

Research Article

Older Adults' Internal Migration Toward Faraway Siblings

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Abstract

Objectives: Research on the role of siblings in older adult migration lags behind a growing number of studies on adult children as a mobility attraction. We attend to this gap by examining (a) to what extent the absence of partners and/or adult children influences older adults' (age 70–84) migration toward faraway siblings (at least 50 km away) and (b) how these migrations are patterned by the location of other family members (children, other siblings, and nephews/nieces).

Methods: We use multinomial logistic regression models and analyze dyads of older adults and all distant siblings from the Swedish population register data between 2012 and 2016 ($N = 1,743,234$). We control for several characteristics of older adults and their siblings that may affect the decision to move closer, including sociodemographic characteristics and measures of location-specific capital.

Results: Widowed, divorced, and never-married older adults were more likely to move closer to distant siblings than those with a partner. Not having children was associated with a higher likelihood of moving toward a sibling. Living near adult children or other siblings deterred relocation toward siblings, while family clustered at a distance reinforced the location's attractiveness for migration.

Discussion: As declines in fertility broadly reflect people's decisions to have fewer children or forego having families, siblings might emerge as more active players in the family networks of older adults. Our research indicates that siblings can be a destination for migration and, therefore, should be considered as important members of social networks of older adults, especially those who do not have partners and/or adult children available.

Keywords: Family ties, Geographic mobility, Intergenerational relationships, Population register data, Sweden

Many European countries implement policies seeking to increase the role of the family in care, especially when it concerns care for an increasing number of older adults (Pavolini & Ranci, 2008). Literature on family support and contact often focuses on spouses and children as caregivers for older adults, and, less frequently, on siblings (see a review by Connidis and Barnett, 2018). Although the sibling bond may not be as duty-bound as that between parents and children, siblings do appear to provide help and care when needed (Buchanan, 2021; Connidis, 1989, 1994; Eriksen & Gerstel, 2002). Researchers acknowledge the importance of siblings as a source of comfort and support (Bedford, 1995; Eriksen & Gerstel, 2002), companionship

and contact (Connidis & Davies, 1990; Guiaux et al., 2007), and well-being (Jensen et al., 2020; O'Bryant, 1988).

Interactions with sisters and brothers take on new meaning in late life (Gold, 1987; Milevsky, 2020). As people live longer, have fewer children, remain single, or choose not to have families, their social networks may decrease. Siblings might emerge as a vital source of support in old age and older adults might want to live closer to their siblings, especially after losing a partner (Connidis, 1992; Gold, 1987). However, research on the role of siblings in internal migration lags behind a growing number of studies on the role of adult children as the motive for migration. Some noteworthy exceptions to this trend have recently

focused on the role of siblings in the migration choices of young adults (Mulder et al., 2020a, 2020b). Additionally, existing studies about family proximity-enhancing moves, also known as *geographic convergence* (Silverstein, 1995), often ignore older adults who do not have children. Some studies suggest that the clustering of family members in a region reinforces the region's attraction for in-migration (Pettersson & Malmberg, 2009; Thomas & Dommermuth, 2020), while living near family members is associated with a lower likelihood of moving away (Ermisch & Mulder, 2019). Based on these insights, it seems reasonable to expect that the location of other family members might shape internal migration toward faraway siblings but, to the best of our knowledge, no studies have tested this hypothesis.

We attend to this gap by examining (a) to what extent the availability of traditional family companions and caregivers (i.e., partners and adult children) influences older adults' (aged 70–84 years) migration toward siblings who live at least 50 km away and (b) how these relocations are patterned by the location of other family members—namely adult children, other siblings, and nephews/nieces. To answer these questions, we draw on Swedish register data between 2012 and 2016 to examine dyads of older adults and their distant siblings. We control for characteristics of older adults as well as their distant siblings, including sociodemographic characteristics, location-specific capital, and urbanization.

Sweden has several advantages for this study. First, the country has a growing proportion of older adults with one of the longest life expectancies in Europe (OECD, 2019). Second, Sweden was historically, and remains, a high-migration country (Champion et al., 2017). In spite of its citizens' dependence on formal care provision policies—one of the strongest in Europe (Haberkern & Szydlik, 2010)—rather than on kin support (Svallfors, 2004), people continue moving closer to the family (Gillespie & Mulder, 2020). Finally, Sweden has high-quality population data on links between family members, including siblings, and these links can be traced for older adults.

Theoretical Background

Faraway Siblings as an Attraction for Older Adults' Internal Migration

The sibling relationship is typically considered the family relationship with the longest duration (White, 2001). Siblings tend to be permanent members of people's social networks and can therefore play an important role in people's lives (Voorpostel et al., 2012). The importance of siblings varies over the life course, with research suggesting a decrease in contact, exchange of help, and proximity during young adulthood followed by stabilization of proximity and contact in middle life, and a slight rise in exchange of help later in life (White, 2001). One of the reasons for fluctuations in sibling relationships is that spouses and children tend to

be the emotional center of people's lives in adulthood and middle life while later life brings transitions (e.g., empty nest, losing a partner, or parental death) that contribute to a reemergence or intensification of sibling relationships (Connidis, 1992; Gold, 1987; Kalmijn & Leopold, 2019; White, 2001).

