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Abstract

We weave together care-giving, gender, and migration. We hypothesize that daughters who are mothers have a stronger incentive than sons who are fathers to demonstrate to their children the appropriate way of caring for one's parents. The reason underlying this hypothesis is that women on average live longer than men, they tend to marry men who are older than they are and, thus, they are more likely than men to spend their last years without a spouse. Because it is more effective and less costly to care for parents if they live nearby, daughters with children do not move as far away from the parental home as sons with children or childless offspring. Data on the distance between the children's location and the parents' location extracted from the Survey of Health, Ageing and Retirement in Europe (SHARE), in conjunction with data on selected demographic characteristics and institutional indicators taken from Eurostat, the OECD, and the World Bank, lend support to our hypothesis: compared to childless daughters, childless sons, and sons who are fathers, daughters who are mothers choose to live closer to their parents' home.

Keywords: Demonstration of care-giving across generations; Gender differentiation; Migration distance from the parental home

JEL Classification: D10, D64, J13, J14, J16

1. Introduction

In this paper we present a new hypothesis that links together three themes: intergenerational care-giving, gender differences in intergenerational care-giving, and gender differences in migration (location) choices. The link is formed by the demonstration effect. In a nutshell, the idea behind this is that care-giving is influenced by a desire for future receipt of care. Because women on average live longer than men and tend to marry men who are older than they are, they are more likely than men to spend their last years without a spouse. If care given by parents, P, to their parents, G, serves to demonstrate to children, K, desired future care-giving behavior to P when K become P and P become G, then daughters who are mothers are more likely to engage in demonstration effect activities than sons who are fathers: daughters stand to gain more than sons from instilling the desired behavior in their children. And because it is more effective and less costly to demonstrate care-giving to parents when they and their children live near to each other, we conjecture that daughters who have children will migrate less far from the parental home than sons who have children, less far than childless sons, and less far than childless daughters.

In the US in 2013, for example, women's life expectancy was about five years greater than men's.[1] And in 2014, women married men that, on average, were two years older.[2] Therefore, on average, a man has his wife beside him as he ages, but a woman risks spending her last years alone. In the absence of a husband (partner), elderly women may have to rely on their children for support. Consequently, women may be more motivated to engage in demonstration effect activities. Empirical evidence that in the US daughters look after aging parents more intensively than sons is consistent with this reasoning (Finley, 1989; Lee et al., 1993; Ettner, 1996; Hiedemann and Stern, 1999; Stark, 1999; Engers and Stern, 2002; Cox and Stark, 2005). For example, using data from the 1987 National Survey of Families and Households, Ettner (1996, p. 201) finds that "… caregiving [for parents] appears to have a larger impact on female work hours than on male work hours." Drawing on data from the 1982 to 1984 waves of the National Long-Term Care Survey, Hiedemann and Stern (1999, p. 55) observe that daughters are more likely than sons to care for their parents. On the basis of the same dataset for the year 1984, Engers and Stern (2002, p. 92) conclude that "daughters

[1] According to National Center for Health Statistics (Xu et al., 2016), in the US in 2013 women's life expectancy was 81.2, whereas men's was 76.4. In the EU in 2013 a 5.6 year difference in life expectancy was observed (Eurostat on-line database available at http://ec.europa.eu/eurostat/data/database).

[2] According to the US Census Bureau (2014), in 2014 the median age at first marriage of women was 27.6, and of men 29.5. The data were retrieved by the authors of this paper using American FactFinder <http://factfinder.census.gov>, (4 April 2016).

are more likely to provide care than sons … and married children are more likely to provide care than single children."

Many cultures and religions encourage adult children to be, or assign adult children to act as, care-givers to their parents. Confucian writings and the Old Testament tell children they have a duty to take care of their parents. In general, there is no gender-specificity in this regard; it is children rather than sons or daughters who are held responsible. The predominance in many cultures of adult daughters as primary care-givers could be an extension of the natural task of childcare into adult-care in conjunction with an optimal division of labor under the constraints and opportunities prevailing at the time.[3] However, in present day societies, it is quite often the case that calculation rather than religious teachings and moral traditions guide individuals' behavior. The hypothesis advanced in this paper is in line with this premise.

Our hypothesis does not contradict other ways of thinking about the optimal migration distance of daughters. Many different mechanisms governing this could be at work. For example, single motherhood, which is more prevalent than single fatherhood, means that daughters find it valuable to live near their parents so they have a sense of belonging and are better able to cope. A grandparent's potential help with childcare can affect the choice of how far the daughter will migrate.

In Sections 2 and 3 we present the components that add up to the hypothesis that daughters who have children live closer to their parents than childless daughters, childless sons, and sons who have children. A model that yields a negative relationship between the optimal migration distance and the importance attached to the care to be received from children in the future is presented in Appendix A. Complementary considerations are brought up in section 4. In section 5 we use data on the distance between the children's and the parents' locations extracted from the Survey of Health, Ageing and Retirement in Europe (SHARE) to test for differences in migration behavior by gender and by parenthood status. We draw on data for four European countries - two northern countries, Denmark and Sweden, and two more southern countries, Belgium and France - collected in four waves 1, 2, 4, and 5

