00		-0.01	
	SV	-0.02	***	-0.01	***	-0.01		-0.02	**
	Diff.	0.01		0.02	***	0.01		0.01	
1981-1985	FI	-0.01		0.00		-0.01	**	-0.01	
	SV	-0.01	**	0.00		-0.01	***	0.00	
	Diff.	0.00		0.01	***	0.00		-0.01	
Childhood immobility									
No (ref.)									
Yes	FI	0.16	**	0.12	**	0.07	***	0.14	***
	SV	0.17	***	0.14	***	0.06	***	0.15	***
	Diff.	-0.01		-0.02		0.01		-0.01	
Municipality type at age 14									
Urban (ref.)									
Denseley populated	FI	-0.06	***	-0.07	***	-0.05	***	0.02	
	SV	0.01		0.01		-0.04	***	0.08	*
	Diff.	-0.07	**	-0.07	***	-0.02	***	-0.06	*
Rural	FI	-0.10	***	-0.18	***	-0.09	***	-0.10	**
	SV	0.00		0.00		-0.05	***	0.10	**
	Diff.	-0.10	***	-0.18	***	-0.04	***	-0.20	***

cont.

		Whole country		Swe. speaking settlement area		Uusimaa		Swe. speak. set. area w/o Uusimaa	
Agricultural ancestry									
No (ref.)									
Yes	FI	-0.03	**	-0.05	**	-0.01	***	-0.04	**
	SV	0.00		0.00		0.00	**	0.03	
	Diff.	-0.03	*	-0.05	**	-0.02	***	-0.07	***
Siblings									
No (ref.)									
Yes	FI	-0.01		0.00		0.01	***	-0.03	***
	SV	-0.01		-0.02		0.01	**	-0.04	***
	Diff.	0.01		0.01	***	0.01		0.00	
First born									
No (ref.)									
Yes	FI	0.01	**	0.00		0.00		0.00	
	SV	0.00		0.00		0.00		0.00	
	Diff.	0.01		0.00		0.00		0.00	
Educational level at age 35									
Primary (ref.)									
Secondary	FI	-0.04	***	-0.02	*	0.00		-0.05	***
	SV	-0.04	***	-0.03	***	-0.02	***	-0.04	**
	Diff.	0.00		0.02		0.03	***	-0.01	
Tertiary	FI	-0.21	***	-0.06		0.01	***	-0.22	***
	SV	-0.11	***	-0.10	***	-0.04	***	-0.15	***
	Diff.	-0.10	***	0.05	***	0.05	***	-0.07	***
Labour market status at age 35									
Employed (ref.)									
Unemployed	FI	-0.02		-0.09	***	-0.10	***	-0.03	*
	SV	-0.04	***	-0.04	***	-0.04	***	-0.05	**
	Diff.	0.02		-0.04	***	-0.07	***	0.01	
Outside the labour force	FI	-0.02		-0.05	***	-0.06	***	-0.01	
	SV	-0.01		-0.01		-0.03	***	0.00	
	Diff.	0.00		-0.04	***	-0.03	***	-0.01	
Living with partner at age 35									
No (ref.)									
Yes	FI	-0.06	***	-0.04	***	-0.03	***	-0.08	***
	SV	-0.04	***	-0.04	***	-0.03	***	-0.05	***
	Diff.	-0.02	**	0.00		0.00		-0.03	
Living with child(ren) at age 35									
No (ref.)									
Yes	FI	0.09	***	0.01		-0.01	***	0.09	***
	SV	0.06	***	0.06	***	0.02	***	0.09	***
	Diff.	0.03	**	-0.04	***	-0.03	***	0.01	

***<=0.01, **<=0.05, *<=0.1

Table D 2. Average Marginal Effects of local (regional) ancestral ties on immobility – first robustness check