Because geographic proximity between family members is the key determinant of exchange of support (Knijn & Liefbroer, 2006), living farther away makes provision of practical help and frequent contact between siblings more difficult (Eriksen & Gerstel, 2002; Milevsky, 2020; White & Riedmann, 1992). Research suggests that living geographically nearby siblings becomes more important in later life. More than half of the informants in a study by Gold (1987) indicated that individuals' physical distance from their siblings saddened them in later life. When the respondents were asked what, if anything, they would change about their sibling relationships, many answered that they would choose to live closer to their sisters or brothers.

The dominant theoretical approach to explaining migration behavior in later life is the three-stage model of Litwak and Longino (1987). In the first stage of the model, a couple's amenity-seeking move is usually undertaken in good health closely after retirement. In the second stage, older adults become widowed and often acquire chronic disabilities that motivate them to move closer to adult children and other family members. In the third stage, when older adults' health deteriorates, they are likely to move to institutionalized residential care. A sibling's location might become an important attraction for relocation during the second stage.

The Presence of Index Person's Partners and Children

Because no theoretical model explains the circumstances under which older adults tend to migrate toward their geographically distant siblings, we derive the arguments for our hypotheses from theoretical models of social support. The substitution hypothesis (Shanas, 1979) and the hierarchical compensatory model (Cantor, 1979) suggest that older adults rank their sources of support according to a common order of preference and availability. The first choice for assistance is the partner, the second choice is an adult child. If these sources are unavailable, older persons turn to other relatives (including siblings) and nonkin (Cantor, 1979, 1991). The relationship between geographic proximity and support implies that in the absence of core family members, traditionally represented by partners and children, older adults might prefer to live closer to distant siblings.

Research further suggests that older persons without children depend more on siblings, nieces, and nephews for support than do older parents (Choi, 1994; Fihel et al., 2021). According to Kjær and Siren (2021), the role of childlessness in estimating older adults' need for assistance

should be understood in its intersection with partner status. They found that for those without a partner, childlessness led to a larger support disadvantage. Partnered parents and partnered childless individuals enjoyed the highest level of available tangible support, followed by single-living parents; the lowest levels of support were experienced by single individuals without children. This difference was more pronounced among men than women (Kjær & Siren, 2021). Previous research suggests that older adults who have neither a partner nor children might rely more on siblings (Campbell et al., 1999; Connidis, 1989; White & Riedmann, 1992) than those who have a partner, at least one child, or both.

The functional specificity of relationships model (Connidis, 1994; Simons, 1984) adds flexibility to the conception of support provision, allowing the possibility that different relationships serve different functions for people over time. As such, there might be differences in how relationships with siblings are negotiated (e.g., depending on whether an older adult has a partner or not). The never-married and those who became unpartnered relatively long ago could establish supportive ties and close geographic proximity with their siblings before we observed them, while those who lost their partners relatively recently might require a different system of support (Connidis, 1994).

As partners are often key sources of support (de Jong Gierveld et al., 2009), the loss of a partner can lead to loneliness and social isolation (Victor et al., 2002). Thus, access to wider networks of familial support can be particularly important (Thomas & Dommermuth, 2020). According to Cicirelli (1996), adult siblings, especially older adults, rely heavily on each other in times of crisis. When a spouse passes away, many older adults turn to their siblings for support (Gold, 1987; Merz & De Jong Gierveld, 2016). Notably, when family members move close to each other, the person in need of support is more likely to move (Smits, 2010).

The absence or loss of core family members might provide opportunities to move toward siblings, as shown by Connidis (1992). The respondents in their study indicated that divorce and widowhood strengthened their ties to siblings, in some cases leading to relocation closer to them.

The Location of Other Family Members

Of course, not just the existence but the *location* of nonresident family members should also matter in older adults' migration decisions. According to Mulder's (2018) family ties perspective on internal migration and immobility, having family members living nearby should increase individuals' likelihood of staying in an area. Nearby children or siblings (denoted here as the index person's "family ties"; see Author Note 1) might affect the likelihood of moving closer to distant siblings because geographically close family members can already provide needed care and/or companionship. For instance, the closer children live to parents, the more support they provide (Kalmijn & Dykstra, 2006). And older

adults with children living close by tend to change residence less often than those whose closest children live far away (van der Pers et al., 2015). If an older parent has children but none live nearby, they are more likely to move closer to a distant child, into institutionalized care, or elsewhere rather than stay (Artamonova et al., 2020). These moves elsewhere might include moves closer to siblings. The presence of other family members nearby the distant sibling (denoted from here as distant sibling's family ties) might, in turn, strengthen the attractive effect of a distant sibling's place of residence for relocation. Moving toward several family members rather than one sibling might be more beneficial for older adults, as they could then rely on multiple informal caregivers and companions.

Hypotheses

Based on the arguments presented above, we derive eight hypotheses on the understudied potential relationship between moving closer to siblings in later life and the presence and location of other family members (Table 1).

Data and Methods

Data Selection

The data for the analyses are drawn from several Swedish population and administrative registers, which contain information on all Swedes born from 1932 onward who have been registered as residents in Sweden at any time since 1961. Each resident of Sweden was identified by a unique identification number that enabled us to link individuals to their family members and across different registers. Key demographic information—date of birth, sex, and country of birth—was derived from the Total Population Register. Family members were linked to each other through the Multigenerational Register. Annually updated socioeconomic information, including marital status and partnership transitions, was derived from the Longitudinal Integration Database for Health Insurance and Labor Market Studies.