[3] There are a good number of studies on gender differences in the provision of care for parents in their old age. For example, Finley (1989) reports that daughters provide more care for elderly mothers than sons do, regardless of the time constraints, external resources, and attitudes towards obligations. Lee et al. (1993) complement this finding by showing that a parent is more likely to receive care from a child of the same sex. Similar observations are reported, for example, by Arber and Ginn (1995) who examine the degree of men's and women's provision of various forms of informal care.

taken, respectively, in 2004, 2006/2007, 2011/2012, and 2013.[4] Specific coefficients obtained from estimation of the econometric models related to each of the four countries are presented in Appendix B. We find that the patterns of migration are in line with our hypothesis: daughters who are mothers live closer to their parents' home than comparable childless daughters, childless sons, and sons who are fathers. The difference between the migration pattern of daughters who are mothers and sons who are fathers varies by country, and appears to be influenced by the institutional context, especially the extent to which elderly care is provided by the state. The difference between the location of daughters who are mothers and the location of sons who are fathers is significant in Belgium and France where state-provided elderly care is relatively weak, but not in Denmark and Sweden where state-provided elderly care is generous. Women residing in European countries with weaker elderly care are more likely to demonstrate to their children how to care for parents, leading to differentiation in the migration behavior by gender. In section 6 we discuss limitations of the empirical analysis and present complementary reflections. In section 7 we conclude.

2. The demonstration effect

The "demonstration effect in intergenerational transfers" is an approach that seeks to explain why adult children provide care, companionship, and other forms of assistance and attention to their parents.

The demonstration effect perspective is based on the premise that adult children seek to shape the attitudes and preferences of their children so that in due course the latter will provide the former with the attention and care they desire: adult children who are parents inculcate in their children, by demonstration, the type of behavior that the parents want their children to replicate in the future. This perspective expands the domain of analysis of intergenerational interaction from two to three generations. It focuses on the perception that a child's conduct is conditioned by parental example, and it assumes that adult children as parents take advantage of their children's learning potential by showing attention to and caring for their own parents when the children are present so that they observe and are impressed. In Stark (1999) the demonstration effect idea was developed formally and tested

[4] These are SHARE Waves 10.6103/SHARE.w1.600, 10.6103/SHARE.w2.600, 10.6103/SHARE.w4.600, and 10.6103/SHARE.w5.600.

empirically. Additional evidence in support of the demonstration effect is in Cox and Stark (2005), and in Mitrut and Wolff (2009).

More concretely, consider a family consisting of members of three generations: a child, K, a parent, P, and a grandparent, G. Each person lives for three periods: first as K, then as P, and finally as G. P wants to receive help from K in the next period when P becomes G and K becomes P. To demonstrate to K the appropriate way of behaving in the next period, P provides visible help to G when K is around to watch and learn. It follows that attention and care from P to G depend positively on the presence of children of an impressionable age.[5] In Appendix A we present a model that links these considerations with optimal migration choices.

The idea that attention and care given to parents (G) is aimed at instilling appropriate conduct in children (K) generates an array of insights, including gender differentiation and migration choices.

3. Migration choices

Because daughters who are mothers are more inclined to engage in demonstration effect activities than sons who are fathers, the former will have a stronger preference to live near their parents than the latter. This is so for three interrelated reasons: effectiveness, cost, and the inherent value of demonstration.

Effectiveness

Parents typically teach children appropriate behavior by setting an example. To be effective, the example has to be vivid, and repeated. Such acts might well be costly to parents who need to behave differently than they would if they were not concerned with shaping their children's preferences.

By way of illustration, suppose that care can be provided in a lump form or in installments that amount to the same total. If repeated and regular small-scale acts of care have a greater influence in shaping behavior than a single large-scale act, the presence and age of children will affect the *distribution* of care-giving. Experimental evidence from cognitive psychology indicates that distributed repetition is better than mass input for

[5] Conventional theories of the allocation of time and money within the family could well predict the opposite effect because young children place demands on their parents' time and income, so that the competing presence of young children will reduce the assistance that P gives to G.

stimulating recall in situations involving memory and learning (Glass et al., 1979). Further, Bandura (1986) cites numerous studies in which repetition strengthens the influence of one person's behavior on another's. In particular, Bandura cites evidence that such repetition is effective when using role models to mold the moral development of children.

Furthermore, the demonstration effect implies that the *composition* of transfers from P to G is important. As already noted, the transfers have to be visible. In-kind transfers are better than cash and, if transfers take the form of attention, visits are better than telephone calls. It is of interest to note that several studies (Warnes, 1984; Crimmins and Ingegneri, 1990; Smith, 1998) have found that proximity is a key determinant of the intensity of intergenerational interaction.

Cost

Living near G reduces P's cost of engaging in effective demonstration activities. Other things being equal, the greater involvement in demonstration effect activities of daughters who are mothers than of sons who are fathers, childless daughters, and childless sons will make the former less inclined to move further away from the parental home than the latter.

The inherent value of demonstration

By living near to G, P demonstrates to K a migration pattern that P will want K to replicate in the future. Thus, choosing to live near G not only makes it easy for P to provide attention and care to G, but also enables P to influence K's future location decisions in a way that will render more likely the future provision of attention and care by K (by then P) to P (by then G).

The considerations of effectiveness, cost, and the inherent value of demonstration suggest that demonstration effect activities will discourage daughters who are mothers from migrating, and if they do migrate, ensure they do not go far away.