Including individuals with missing ancestral links - regional level

		Whole country		Swe. speaking settlement area		Uusimaa		Swe. speak. set. area w/o Uusimaa	
		AME	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*
Local ancestral ties at residence, age 14									
No parent and no grandparent (ref.)									
No parent but at least one grandparent	FI	-0.03 **		0.00		0.00		0.05 ***	
	SV	0.06 **		0.01		0.01		0.02	
	Diff.	-0.08 ***		-0.01		0.00		0.03	
At least one parent but no grandparent	FI	0.03		0.02 **		0.02 ***		0.08 ***	
	SV	0.12 ***		0.06 ***		0.05 ***		0.07 *	
	Diff.	-0.09 ***		-0.05 **		-0.03 ***		0.01	
At least one parent and one grandparent	FI	0.02		0.00		0.03 ***		0.11 ***	
	SV	0.12 ***		0.06 ***		0.04 ***		0.07 **	
	Diff.	-0.10 ***		-0.06 ***		-0.02 ***		0.04	
Gender									
Man (ref.)									
Woman	FI	-0.03 ***		-0.03 ***		-0.03 ***		-0.03 ***	
	SV	-0.03 ***		-0.03 ***		-0.02 ***		-0.03 ***	
	Diff.	-0.01		0.00		-0.01		0.01	
Birth cohort									
1970-1975 (ref.)									
1976-1980	FI	-0.01		0.00		0.00 ***		-0.02 ***	
	SV	-0.02 ***		-0.01 ***		-0.02 ***		-0.01 ***	
	Diff.	0.01		0.01 ***		0.01 ***		-0.01	
1981-1985	FI	0.00		0.01 ***		0.00 ***		-0.02 **	
	SV	-0.01 ***		-0.01 **		-0.02 ***		0.00	
	Diff.	0.01		0.02 ***		0.01 ***		-0.01	
Childhood immobility									
No (ref.)									
Yes	FI	0.17 **		0.11 **		0.06 ***		0.15 ***	
	SV	0.17 ***		0.14 **		0.06 ***		0.15 ***	
	Diff.	0.00		-0.03		0.00		0.00	
Municipality type at age 14									
Urban (ref.)									
Denseley populated	FI	-0.07 ***		-0.08 ***		-0.05 ***		0.00	
	SV	0.00		-0.01		-0.04 ***		0.07	
	Diff.	-0.07 **		-0.07 ***		-0.01 ***		-0.07 **	
Rural	FI	-0.11 ***		-0.20 ***		-0.09 ***		-0.12 ***	
	SV	0.00		0.00		-0.04 ***		0.09 **	
	Diff.	-0.11 ***		-0.19 ***		-0.05 ***		-0.21 ***	

cont.

Agricultural ancestry									
No (ref.)									
Yes	FI	-0.02		-0.04 **		-0.02 ***		-0.05 ***	
	SV	0.00		0.00		0.00		0.02 **	
	Diff.	-0.02		-0.05 **		-0.02 ***		-0.07 ***	
Siblings									
No (ref.)	FI	-0.01 **		0.00		0.01 ***		-0.03 ***	
Yes	SV	-0.01		-0.01		0.01 ***		-0.03 ***	
	Diff.	0.01		0.01 ***		0.00		0.00	
First born									
No (ref.)									
Yes	FI	0.02 ***		0.01		0.00 ***		0.00	
	SV	0.00		0.00		0.00		-0.01	
	Diff.	0.01 ***		0.01		0.00 **		0.01	
Educational level at age 35									
Primary (ref.)									
Secondary	FI	-0.04 ***		-0.02 *		0.00		-0.04 ***	
	SV	-0.03 ***		-0.02 **		-0.01 **		-0.03 ***	
	Diff.	-0.01		0.01		0.01 ***		-0.01	
Tertiary	FI	-0.21 ***		-0.05		0.01 ***		-0.22 ***	
	SV	-0.09 ***		-0.09 ***		-0.02 ***		-0.15 ***	
	Diff.	-0.12 ***		0.04 ***		0.03 ***		-0.08 **	
Labour market status at age 35									
Employed (ref.)									
Unemployed	FI	-0.01		-0.08 ***		-0.10 ***		-0.01	
	SV	-0.04 ***		-0.04 ***		-0.05 ***		-0.03 *	
	Diff.	0.03		-0.04 ***		-0.05 ***		0.02	
Outside the labour force	FI	-0.01		-0.05 ***		-0.06 ***		-0.01	
	SV	-0.01		-0.01		-0.03 ***		0.00	
	Diff.	0.00		-0.03 ***		-0.03 ***		-0.01	
Living with partner at age 35									
No (ref.)									
Yes	FI	-0.06 ***		-0.04 ***		-0.04 ***		-0.08 ***	
	SV	-0.04 ***		-0.04 ***		-0.03 ***		-0.06 ***	
	Diff.	-0.02 **		0.00		-0.01		-0.02	
Living with child(ren) at age 35									
No (ref.)									
Yes	FI	0.08 ***		0.01		-0.01 ***		0.10 ***	
	SV	0.05 ***		0.05 **		0.02 ***		0.08 ***	
	Diff.	0.03 **		-0.04 ***		-0.02 ***		0.01	