From these data, we extracted unique dyads of index persons and their distant half- and full siblings. We did not have links to stepsiblings. The first requirement for sample selection was that the index person's age was 70 or over at the first observation. We chose this distinction because by this age, a majority of older adults' parents will be deceased (Kridahl & Silverstein, 2020), which helps separate the migration attraction of siblings from that of older parents in need of care.

An older person entered the population at risk of moving closer to a sibling if the sibling lived at least 50 km away in the baseline year. To the best of our knowledge, there has been no information about the distance between siblings at which contact and exchange of support can lead to a desire to converge geographically, so we adopted a move of at

Table 1. Research Hypotheses

N	Hypotheses
The presence of index persons' partners and children	
1a	Index persons without partners (unmarried, separated, and widowed) will be more likely to move closer to distant siblings than those who have partners
1b	Index persons without children will be more likely to move closer to distant siblings than those who have children
1c	Index persons who have neither a partner nor a child will be more likely to move closer to distant siblings than those who have at least a partner or a child
The location of other family members	
2a	Index persons who have at least one child nearby will be less likely to move closer to distant siblings than those who do not have children in close proximity
2b	Index persons who have at least one other sibling nearby will be less likely to move closer to distant siblings than those who do not have other siblings in close proximity
2c	Having at least one index person's child in close proximity to the distant sibling will increase the propensity of the index person's move toward this sibling
2d	Having at least one additional sibling in close proximity of the distant sibling will increase the propensity of the index person's move toward this sibling
2e	Having at least one niece or nephew in close proximity of the distant sibling will increase the propensity of the index person's move toward this sibling

least 40 km. As Gillespie and Mulder (2020) found, moving toward family can be considered a reasonably valid proxy for family-motivated migration. We considered relocation within 10 km as a convergent move because this distance can be traveled within 30 min, thereby enabling relatively frequent contact and exchange of support (Thomas & Dommermuth, 2020). The initial distance between siblings of 50 km allows us to capture moves to within 10-km radius of a sibling's neighborhood. However, we employed several sensitivity checks using alternative distance thresholds (see Supplementary Material). Older adults without siblings and those whose siblings lived outside Sweden or all within 50 km of the index person's neighborhood were excluded from the study. We also excluded dyads in which the index person or a sibling was born outside Sweden because information about them could be of lower quality (Statistics Sweden, 2017) and we could not control for their place of birth.

We tracked the geographic relocations of index persons between 2012 and 2016, across four pooled time periods: 2012 (t_0) to 2013 (t_1), 2013 (t_0) to 2014 (t_1), 2014 (t_0) to 2015 (t_1), and 2015 (t_0) to 2016 (t_1). At t_0 we measured baseline characteristics of the study population. We analyzed relocations between pairs of years t_0 and t_1 . An additional model tested the role of partnership transitions between t_0 and t_1 in moving toward faraway siblings.

Our initial data set included 3,731,424 unique dyad-years for the selected period of observation. Among them, there were 48,599 dyads in which an index person or a sibling was born outside Sweden that we excluded from the sample. In the remaining sample 1,939,409 dyad-years (52.7%) represented those index persons and siblings who lived within 50 km of each other. The working data set included 1,743,234 dyad-years for the population of index persons under risk of moving toward a distant sibling or elsewhere.

Measures

The outcome variable included three categories: (a) no migration of the index person (the index person did not move 40 or more km, the reference category), (b) migration toward a faraway sibling (the index person moved at least 40 km and this move resulted in a distance of less than 10 km between the index person and a distant sibling), (c) migration elsewhere (the index person moved at least 40 km but the move did not result in a distance of less than 10 km between the index person and a distant sibling).

Because residents of Sweden are registered within Small Areas for Market Statistics (SAMS), it was possible to identify relocation distances as well as the distances between households of nonresident family members. There are approximately 9,200 SAMS divisions throughout the country, which are based on the subdivision of areas in large municipalities and on election districts in small municipalities. The Euclidean distance between the geographic centroids of the SAMS areas was used as a proxy for the distance. Niedomysl et al. (2017) compared the actual distances with the distances between different regional centroids and found that the distances inferred from municipal area centroids are quite accurate. As SAMS areas are smaller than municipalities, we take this as support that our proxy measure is indeed a reliable one.

The central explanatory variables for our analysis of moving closer to distant siblings in later life are measures of presence of the index persons' partners and children and measures of family ties of the index persons and distant siblings, namely their location relative to the members of the dyads.

The partnership state of the index person included four categories: married/partnered (0—the reference category), unmarried/unpartnered (1), divorced/separated (2), widowed (3). We distinguished between those index persons

who have children (the reference category) and those who do not. A separate measure distinguished between index persons with a partner and at least one child (0—the reference category), neither a partner nor a child (1), those with at least one child but no partner (2), and those who have only a partner (3).

To account for the location of the index person's children, we included two dummy variables: having a child within 10 km of own neighborhood or not (the reference category) and having a child living within 10 km of the distant sibling's neighborhood or not (the reference category). The index person's and a distant sibling's ties to other siblings were operationalized as having at least one sibling within 10 km (1) or not (0—the reference category). A measure for distant siblings' availability of children (nieces or nephews of the index persons) included three categories: having at least one child within 10 km of the neighborhood, having a child living more than 10 km away, and not having children (the reference category).