4. Additional considerations

Clearly, the demonstration effect is not the only reason for children to provide their parents with attention and care. Other obvious reasons are altruism, aspiration to inherit, an implicit long-term contractual arrangement of exchange of support, and social pressures. However, there may not be good reasons to expect differentiation by gender with regard to several of these factors. For example, data from the Health and Retirement Study in the US for 1995 to

2010 on the division of estates by parents reveal that the likelihood of equal bequests is linked with the contact that parents had with their children: parents are 40 percent more likely to plan to bequeath unequally when they had no contact with their children for more than a year (Francesconi et al., 2015). The reward to children for remaining close to their parents in the form of a larger share of the inheritance is not, however, related to gender, so an aspiration to inherit cannot explain the difference between the proximity to the parental location of daughters and sons. More specifically, there is no reason or indication that daughters will be less likely than sons to receive a smaller share of the inheritance if they fail to keep in contact with their parents, so there is no reason on that account for them to seek greater closeness to the parental home than sons.

The demonstration effect idea cannot be operational when there are G but no K to demonstrate to (or, for that matter, when there are K but no G to care for). Interestingly, if there are no K and if the reason for P holding back on having children is a financial constraint (say inadequate housing), G will be willing to provide help with housing down-payments in order to encourage the production of grandchildren. Thus, the demonstration effect approach generates a demand for grandchildren because potential grandparents expect to be treated better by their adult children if the latter have their own children to whom they can demonstrate appropriate behavior. Cox and Stark (2005) present empirical evidence of behavior that is consistent with subsidizing the production of grandchildren and the demonstration effect.

Consider a daughter with children and a son with children. The son's wife seeks to demonstrate to her children how parents should be cared for. This will discourage her from migrating farther afield from her parents. But why could she not demonstrate the desirable behavior by attending to her parents-in-law, in which case her other migration considerations do not need to come into play? One factor that could work against such a targeting of care-giving is that her children (when becoming P) might follow suit by caring for their parents-in-law, which is not what she will want her demonstration to lead to.

The provision of care to parents by both daughters and sons is influenced by the availability of care from other sources. The generosity of a country's elderly care policies is likely to affect the provision of care within the family, and is likely to impact on mothers' engagement in demonstration effect activities. In particular, we would expect that in a country that caters well for its elderly population, mothers will not have so much of an incentive to demonstrate to their children appropriate care-giving behavior and, consequently, the

hypothesized gender divide in migration outcomes will be weaker. This reasoning implies that in a country in which there is generous state provision for old age, the migration behavior of men who are fathers and women who are mothers will converge to a higher degree than the comparable migration behavior in a country in which state-provided old-age care is meager.

An interesting reinforcing channel of intergenerational transmission of preferences relates to K observing the care-giving behavior of both his mother and his father and noting that care-giving to G is administered by K's mother or, for that matter, by mothers in general. This exposure reinforces the gender difference in response to the demonstration effect acts of P and, consequently, influences K's migration decisions in that it impacts on sons' perception of their own duties and the duties of their wives. So sons become aware that their wives' care-giving obligation toward their own parents is stronger than their obligation toward their parents. Therefore, sons may not object to living close to their parents-in-law, especially if the sons have sisters living near to their parents.

Because the preceding reasoning refers to daughters as mothers, it should not be interpreted to imply that women in general are expected to exhibit the migratory behavior we postulate: an empirical test will be whether the migration behavior of daughters who are mothers differs both from the migration behavior of sons who are fathers and from the migration behavior of childless daughters and sons.

The importance of the presence of K when the "story" begins may diminish as the story progresses. The reason for this is that once K are trained and conditioned to attend to their parents, when K become P and their parents become G, having children in order to ensure that the current P provides attention and care for the current G is not necessary. The presence of children could, of course, serve to reinforce the provision of care due to demonstration effect incentives but, as such, is secondary because care-giving happens because of inculcation, not demonstration.

Other explanations could also be considered. For example, P can provide attention and care to G not by living near G, but by bringing G to live with P. The demonstration effect approach predicts that this is more likely when P want K to treat them similarly. But this possibility does not "crowd out" the migration consideration because it is usually the case that G will prefer to stay in their own home, and P may also not find it feasible or practical to make such an arrangement. A similar consideration applies to placing G in a care home,

especially if P do not want their K to treat them similarly. Thus, on average, the distance consideration still holds.

There is an interesting parallel between the demonstration effect idea and the intergenerational transmission of religiosity (Clark and Worthington, 1987; Hayes and Pittelkow, 1993; Hoge et al., 1982; Ozorak, 1989; Thomson et al., 1992). In the latter context, more frequent attendance at religious services with the children exposes them to religious practice, with the expectation that children who are endowed with more "religiosity capital" will be more likely to be religious as adults. In the religiosity sphere, the transmission of a trait via socialization parallels in our context the transmission of caring for parents via demonstration. In both settings, engagement in shaping preferences involves costs, confers rewards in the form of children behaving like their parents, and requires choices of intensity of socialization and the demonstration effort.

5. Empirical analysis of migration behavior by gender and by parenthood status

We study differences in the distance between the parents' location and that of their adult children caused by the migration of the children. We do this by gender and by parenthood status for individuals who have moved out of the parental home. We use information that we extract from the Survey of Health, Ageing and Retirement in Europe (SHARE). In our analysis, we pool data from four waves (1, 2, 4 and 5), which correspond approximately to years 2004, 2006/2007, 2011/2012, and 2013 (respectively).[6,7] SHARE provides a harmonized longitudinal dataset covering topics related to individual socio-economic status, health, and family relationships. The distinctive feature of the data is that they cover individuals (respondents) aged 50 and over. Because SHARE includes information on the respondents' children and grandchildren, it enables us to track family relationships across three generations.