***<=0.01, **<=0.05, *<=0.1

Table D 3. Average Marginal Effects of local (regional) ancestral ties on immobility –second robustness check

Model specification excluding variablels meassured at age 35 - regional level

		Excluding emigrants					Including emigrants			
		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa		Whole country	Swe. speaking settlement area	Uusimaa	Swe. speak. set. area w/o Uusimaa
		AME Sig.	AME Sig.	AME Sig.	AME Sig.		AME Sig.	AME Sig.	AME Sig.	AME Sig.
Local ancestral ties at residence, age 14										
No parent and no grandparent (ref.)										
No parent but at least one	FI	-0.03 **	0.00	0.00	0.07 **	FI	-0.03 **	-0.01	-0.01 *	0.07 **
grandparent	SV	0.04	-0.01	-0.01	-0.01	SV	0.05 ***	0.00	0.01	0.00
	Diff.	-0.06 **	0.01	0.02	0.08	Diff.	-0.08 ***	-0.01	-0.02	0.07
At least one parent but no	FI	0.07 ***	0.03	0.01 ***	0.08 ***	FI	0.07 ***	0.03	0.01 ***	0.08 ***
grandparent	SV	0.06 **	0.03	0.02	-0.01	SV	0.05	0.01	-0.03	0.00
	Diff.	0.02	-0.01	-0.01	0.09	Diff.	0.03	0.01	0.04 **	0.08
At least one parent and one	FI	0.03	0.00	0.02 ***	0.14 ***	FI	0.04	0.01	0.03 ***	0.14 ***
grandparent	SV	0.12 ***	0.06	0.06 ***	0.06	SV	0.13 ***	0.08 **	0.06 ***	0.08 **
	Diff.	-0.09 ***	-0.06 *	-0.03 ***	0.08	Diff.	-0.09 ***	-0.07 **	-0.03 ***	0.06
Gender										
Man (ref.)										
Woman	FI	-0.06 ***	-0.03 ***	-0.03 ***	-0.05 ***	FI	-0.07 ***	-0.05 ***	-0.04 ***	-0.06 ***
	SV	-0.05 ***	-0.05 ***	-0.04 ***	-0.06 ***	SV	-0.09 ***	-0.09 ***	-0.08 ***	-0.10 ***
	Diff.	-0.01	0.02 *	0.01 ***	0.01	Diff.	0.02 ***	0.04 ***	0.03 ***	0.04 *
Birth cohort										
1970-1975 (ref.)										
1976-1980	FI	-0.02 ***	0.00	0.00	-0.02 **	FI	-0.02 ***	0.00	0.00	-0.02
	SV	-0.02 ***	-0.01 ***	-0.01	-0.02 ***	SV	-0.02 **	-0.01 *	-0.02 *	-0.01
	Diff.	0.00	0.01 ***	0.01	0.00	Diff.	0.00	0.01 *	0.02 *	0.00
1981-1985	FI	-0.01	0.00	0.00 **	-0.02	FI	-0.01	0.00	0.00	-0.01
	SV	-0.01 **	-0.01 *	-0.01 **	-0.01	SV	-0.01	-0.01	-0.02 ***	0.00
	Diff.	0.01	0.01 ***	0.00	-0.01	Diff.	0.01	0.01	0.02 ***	-0.01
Childhood immobility										
No (ref.)	FI	0.17 **	0.12 **	0.07 ***	0.15 ***	FI	0.17 ***	0.12 **	0.07 ***	0.16 ***
Yes	SV	0.19 ***	0.15 ***	0.06 ***	0.17 ***	SV	0.19 ***	0.16 ***	0.08 ***	0.16 ***
	Diff.	-0.02	-0.03	0.01	-0.01	Diff.	-0.02	-0.04 **	-0.01	0.00
Municipality type at age 14										
Urban (ref.)	FI	-0.06 ***	-0.06 ***	-0.05 ***	0.04	FI	-0.05 ***	-0.05 ***	-0.04 ***	0.03
Denseley populated	SV	0.01	0.01	-0.03 ***	0.09 *	SV	0.03	0.03	-0.02 ***	0.11 ***
	Diff.	-0.07 **	-0.07 ***	-0.02 ***	-0.06	Diff.	-0.08 ***	-0.08 ***	-0.02 ***	-0.09 ***
Rural	FI	-0.09 ***	-0.18 ***	-0.10 ***	-0.10 **	FI	-0.08 ***	-0.18 ***	-0.08 ***	-0.10 **
	SV	0.01	0.01	-0.05 ***	0.12 **	SV	0.01	0.01	-0.04 ***	0.13 ***
	Diff.	-0.10 ***	-0.19 ***	-0.05 ***	-0.21 ***	Diff.	-0.09 **	-0.19 ***	-0.04 ***	-0.22 ***
Agricultural ancestry										
No (ref.)	FI	-0.04 ***	-0.05 **	-0.01 ***	-0.05 ***	FI	-0.03 ***	-0.04 **	-0.01 ***	-0.05 **
Yes	SV	0.00	0.00	0.00 **	0.03	SV	0.01	0.01	0.02 ***	0.03 ***
	Diff.	-0.04 **	-0.05 ***	-0.02 ***	-0.08 ***	Diff.	-0.04 **	-0.05 ***	-0.02 ***	-0.08 ***
Siblings										
No (ref.)	FI	-0.02 ***	-0.01	0.02 ***	-0.06 ***	FI	-0.03 ***	-0.02	0.01 **	-0.06 ***
Yes	SV	-0.02 *	-0.02 **	0.00	-0.04 ***	SV	-0.04 ***	-0.04 ***	-0.02 ***	-0.05 ***
	Diff.	0.00	0.02 ***	0.01 ***	-0.01	Diff.	0.01	0.02 ***	0.02 ***	0.00
First born										
No (ref.)	FI	0.00	0.00	0.00	-0.01 *	FI	0.00	0.00	0.00	-0.01
Yes	SV	0.00	0.00	0.00	-0.01	SV	0.00	0.00	-0.01 ***	0.00
	Diff.	0.00	0.00	0.00	0.00	Diff.	0.00	0.00	0.01 **	-0.01