We incorporated several additional variables related to close sibling relationships (see a review by Tanskanen and Danielsbacka, 2021, and our [Supplementary Material](#)) and potential decisions to move closer to a distant sibling. We controlled for baseline sociodemographic characteristics of the index persons and their faraway siblings (gender composition of a dyad, age of the index person and relative age of a sibling, whether siblings are full biological or half, number of siblings, partnership state of the distant sibling, education and disposable income of both siblings in a dyad), their location-specific capital (living in a county of birth, the baseline duration of residence of the index person), the level of urbanization of their baseline places of residence, and a baseline distance between siblings in t_0 .

Summary statistics for explanatory and control variables are presented in [Table 2](#). A description of all control variables is presented in [Supplementary Material](#).

Analytical Strategy

We structured the data into long form, such that multiple occasions of observations (dyad-years) were nested within the index person–sibling dyads and within index persons ([Figure 1](#)), causing the standard assumption of independence of observations to be violated. Index person–sibling dyad-years take into account both the number of dyads in our study and the amount of time each dyad spends in the study. In order to record the model estimates appropriately, we used two-way clustered standard errors ([Cameron et al., 2011](#)) for the dyad and index person levels. We adopted a dyadic approach because it enabled us to account for the characteristics of the older persons of interest and a faraway sibling and, at the same time, the location and number of other members of the family group. This allowed us—at least partly—to observe each dyad from a family systems perspective. Observations were treated as censored after the index persons moved closer to a sibling.

We present the results of two models. In Model 1, we show the results of tests of *Hypotheses 1a, 1b* (related to the presence of the index persons' partners and children on moving toward siblings), *2a, 2b* (related to family ties of the index persons), and *3a–3c* (related to the family ties of distant siblings). In Model 2, we present the interplay between the presence of a partner and at least one child to test *Hypothesis 1c*. Besides our main models, we discuss the results of auxiliary analyses below. We also explored the stability of our models for index persons whose parents were no longer alive as well as for index persons of different age ranges, and examined how different initial distances between siblings, distance after a convergent move, and moving distance thresholds influenced our findings. The results of these sensitivity checks are discussed in [Supplementary Material](#).

Results

Descriptive Findings

As shown in [Table 2](#), in 0.9% of observations (in dyad-years) or 4.5% (in index persons) the index persons moved at least 40 km between 2012 and 2016. Among the index persons who moved at least 40 km, 14.2% moved toward a sibling. This small proportion of moves toward siblings might indicate that other destinations (i.e., toward adult children, institutionalized care facilities, amenities) are more attractive for older adults. The mean distance between siblings following the convergent moves was equal to 3.02 km ($SD = 3.04$). After migration toward a sibling, 36.2% ended up also living closer to their children, while among those who moved elsewhere, 41.4% were closer to children. Overall, there were slightly more moves among men (0.9%) than women (0.8%). Among movers, more women (15.4%) than men (13.0%) ended up within a 10-km radius of the neighborhood of a distant sibling. Moreover, among movers, 1,171 (7.7%) had neither a partner nor a child.

Multinomial Regression Analysis of Migration Toward Siblings

In the multinomial logistic regression models presented in [Tables 3 and 4](#), we compared the “effects” (see Author Note 2) of independent variables on the likelihoods of moving toward siblings of elsewhere relative to not moving. The first set of hypotheses related to testing potential associations between the likelihood of moving closer to a geographically distant sibling and the presence of the core family members. The results supported *Hypothesis 1a*. Compared with married or partnered individuals, those who were never-married ($B = 0.251, p < .05$), divorced or separated ($B = 0.417, p < .001$), and widowed ($B = 0.336, p < .001$) were more likely to move closer to siblings ([Table 3](#)). Divorced/separated and widowed older adults were also more likely to move elsewhere rather than remain.

Table 2. Summary Statistics for Main Explanatory Variables, Percentage in the Sample or Means (*SD*)

	Total ^a	Index did not move a long distance ^b	Index moved within 10 km of a sibling ^b	Index moved elsewhere ^b
Index's having children				
No children	10.88	99.13	0.22	0.65
At least one child	89.12	99.12	0.11	0.76
Index's partnership state				
Married/partnered	58.45	99.26	0.09	0.65
Unmarried/unpartnered	7.64	99.23	0.18	0.59
Divorced/separated	18.14	98.69	0.19	1.12
Widow/widowed	15.77	99.07	0.14	0.79
Index's having children and a partner				
At least one child and a partner	55.43	99.30	0.09	0.62
No children and no partner	7.45	99.10	0.25	0.65
At least one child and no partner	33.69	98.84	0.16	1.00
No children and a partner	3.43	99.20	0.13	0.67
Index's child nearby				
At least one child within 10 km	51.12	99.61	0.06	0.33
No children within 10 km	48.88	98.62	0.19	1.19
Index's ties to other siblings				
At least one sibling within 10 km	15.86	99.53	0.06	0.41
No siblings within 10 km	84.14	99.05	0.14	0.82
Index's child nearby a distant sibling				
At least one child within 10 km	4.18	97.94	0.98	1.08
No children within 10 km	95.82	99.18	0.09	0.74
Sibling's ties to other siblings				
At least one sibling within 10 km	17.74	98.94	0.31	0.75
No siblings within 10 km	82.26	99.16	0.09	0.75
Sibling's ties to children				
No children	12.10	99.16	0.13	0.71
No children within 10 km	37.50	99.15	0.10	0.75
At least one child within 10 km	50.40	99.10	0.14	0.76
Sibling lives with a partner				
No	39.65	99.11	0.14	0.75
Yes	60.35	99.14	0.12	0.75
Gender composition of a dyad (index–sibling)				
Sister–sister	27.54	99.18	0.13	0.69
Sister–brother	25.44	99.16	0.12	0.72
Brother–sister	25.01	99.08	0.12	0.81
Brother–brother	22.01	99.07	0.13	0.81
Index's age, years	74.1 (0.01)	74.1 (0.01)	73.7 (0.07)	73.6 (0.03)
Sibling's age relative to the index's				
Index younger	13.33	99.14	0.11	0.75
Around the same age (± 3 years)	35.34	99.12	0.13	0.75
Index older	51.33	99.12	0.13	0.75
Type of sibling				
Full	96.65	99.12	0.13	0.75
Half (different fathers)	3.35	99.12	0.08	0.80
Index's education				
Primary	31.87	99.28	0.11	0.61
Secondary	39.52	99.10	0.13	0.77
Postsecondary	28.29	99.00	0.13	0.87
No information	0.32	98.29	0.32	1.39
Index's income				
Below median	51.54	99.16	0.12	0.72
Above median	48.46	99.08	0.13	0.79
Index's duration of residence	21.4 (0.01)	22.6 (0.01)	15.8 (0.32)	14.1 (0.12)