[6] The exact year for each wave differs from country to country. A detailed description of the dataset and the survey methodology is in Börsch-Supan and Jürges (2005).

[7] In the first two waves of SHARE, information about children is collected about the four oldest children who live in the closest proximity to their parents. In order to check whether this restriction affects our reported results, we studied the distribution of the geographical proximity of children by gender and by parenthood status, and we re-ran the analysis on the basis of a subset of the data which excludes the first two waves of the survey. We found that the restriction does not affect our findings and, thus, we report findings based on an analysis of all four waves of the survey.

5.1. Characteristics of the countries selected for the analysis

The analysis of the distance between the parents' location and that of their children is conducted for four selected countries covered by SHARE data. The countries are divided into two subsets consisting of (1) Denmark and Sweden, and (2) Belgium and France. The selection of the countries and their allocation to the two subsets is motivated jointly by the countries' degree of population mobility, demographic characteristics, and institutional characteristics regarding state support for the elderly, which are all of importance to us in seeking to track behavior that is consistent with the demonstration effect hypothesis.

We confine our analysis to the four countries covered by SHARE that, according to Eurostat data, are characterized by the highest level of mobility, as measured by the proportion of the population that has moved within the past five years. As can be seen in Table 1, the proportion of the population that has moved within the past five years is 22-27 percent in Belgium and France, and 34-40 percent in Denmark and Sweden.[8] Limiting the sample to countries with a high level of population mobility is necessary for our analysis because parenthood is not exogenously given and, consequently, it is possible that an individual chooses first the location of residence, and thereafter decides to bear children. By focusing on countries with high population mobility we focus on countries in which the chances of changing the place of residence after having children are relatively high.[9]

The choice of the four countries is further guided by their similar demographic characteristics concerning old-age dependency ratio, life expectancy of men and women, and gender difference at the age at marriage. As shown in Table 1, in all four countries the old-age dependency ratios of about 24-28 are high, implying that in terms of the proportion of older people, the countries share a similar demographic structure. In the four countries, the life expectancy of men is about 77-79 years, and that of women is about 81-85 years. In Belgium and France women's comparative longevity is somewhat greater than in Denmark and Sweden: in the former countries the gender gap in life expectancy is between 5.6 years and 7 years, whereas in the latter countries it is about 4 years. Other factors being the same, this

[8] Comparable high levels of mobility are observed for Luxembourg (27.2%), Netherlands (24.6%), Germany (21.9%), and Austria (20.2%). The remaining countries covered by SHARE are characterized by much lower population mobility, with the fraction of the population that has moved within the past five years ranging from 15% (Estonia) to 7% (Hungary). Because of low population mobility, we did not include in our analysis Southern European countries and several Central and Eastern European countries even though for these countries SHARE data are available.

[9] Although the SHARE data contain information on the distance between the parents' home and the children's homes, the data do not include information on the migration history of the children. Given this limitation, we elicited information on population mobility at country level from the Eurostat data.

difference could imply that women in Belgium and France have a stronger incentive than women in Denmark and Sweden to engage in demonstration effect activities. Furthermore, in all four countries women marry men who, on average, are older than they are, implying, as already noted in the Introduction, that in old age women are at a higher risk of spending the last years of their life without a spouse, having to depend more on care provided by their children than men do. The average gap between a husband's age and a wife's age in the four countries ranges between 2 and 2.7 years.

We distinguish between the two subsets of the four selected countries also by differences in their old-age policies, as well as in their public perception with regard to the identity of the primary care-giver of the elderly. As shown in Table 1, while in Denmark and Sweden state support for the elderly is quite generous, in Belgium and France the support is relatively weak. In particular, according to information from Eurostat and OECD data, whereas Denmark and Sweden allocate around 2 percent of their GDP to assistance for the elderly, Belgium and France spend on such assistance less than 0.3 percent of their GDP. Information from Eurobarometer (2007) survey data reveals that the populace in these two groups of countries holds contrasting views regarding the role of children as care-providers to their elderly parents. For example, in Belgium and France around 40-50 percent of the respondents agree with the statement that children should support their parents (and pay for their care if the parents' income is insufficient), whereas in Denmark and Sweden fewer than 15 percent of the respondents concur with this statement. Given this difference, and given the relatively high expenditures on elderly care in the two northern countries, we can infer that in these countries elderly care is provided externally, leaving a relatively small role for, and limited expectations with regard to, care provision by the children.

In conclusion, in Denmark and Sweden the existing old-age policies can be characterized as relatively generous, with the state supporting elderly care, whereas in Belgium and France state support for the elderly is relatively meager. The variation in state support for the elderly allows us to assess the role of factors such as the generosity of the welfare state and country-specific perceptions about elderly care, in the strength of the demonstration effect. It might then be expected that the incidence of demonstration effect behavior and of the implications of the demonstration effect model will be more powerful in Belgium and France than in Denmark and Sweden. It is in the former countries, where institutional elderly care is limited, that elderly care is more dependent on the family than in the latter countries.