***<=0.01, **<=0.05, *<=0.1

Appendix E

Table E 1. Average Marginal Effects of local ancestral ties on immobility, models without control variables – main study population

Population with full information on parents and grandparents, living in Finland at age 35

		Municipality level							
		Whole country		**Swe. speaking settlement area**		**Uusimaa**		**Swe. speak. set. area w/o Uusimaa**	
		AME	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*
Local ancestral ties at residence, age 14									
No parent and no grandparent (ref.)									
No parent but at least one grandparent	FI	0.05	***	0.09	***	0.11	***	0.03	*
	SV	0.13	***	0.13	***	0.16	***	0.10	***
	Diff.	-0.08	***	-0.04	**	-0.05	***	-0.07	*
At least one parent but no grandparent	FI	0.14	***	0.13	***	0.16	***	0.12	***
	SV	0.15	***	0.15	***	0.21	***	0.09	***
	Diff.	-0.01		-0.02		-0.05	***	0.03	
At least one parent and one grandparent	FI	0.12	***	0.13	***	0.18	***	0.11	***
	SV	0.22	***	0.21	***	0.27	***	0.17	***
	Diff.	-0.10	***	-0.08	***	-0.10	***	-0.06	**

		Regional level							
		AME	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*	*AME*	*Sig.*
Local ancestral ties at residence, age 14									
No parent and no grandparent (ref.)									
No parent but at least one grandparent	FI	-0.02		0.02		0.01		0.09	***
	SV	0.06	**	0.00		-0.01		0.01	
	Diff.	-0.08	***	0.02		0.02		0.08	
At least one parent but no grandparent	FI	0.13	***	0.06	***	0.03	**	0.14	***
	SV	0.12	***	0.07	*	0.03	**	0.01	
	Diff.	0.02		-0.01		0.00		0.13	*
At least one parent and one grandparent	FI	0.07	*	0.04	***	0.04	**	0.19	***
	SV	0.21	***	0.12	***	0.07	***	0.18	***
	Diff.	-0.14	***	-0.08	***	-0.03	*	0.02	

***<=0.01, **<=0.05, *<=0.1