Table 2. Continued

	Total ^a	Index did not move a long distance ^b	Index moved within 10 km of a sibling ^b	Index moved elsewhere ^b
Index's living in a county of birth				
Does not live in a birth county	62.84	99.01	0.13	0.86
Lives in a birth county	37.16	99.32	0.11	0.57
Urbanization of index's place of residence				
Metropolitan area	23.08	99.27	0.13	0.61
Smaller town or suburb	38.95	99.24	0.11	0.65
Sparsely populated area	37.97	98.92	0.14	0.94
Sibling's education				
Primary	28.24	99.15	0.14	0.71
Secondary	41.42	99.12	0.13	0.75
Postsecondary	30.07	99.11	0.11	0.78
No information	0.27	98.90	0.13	0.97
Sibling's income				
Below median	50.09	99.15	0.13	0.73
Above median	49.91	99.10	0.12	0.78
Sibling's living in a county of birth				
Does not live in a birth county	60.26	99.21	0.07	0.72
Lives in a birth county	39.74	98.99	0.21	0.80
Urbanization of sibling's place of residence				
Metropolitan area	22.76	99.10	0.13	0.77
Smaller town or suburb	38.41	99.12	0.12	0.76
Sparsely populated area	38.83	99.14	0.12	0.74
Baseline distance, km	262.47 (0.17)	262.25 (0.17)	213.10 (4.27)	299.65 (2.12)
Index's number of siblings				
1	21.89	99.19	0.12	0.69
2	27.44	99.14	0.12	0.74
3	20.47	99.11	0.13	0.76
4+	30.20	99.07	0.13	0.80
N (index persons)	337,189			
N (index-sibling dyads)	568,183			
N (index-sibling dyad-years)	1,743,234	1,727,972	2,164	13,098

Notes: SD = standard deviation.

^aColumn percentages.

^bRow percentages.

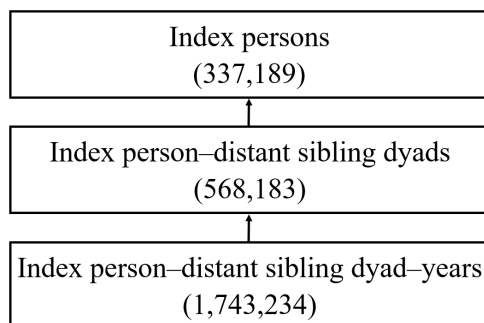


Figure 1. Data structure.

In an additional model, we distinguished between those who remained in one partnership state between t_0 and t_1 : remaining married (0—reference category), remaining divorced (1), remaining widowed (2); and those who changed status between t_0 and t_1 : newly married (3), newly divorced (4), and newly widowed (5). The results of this auxiliary

model indicated that compared with remaining married, all these states (remaining unmarried: $B = 0.335$, $p < .01$; remaining divorced: $B = 0.503$, $p < .001$; remaining widowed: $B = 0.430$, $p < .001$) and transitions (newly divorced: $B = 2.956$, $p < .001$; newly widowed: $B = 1.241$, $p < .001$) increased the likelihood of moving closer to a distant sibling except for entering a partnership/marriage ($B = 1.089$, $p = .054$). In another auxiliary model, we examined the interplay between the index and sibling's partnership states by including the variable with four categories: both live without partners (0—reference category), both live with partners (1), index without a partner and a faraway sibling with a partner (2), index with a partner and a faraway sibling without (3). Relative to the reference configuration, the likelihood of moving toward a sibling was significantly increased when both siblings in a dyad lived without partners ($B = 0.618$, $p < .001$) and when the index lived without a partner while a faraway sibling was partnered ($B = 0.504$, $p < .001$).