Table 1. Demographic and institutional indicators for the selected countries

Indicator	Mobility	Demographic characteristics				Old age: expenditures and opinion		
	The proportion of the population that has moved within the past five years	Old-age dependency ratio	Life expectancy at birth - male	Life expectancy at birth - female	Difference between wife's age and husband's age	Expenditures on care for elderly: % of GDP	Expenditures on old age other than cash: % of GDP	Children should pay for the care of their parents if their parents' income is insufficient: % of respondents who agree with the statement
Source	Eurostat (1)	Eurostat (2)	World Bank (3)	World Bank (4)	EU SILC (5)	Eurostat (6)	OECD (7)	Eurobarometer (8)
Denmark	34.3	24.28	77.1	81.2	-2.1	1.7	2.06	12
Sweden	40.2	27.52	79.5	83.5	-2.7	2.35	2.34	15
Belgium	22	26.28	76.9	82.5	-2.2	0.05	0.09	43
France	27	25.7	77.6	84.6	-2.4	0.33	0.31	48

Notes: The old-age dependency ratio represents the share of individuals aged 65+ relative to the share of the working age population. Expenditures on care for the elderly provided by Eurostat represents social protection expenditures devoted to old age care, including expenditures to cover care allowance, accommodation, and assistance in carrying out daily tasks. Expenditures on old age other than cash provided by OECD data represent public and mandatory private expenditures on non-cash benefits (in-kind benefits) for old age. The data presented in columns (1) through (8) refer to / are obtained as follows. The column (1) data are for year 2012, and are extracted from an on-line database available at http://ec.europa.eu/eurostat/data/database. The column (2) data represent a mean value for the years of the SHARE rounds 2004-2013, and are extracted from an on-line database available at http://ec.europa.eu/eurostat/data/database. The data in Columns (3) and (4) represent a mean value for the years of the SHARE rounds 2004-2013, and are extracted from the World Bank World Development Indicators on-line database available at http://databank.worldbank.org/data/. The column (5) data refer to year 2012, and are extracted from the European Union Statistics on Income and Living Conditions. (Referred to as EU SILC, this is an individual (micro) level database distributed by Eurostat on request.) The column (6) data represent a mean value for the years 2004-2008, and are extracted from an on-line database available at http://ec.europa.eu/eurostat/data/database. The column (7) data represent a mean value for the years 2004-2011, and are extracted from an on-line database OECD.Stat available at http://stats.oecd.org/. The column (8) data refer to the year 2007, and are extracted from Eurobarometer (2007).

Table 2. Summary statistics of the key variables for the selected countries

Variable/Country	Denmark		Sweden		Belgium		France	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Variables referring to an individual (P)								
Distance: 0-5 km	0.24	0.427	0.259	0.438	0.375	0.484	0.238	0.426
Distance: 5-25 km	0.278	0.448	0.23	0.421	0.336	0.473	0.233	0.423
Distance: 25-100 km	0.237	0.425	0.185	0.388	0.197	0.397	0.195	0.396
Distance: 100 + km	0.246	0.431	0.326	0.469	0.092	0.289	0.335	0.472
Having children indicator	0.655	0.475	0.66	0.474	0.700	0.458	0.684	0.465
Female	0.509	0.5	0.501	0.5	0.513	0.500	0.500	0.500
Age	39.637	10.931	39.981	10.289	40.438	10.144	40.967	10.969
Married or in a relationship	0.625	0.484	0.702	0.458	0.745	0.436	0.682	0.466
Married but living separately from a spouse	0.009	0.094	0.003	0.054	0.015	0.015	0.014	0.118
Divorced	0.093	0.290	0.065	0.246	0.088	0.284	0.072	0.259
Widowed	0.009	0.094	0.004	0.067	0.013	0.112	0.013	0.113
Working indicator	0.774	0.418	0.835	0.371	0.833	0.373	0.802	0.398
Number of siblings	2.761	1.051	2.829	1.116	2.882	1.228	2.942	1.298
Being the youngest child indicator	0.417	0.493	0.411	0.492	0.403	0.490	0.401	0.490
Education: pre-primary and primary	0.016	0.126	0.014	0.116	0.036	0.185	0.089	0.284
Education: lower secondary	0.109	0.312	0.114	0.318	0.112	0.315	0.068	0.252
Education: upper secondary and secondary non-tertiary	0.432	0.495	0.523	0.499	0.361	0.480	0.406	0.491
Education: first and second stage tertiary	0.443	0.497	0.349	0.477	0.491	0.500	0.437	0.496
Variables referring to an individual's parent (G)								
Presence of a partner	0.606	0.489	0.71	0.454	0.597	0.490	0.550	0.498
Good health indicator	0.745	0.436	0.727	0.446	0.692	0.462	0.600	0.490
Place of living: a big city	0.111	0.314	0.122	0.327	0.091	0.287	0.072	0.258
Place of living: the suburbs or outskirts of a big city	0.157	0.364	0.172	0.378	0.148	0.355	0.126	0.332
Place of living: a large town	0.227	0.419	0.314	0.464	0.134	0.340	0.122	0.327
Place of living: a small town	0.282	0.45	0.222	0.416	0.378	0.485	0.276	0.447
Place of living: a rural area or village	0.225	0.417	0.17	0.376	0.250	0.433	0.404	0.491
Number of observations	12,083		15,017		17,361		16,665	

Note: "Being the youngest child indicator" is a dummy variable equal to one if an individual is the youngest child or the only child in the family, and zero otherwise.

5.2. Econometric approach

A key variable of interest to us, namely the distance between the child's location and the parent's location, is coded in the SHARE data as a categorical variable, where distance is measured by nine categories, ranging from 0 km (including living in the same building), to more than 500 km (including living in another country). Because of the largely unequal distribution of the categories (with several of the categories including quite small numbers of cases), we re-coded this variable and defined four main aggregate categories of distance: 0-5 km, 5-25 km, 25-100 km, and more than 100 km. The mean values of these categories are shown in Table 2. A comparison of the shares of the four distance categories for the analyzed countries reveals that Denmark, Sweden, and France exhibit comparable distributions, whereas Belgium displays relatively greater shares of individuals living 0-5 km and 5-25 away from the parental home. It is plausible that this pattern arises from Belgium being a small country where cities are concentrated within a small radius.

The empirical investigation of migration behavior by gender and parenthood status is done separately for each country and is based on estimation of the following equation:

$$y_i^* = \alpha_0 + \alpha_1 parent_i + \alpha_2 female_i + \alpha_3 \left(parent_i \times female_i \right) + \alpha x_i + \varepsilon_i \qquad (1)$$

where *i* denotes an individual (namely an adult child P, as per the notation used in the preceding sections); y_i^* is a continuous latent variable for the distance between the individual and the individual's parent; the α's are coefficients that will be estimated so as to assess the impact of each variable on y_i^*; and ε_i is an error term. Given that y_i^* is a latent variable, and given that only the categorical variable measuring the distance between an individual's location and her / his parent's location is available in the dataset, we base our analysis on estimation of an ordered logit model and of a set of binary logit models. In the ordered logit model, the categories of the dependent variable are as specified in Table 2: the variable takes a value of 1 if the distance is between 0-5 km, a value of 2 if the distance is between 5-25 km, a value of 3 if the distance is between 25-100 km, and a value of 4 if the distance is greater than 100 km. Because the estimation of the ordered logit model relies on a restrictive assumption of the proportional odds, meaning that the "distance" between adjacent categories is assumed to be the same, we complement the ordered logit analysis with estimations of less restrictive binary logit models in

which the dependent variables are dummy variables recoded on the basis of the four distance categories listed above.[10,11] As a result, three binary logits are specified with the dependent variables defined as: (1) 1 if living farther than 5 km away, and 0 otherwise; (2) 1 if living farther than 25 km away, and 0 otherwise; (3) 1 if living farther than 100 km away, and 0 otherwise.

In all the models, the main independent variables are denoted as *parent, female*, and $parent \times female$. The variables represent, respectively, a dummy variable for parenthood status (1 if an individual has at least one child, 0 otherwise), a dummy variable for gender (1 if an individual is female, 0 otherwise), and a dummy variable obtained from interacting the latter two. In the models, we additionally include a set of control variables, denoted by x_i, that may affect the choice of the migration distance. The control variables include the individual's age, dummy variables for education levels based on the 1997 International Standard Classification of Education (ISCED) codes,[12] a dummy indicator reflecting whether an individual is the youngest child (1 if yes, 0 otherwise), the total number of siblings, a dummy indicator for employment status (1 if an individual is working, 0 otherwise), and four dummy indicators for marital status (1 if the individual is married or has a partner, 0 otherwise; 1 if the individual is married but living separately from a spouse, 0 otherwise; 1 if the individual is divorced, 0 otherwise; 1 if the individual is widowed, 0 otherwise). Because the SHARE data lack information on individuals' incomes, accounting for the individuals' age and education is used to capture the individuals' human capital and, consequently, to indirectly account for the individuals' earning potential. Additionally, we include variables that characterize the parents of the individuals, which may potentially affect the parents' need for care and, consequently, influence the individual's migration choices. These variables are a dummy indicator for parental partnership (1 if the parent is living with a partner, 0 otherwise), a dummy indicator for the parental health condition (1 if at

[10] We tested the validity of the proportional odds assumption in the estimated ordered logit models using the Brant test (1990), and concluded that several independent variables seem to violate the assumption.

[11] Other models that could be used include a multinomial logit model and a generalized ordered logit. As checks of robustness, we also estimated these models. The main conclusions drawn from these tests are consistent with the conclusions presented in the paper. The unreported results are available on request.

[12] The education levels are defined as follows: pre-primary and primary education (ISCED levels 0 and 1); lower secondary or second stage of basic education (ISCED level 2); upper secondary and post-secondary non-tertiary (ISCED levels 3 and 4); and first and second stage tertiary (ISCED levels 5 and 6).

least in good health, 0 otherwise), and dummy variables for the type of place of living.[13] All the models also feature time fixed effects.

The sample is restricted to individuals aged 18 years and older who have moved out of the parental home. The sample size for each country and the country means of the control variables are shown in Table 2. The size of the final sample differs by country, with the largest number of observations for Belgium (17,361), and the smallest number of observations for Denmark (12,083). With regard to several key variables, including gender, parenthood status, and a number of demographic characteristics, the country samples are quite similar. The samples differ, however, in terms of the status of the parents' health: in Belgium and France, the share of parents reporting being in good health is lower than in Denmark and Sweden. This observation could help explain why in Belgium and France children (daughters and sons alike) might be more concerned about, and be more engaged in, the care of their parents than children in Denmark and Sweden: the frail health of G today can serve as a predictor of P's health status tomorrow, leading to greater worry and a stronger inclination to secure support later on when P become G.