Table 3. Model 1: Multinomial Logistic Regression of Migration Toward a Geographically Distant Sibling or Elsewhere (Ref: No Migration)

	Index moved within 10 km of a sibling		Index moved elsewhere	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Index's having children (ref: at least one child)				
No children	0.757***	0.094	-0.533***	0.055
Index's partnership state (ref: married/partnered)				
Unmarried/unpartnered	0.251*	0.113	-0.096	0.070
Divorced/separated	0.417***	0.071	0.281***	0.036
Widowed	0.336***	0.085	0.224***	0.044
Index's child nearby (ref: no children within 10 km)				
At least one child within 10 km	-0.749***	0.071	-1.264***	0.036
Index's ties to other siblings (ref: no siblings within 10 km)				
At least one sibling within 10 km	-0.488***	0.123	-0.485***	0.051
Index's child nearby a distant sibling (ref: no children within 10 km)				
At least one child within 10 km	2.121***	0.074	-0.009	0.047
Sibling's ties to other siblings (ref: no siblings within 10 km)				
At least one sibling within 10 km	0.913***	0.069	-0.172***	0.036
Sibling's ties to children (ref: no children)				
No children within 10 km	-0.060	0.076	0.054†	0.032
At least one child within 10 km	0.117	0.072	0.070*	0.032
Sibling lives with a partner (ref: no)				
Yes	-0.117*	0.046	-0.012	0.020
Gender composition of a dyad (ref: sister–sister)				
Sister–brother	-0.102†	0.061	0.016	0.027
Brother–sister	-0.270***	0.075	0.098**	0.038
Brother–brother	-0.211**	0.078	0.058	0.039
Index's age, years	-0.023*	0.010	-0.030***	0.005
Sibling's age relative to the index's (ref: index younger)				
Around the same age (±3 years)	0.199**	0.076	0.035	0.031
Index elder	0.177*	0.079	0.040	0.032
Type of sibling (ref: half)				
Full	0.614***	0.174	0.017	0.067
Index's education (ref: primary)				
Secondary	0.112	0.074	0.115**	0.038
Postsecondary	0.180*	0.083	0.165***	0.042
No information	0.826*	0.348	0.671***	0.187
Index's income (ref: below median)				
Above median	0.183**	0.062	0.042	0.033
Index's duration of residence, years	-0.020***	0.002	-0.032***	0.001
Index's living in a county of birth (ref: does not live in a birth county)				
Lives in a birth county	-0.149*	0.065	-0.197***	0.033
Urbanization of index's place of residence (ref: metropolitan area)				
Smaller town or suburb	-0.145†	0.079	0.057	0.040
Sparsely populated area	-0.108	0.077	0.320***	0.039
Sibling's education (ref: primary)				
Secondary	0.009	0.056	-0.011	0.024
Postsecondary	-0.012	0.068	-0.009	0.030
No information	-0.135	0.411	0.231	0.153
Sibling's income (ref: below median)				
Above median	-0.029	0.049	0.019	0.021
Sibling's living in a county of birth (ref: does not live in a birth county)				
Lives in a birth county	0.694***	0.059	0.120***	0.024
Urbanization of sibling's place of residence (ref: metropolitan area)				
Smaller town or suburb	0.242***	0.073	0.021	0.027
Sparsely populated area	0.385***	0.076	0.034	0.028

Table 3. Continued

	Index moved within 10 km of a sibling		Index moved elsewhere	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Baseline distance, km	-0.252***	0.040	0.178***	0.016
Index's number of siblings (ref: 1)				
2	-0.288***	0.071	0.134***	0.031
3	-0.296***	0.082	0.213***	0.039
4+	-0.360***	0.083	0.323***	0.042
Constant	-4.806***	0.784	-3.146***	0.394
Log likelihood			-86760.952	
Pseudo- <i>R</i> ²			0.0744	
Total <i>N</i>			1,743,234	

Notes: *SE* = standard error.

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

Table 4. Model 2: Multinomial Logistic Regression of Migration Toward a Sibling or Elsewhere: Interplay Between Having a Spouse and Children (Ref: No Migration)

	Index moved within 10 km of a sibling		Index moved elsewhere	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Index's having children and a partner (ref: at least one child and a partner)				
No children and no partner	1.183***	0.097	-0.455***	0.061
At least one child and no partner	0.446***	0.066	0.322***	0.032
No children and a partner	0.482**	0.158	-0.456***	0.082
Constant	-4.777***	0.773	-3.206***	0.389
Log likelihood			-86707.994	
Pseudo- <i>R</i> ²			0.0750	
Total <i>N</i>			1,743,234	

Notes: The control variables are the same as in the models presented in Table 3. *SE* = standard error.

p* < .01; *p* < .001.

In line with *Hypothesis 1b*, index persons without children were more likely to move closer to distant siblings than those who had at least one child ($B = 0.757, p < .001$). In an additional model, we incorporated information on the size and gender composition of the index person's child group. The variable included the following categories: no children (1), one child who is a son (2), one child who is a daughter (3), more than one child and all sons (4), more than one child and all daughters (5), two or more children of different gender (0—reference category). Relative to the combined gender group of two or more children, only those who had no children ($B = 0.907, p < .001$), had only one son ($B = 0.291, p < .01$), or only one daughter ($B = 0.295, p < .01$) were significantly more likely to move toward far-away siblings.

We further hypothesized that index persons who have neither a partner nor a child would be more likely to move closer to distant siblings than those who have at least a partner or a child (*Hypothesis 1c*). The results presented in

Table 4 support this hypothesis. Relative to index persons who have a partner and at least one child, those ones who have neither a partner nor a child were more likely to move closer to distant siblings ($B = 1.183, p < .001$). Similar but smaller effects were found for those who have only a partner and no children ($B = 0.481, p < .01$), and at least one child but no partner ($B = 0.446, p < .001$). Interestingly, compared with the index persons who have both a partner and at least one child, those who do not have children and either have a partner ($B = -0.456, p < .001$) or not ($B = -0.455, p < .001$) were less likely to move elsewhere, while those who have children ($B = 0.322, p < .001$) were more likely to do so, potentially indicating moves toward adult children. One of the reasons why having neither a partner nor a child is associated with a higher likelihood of moving closer to siblings and lower likelihood of moving elsewhere might be that older adults without a partner or child have fewer destination alternatives to the location of a sibling when compared with those who have one or both.