As per equation (1), in the estimated models we account for parenthood status, for gender, and for an interaction term between these two variables, which allows us to test whether the migration behavior of daughters who have children is different from the migration behavior of sons who have children, as well as from the migration behavior of childless daughters and sons. Specifically, we compare the "migration proximity" of the "group" of daughters that have children with the other three "groups," in order to unravel whether:

1. Daughters who have children (mothers) move closer to their parents' location than childless daughters (non-mothers);
2. Daughters who have children (mothers) move closer to their parents' location than sons who have children (fathers);
3. Daughters who have children (mothers) move closer to their parents' location than childless sons (non-fathers).

[13] It might be expected that parents who live together with a partner will have less need to be cared for by their children. Parents who are in good health may also have less need for such care. And likewise in the case of parents who live in urban areas where institutional elderly support is more readily available than in rural areas.

To test for differences in migration behavior, we perform a one-sided test for the significance of the linear combination of coefficients. The null hypothesis states that the estimated effect on the location choice is the same for the "group" of daughters who have children and for a specific other "group" (out of the three remaining "groups"). The alternative hypothesis states that the estimated effect for the "group" of daughters with children is lower than the estimated effect for a specific other "group." The alternative hypothesis reflects a constellation where daughters who have children choose to live closer to their parents' home than a specific other "group." In particular, the hypotheses corresponding to the above listed expectations of the migration behavior of daughters with children are specified as follows (using the notation of the coefficients from equation (1)):

1. H0: $\alpha_1 + \alpha_3 = 0$, against H1: $\alpha_1 + \alpha_3 < 0$;
2. H0: $\alpha_2 + \alpha_3 = 0$, against H1: $\alpha_2 + \alpha_3 < 0$;
3. H0: $\alpha_1 + \alpha_2 + \alpha_3 = 0$, against H1: $\alpha_1 + \alpha_2 + \alpha_3 < 0$.

The empirical approach specified above could have been strengthened if, additionally, the analysis could be run by the gender of a child (K). As shown by Mitrut and Wolff (2009), the strength of the demonstration effect differs by the gender of the child, and it is strongest for mothers of daughters. The SHARE dataset does not, however, provide us with information on the gender of K.

5.3. Results

In Table 3 we report p-values calculated for the three tests described in the Subsection 5.2, and for the four models used in the estimation, namely the ordered logit model and the three binary logit models. Because our interest is in the significance of the differences in the migration proximity between the "groups" of individuals rather than in the significance of the estimated coefficients, detailed estimated results for each country are relegated to Appendix B.[14]

[14] The size and significance of the coefficients on the variables included in the equations vary across countries and models. However, several consistent patterns regarding the effect of the variables can be ascertained. In particular, the coefficients on the interaction variable between gender and parenthood status suggest that the chances of living farther away from the parental home are significantly lower for women with children. The chances are also lower for individuals who work, and for individuals whose parents reside in urban areas. On the other hand, individuals who have a larger number of siblings, individuals who are better educated, and individuals whose parents are in good health, are more likely to live farther away from the parental home. Perhaps P who note that their parents, G, are in

The results related to the first hypothesis reveal small p-values for all countries, irrespective of the model used for estimation. This finding is in line with our hypothesis that daughters who have children are likely to migrate for a shorter distance from their parental home than otherwise comparable daughters who do not have children.

As for the second hypothesis, we find some support for the argument that daughters who are mothers choose to live closer to their parents than sons who are fathers; in particular, small p-values obtained from testing this hypothesis for Belgium and France indicate that for these countries, the argument is supported. Such an inference cannot be made, however, for Denmark and Sweden where the absence of a difference in migration behavior between daughters with children and sons with children might be related to the generosity of old-age policies in these countries: as a consequence of a well-developed welfare state that caters more extensively for the elderly, mothers do not need to engage in demonstration effect activities, so the migration behavior of men who are fathers and the migration behavior of women who are mothers tend to converge. In Belgium and France, where state support for elderly care is weaker, and to a greater extent care is provided within the family, the demonstration effect manifests itself more strongly, and a gender divide in migration behavior ensues.

Finally, the p-values for the third hypothesis, presented in the third panel of Table 3, are small, suggesting that we should reject the null hypothesis of the equality of the migration behavior of daughters who are mothers and childless sons. For Belgium, France, and Sweden, small p-values are found, irrespective of the model used for estimation. For Denmark the p-values are somewhat greater, especially in the case of the first binary logit model.

In conclusion, the results presented in Table 3 are in line with the prediction of the model: compared to childless daughters, childless sons, and sons who have children, daughters who are mothers live closer to their parents' location. The gender divide in the migration outcomes between children that already have their own children appears to be linked to the generosity of the welfare state, and is observed only in Belgium and France. Given the relatively low state support for elderly care and the relatively high comparative longevity of women in these countries, our findings suggest that women residing in these countries are more likely to engage in demonstration effect activities, leading to differentiation in migration behavior by gender.

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good health have a reduced concern that they, as G, will require attention and care from their own children and, therefore, their motivation to demonstrate is reduced.