In an additional model, we tested whether there are gender variations in the association between the presence of core family members and the likelihood of moving closer to a distant sibling. Women with neither a partner nor a child were more likely to move closer to distant siblings than their male counterparts, although the interaction term was only marginally significant.

Subsequent hypotheses related to the family ties of the index person and their distant sibling(s). *Hypothesis 2a* stated that index persons who have at least one child nearby would be less likely to move closer to distant siblings than those who do not have children in close proximity. In line with it, we found a negative association between having at least one child nearby and the likelihood of moving closer to a distant sibling ($B = -0.748, p < .001$) or elsewhere ($B = -1.264, p < .001$). *Hypothesis 2b* stated that index persons who have at least one other sibling nearby would be less likely to move closer to distant siblings than those who do not have other siblings in close proximity. The results provided support for this hypothesis ($B = -0.486, p < .001$). Having at least one sibling within a 10-km radius was also negatively associated with their propensity to move in other directions ($B = -0.482, p < .001$).

As expected (*Hypothesis 2c*), our models point to a strong positive effect for the index person's child living close to their distant sibling on their propensity to migrate toward this group of relatives ($B = 2.121, p < .001$). These moves might represent the return migration of older adults who moved away in adulthood. Our results also support *Hypothesis 2d*, indicating that at least one additional sibling in close proximity to the distant sibling increased the likelihood of index person's convergence move ($B = 0.913, p < .001$), while slightly decreasing the likelihood of migrating elsewhere ($B = -0.172, p < .001$). We further hypothesized that there would be a similar effect for the presence of the index person's nieces or nephews in close proximity of the distant sibling (*Hypothesis 2e*). Our results do not support this hypothesis. Additionally, assuming that nieces or nephews might be more important for those older adults who do not have their own children, we ran an additional model with an interaction effect between not having their own children and the presence and location of nieces or nephews. This model did not support our expectations.

Regarding other potential factors contributing to migration toward a distant sibling in later life, older adults were more likely to move closer to full than half-siblings. Having more than one sibling was associated with a lower propensity of moving closer to a sibling in the dyad and a higher propensity to move elsewhere. Relative to dyads of older women and their distant sisters, index persons from other gender composition dyads were less likely to move closer to a sibling, although the difference between sister–sister and sister–brother dyads was only marginally significant, which might be partly explained by a more pronounced involvement of sisters in sibling relationships (Gold, 1989) and

gender differences in migration propensities (Brandén & Kolk, 2017). The propensity to relocate closer to a distant sibling was higher if this sibling did not have a partner. In an additional model, we decomposed the partnership state of a faraway sibling. This model showed the likelihood of moving to a sibling to be significantly higher only if this sibling was a widow/widower, while the positive effects of other states (unmarried and divorced) were small and not statistically significant. The index person's age was negatively associated with the propensity of migration in any direction. Moves toward a sibling were more likely if the sibling was a similar age or younger than the index person.

Results for other control variables are presented in Table 3 and described in Supplementary Material.

Discussion

In this paper, we addressed migration toward siblings in later life. More specifically, we examined whether the presence of traditional companions and caregivers—partners and adult children of both the index person and their distant sibling—mattered for sibling-focused migration in Sweden. We further expected that the location of children, other siblings, and nephews/nieces would pattern migration toward distant siblings. A striking finding is the rarity of moves in general and toward distant siblings in particular. In our data, out of 337,189 older adults aged 70–84 years who had at least one sibling living more than 50 km away, only 2,164 (0.6%) moved within a 10-km radius of a sibling between 2012 and 2016.

Our findings indicated that widowed, divorced, or never-married older adults were more likely to move closer to distant siblings than the married or partnered. Older adults without children were more likely to make proximity-enhancing moves toward siblings, relative to those who had at least one child. The effect of having neither a partner nor a child on moving closer to a sibling was particularly large.

The result of auxiliary analyses showed that the likelihood of migrating toward a faraway sibling was particularly high if divorce or a partner's death happened in the same year as the move. This finding is in line with the substitution hypothesis and the functional specificity of relationships model (Connidis, 1994; Simons, 1984), implying that those who were unmarried or lost a partner before the baseline year could have negotiated supportive ties with their network members (including siblings) before the moment of observation and had less need to move toward siblings than those who were in the process of adjustment to life without partners. A higher propensity of moving toward a sibling after a divorce or widowhood might also indicate that in these life circumstances older adults have new or renewed opportunities to return to their families of origin (Connidis, 1992). Finally, this finding reminds us that the provision of social support is a process—and the intensity of family relations changes over time and

circumstances (Campbell et al., 1999). It also implies that some older adults might have moved closer or had a distant sibling move closer long before our observation period (e.g., for raising their children together).

In line with previous research on the role of family ties in migration behavior (Ermisch & Mulder, 2019; Pettersson & Malmberg, 2009; Thomas & Dommermuth, 2020), the location of other family members beyond the dyad patterned the locational choices of older adults. We found that living near a child or another sibling has a strong deterring effect on moving toward distant siblings, while the clustering of siblings at a distance reinforces the location's attractiveness for migration. Expectedly, the migration attraction effect of having an index person's child near the distant sibling was large. The presence of nephews or nieces nearby the distant siblings is associated with an increased likelihood of migration toward them but the effect was not statistically significant. The proximity of nephews/nieces to the distant sibling does not seem to significantly increase the attraction effect of this sibling for migration, even for index persons without children.

Our study contributes to the literature on the role of family and internal migration in later life in several ways. We contribute to the ongoing discussion about the significance of family members beyond the nuclear family (see Connidis, 2020). We have taken a first step toward understanding whether older adults move closer to their siblings, and under which circumstances they tend to do so. Consistent with Litwak and Longino's (1987) classic model, siblings can be a destination for the second later-life migration. Older adults in our data set were more likely to migrate toward full than half-siblings. For recent cohorts, siblings of different types might become equally important because for them, having half- or stepsiblings and growing up with fewer siblings overall is more common than in previous cohorts, reflecting increased family complexity (Thomson, 2014). Furthermore, our findings provide novel insight into how older adults without children and partners adapt to the spatial unavailability of traditional informal caregivers and companions. The study also highlights the interplay between the availability of these core family members and the gender of the older adult. Finally, the results emphasize the importance of other nonresident family members beyond the sibling dyad of interest in migration, both as a deterrent to moving away and as an attraction to migrate. Two methodological strengths of our research are worth mentioning. The first is that we use register data that enable us to trace such rare events as long-distance moves toward siblings in later life, taking into account all sibling dyads where the index person's age is 70–84 and the distant sibling (of any age) lives at least 50 km away at baseline. The second is that we consider a range of variables characterizing the index person and a distant sibling (e.g., gender composition of a dyad, relative age, type of sibling ties) that enable us to go beyond individual-level variables.

Our study has several limitations. First, we trace migration toward siblings and control for the index person's county of birth as well as having a child near the distant sibling. However, in these cases, the index person's main attraction for migration is still unclear because they migrated to their place of birth where their siblings and children also reside. Based on the hierarchical compensatory model, we can speculate that having a child in close proximity is more important than having a sibling nearby when selecting a place for relocation in later life. Future research describing motivations for migration could shed light on whether a desire to be close to siblings in later life functions as an independent migration motive. Another limitation is that we did not have information on social interactions and support exchange between family members. It is therefore unclear what role siblings play for each other: caregivers, care recipients, companions, or other roles. Further studies on sibling relationships among older adults would help pinpoint whether siblings—especially younger ones—can provide reliable care for the growing number of older adults without children and partners.

Second, because of issues with small sample size, we were unable to accurately estimate the role of older adults' time in their baseline marital status. This aspect of the family dynamic (combined with older adults' age) might be an important factor contributing to migration toward faraway siblings. Third, because of restrictions in the Swedish register system, we could only observe index persons until age 84. This age approximately corresponds with older adults' transition to the "fourth age," marked by deteriorating health (Lloyd et al., 2014). However, we had no information about older adults' health. There is some evidence that siblings step in as important caregivers when siblings fall ill (Horwitz, 1994; Voorpostel et al., 2012). It might be that siblings move toward each other to facilitate this informal caregiving. In the absence of other health measures, we employed closeness to death as a proxy for severe health problems of the index person and a distant sibling (van der Pers et al., 2015). However, cases of closeness to death were extremely rare for the population likely to migrate, so we did not retain this measure in final models. Future research should trace individuals' migrations toward siblings or formal care facilities at the fourth age, especially those without children or partners available to provide care. It would also be useful to estimate potential selection bias from mortality among the index persons and their family members, which we unfortunately could not do.

It is important to keep in mind that in Sweden, citizens are considered quite independent of family caregivers. Formal support may well provide a substitute for care that would otherwise come from informal sources. This means that, from an international perspective, our estimates of the influence of unavailability of other family members on moving closer to siblings are likely low. We therefore expect researchers to find larger rates of moving closer to siblings (especially when no core family are available) in other

international contexts—namely those with higher rates of family-based care.

Our results indicate that older adults—even if a small number of them—move toward faraway siblings. This supports previous findings about the desire of people to live in close geographic proximity with siblings in later life (Gold, 1987). National governments should consider how they can support this desire, particularly if future research shows that people are ready, willing, and able to be companions and, possibly, caregivers of their brothers and sisters. Relocation services would assist older adults in migration toward siblings, reduce the costs of these migrations, and, ideally, ensure the desired types of housing with extra-housing amenities nearby (Rossi & Shlay, 1982). Older adults without partners and children might be in the highest demand of support, necessitating relocation (including closer to siblings and other nonresident family members) in search of it. Policymakers should pay special attention to this particularly vulnerable group. As recent cohorts of older adults have experienced reductions in their social networks (Wrzus et al., 2013), siblings might become more prominent in their lives than in the past (Jensen et al., 2020). Older adults' siblings—of any type—should not be overlooked in both research and policy regarding the provision of support, care, and companionship.

Supplementary Material

Supplementary data are available at *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* online.

Author Notes

1. We denote the main person in a dyad as the index person and a sibling who lives far at the initial observation as the distant sibling for convenience.
2. The term “effect” is used to denote a statistical association without necessarily implying a causal relationship.

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Conflict of Interest

None declared.

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Author Contributions

A. Artamonova and B. J. Gillespie developed the conception and design of the research. A. Artamonova prepared the data set, performed statistical analyses, and wrote the draft. B. J. Gillespie supervised the data analysis and contributed to the revision of the draft.

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