Table 3. P-values for tests of the significance of the linear combination of the coefficients on a parenthood dummy, a female dummy, and their interaction obtained from country-specific estimations of the ordered logit model and the set of binary logit models

Country / Model	Ordered logit		Binary logit (1)		Binary logit (2)		Binary logit (3)	
	P-value	Conclusion	P-value	Conclusion	P-value	Conclusion	P-value	Conclusion
Test 1: Daughters with children (mothers M) migrate closer than daughters with no children (non-mothers NM)								
Denmark	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$
Sweden	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$
Belgium	0.000	$d_M<d_{NM}$	0.018	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.002	$d_M<d_{NM}$
France	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$	0.000	$d_M<d_{NM}$
Test 2: Daughters with children (mothers M) migrate closer than sons with children (fathers F)								
Denmark	0.394	H0 not rejected	0.804	H0 not rejected	0.616	H0 not rejected	0.012	$d_M<d_F$
Sweden	0.316	H0 not rejected	0.634	H0 not rejected	0.450	H0 not rejected	0.160	H0 not rejected
Belgium	0.000	$d_M<d_F$	0.000	$d_M<d_F$	0.000	$d_M<d_F$	0.003	$d_M<d_F$
France	0.009	$d_M<d_F$	0.002	$d_M<d_F$	0.037	$d_M<d_F$	0.101	H0 not rejected
Test 3: Daughters with children (mothers M) migrate closer than sons with no children (non-fathers NF)								
Denmark	0.008	$d_M<d_{NF}$	0.504	H0 not rejected	0.003	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$
Sweden	0.000	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$	0.003	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$
Belgium	0.000	$d_M<d_{NF}$	0.001	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$
France	0.000	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$	0.000	$d_M<d_{NF}$

Notes: The columns labeled "Conclusion" represent the final conclusion based on the p-value from the respective tests assuming a maximum significance level of 0.10. The statistical inference is based on cluster-robust standard errors.

6. Complementary reflections

Several reservations and remarks concerning both the data and the analysis are called for.

The data do not provide answers to the explicit question "Is the demonstration effect a reason for your choice of distance from the parental home?"[15] This means that the reported

[15] The data include, however, answers to two questions that relate to the relationship between parents (G) and their children (P). To a certain extent, these answers provide information on the attention and care provided by P to G when demonstrating to K. The first question relates to the frequency of contact with a given child either personally, by phone or mail. The second question concerns the amount of help (including personal care, practical household care, or help with paperwork) received from a given child. Supplementary tests, based on the ordered logit model, for the link between children's gender and parenthood status and the frequency of their contact with their parents reveal that in the four countries examined, daughters who are mothers stay in closer contact with their parents than childless daughters, childless sons, and sons who are fathers. Similar tests of the provision of help confirm that in Belgium and

differences between the countries may be attributed also to factors other than the extent of individual engagement in demonstration activities. In particular, it could be argued that the proximity that is at the heart of this paper is attributable to a preference of parents, P, with children, K, to live near the grandparents because of the potential assistance that P could receive from G in caring for K, rather than to the urge of P to demonstrate care for G (Rogerson et al., 1993; Compton and Pollak, 2014). The differences between countries in the effect of gender / parenthood on location choices may also be driven by social norms and, in particular, by gender norms: because of the traditional perceptions of women and their role in society in terms of care provision, daughters will be more likely than sons to care for their parents in the latters' old age and, thus, they will be more likely than sons to live close to their parents. The finding that daughters with children live closer to their parents' home than childless daughters can also be influenced by the extent of conformity to existing norms. In particular, in deciding to have children, daughters, as mothers, may be more likely than childless daughters to conform to social pressures concerning the roles of women. Consequently, because of greater adherence to social norms, daughters with children might be more likely to care for their parents in their old age and, thereby, to live closer to their parents than childless daughters.[16]

The countries selected for our analysis differ with respect to childcare arrangements and related perceptions of gender roles (Table 4). Data provided by Eurostat reveal that Denmark and Sweden are characterized by one of the highest shares of children aged 0-3 who are covered by formal childcare. In contrast, in Belgium and France it is more common to draw on informal childcare, including assistance provided by the grandparents. Similarly, in Belgium and France we observe perceptions of gender roles that are somewhat more traditional than in Denmark and Sweden. These differences could imply that in Belgium and France, children who are parents, namely both daughters who are mothers and sons who are fathers, might have a stronger predisposition to live close to their parents in order to receive help with childcare than

France where, due to relatively low provision of institutional elderly care, women's engagement in demonstration is expected to be greater than in Denmark and Sweden, daughters who are mothers are more likely to provide help to their parents than childless sons and sons who are fathers. Detailed results from the supplementary tests are available from the authors on request.

[16] Empirically it is, however, difficult to separate the factor role of individual conformity to social norms from the factor individual engagement in demonstration activities which are correlated with parenthood, because both factors are not directly observed in the data.

comparable daughters and sons in Denmark and Sweden, where informal family childcare is not common.

Table 4. Childcare indicators for the selected countries

Country / Indicator	Childcare			Perceptions of gender roles	
	Formal childcare - children aged 0-3: % coverage rate	% of children using informal childcare arrangements during a typical week: children aged 0-2	% of children using informal childcare arrangements during a typical week: children aged 3-5	% of population agreeing with the statement that a pre-school child suffers when a mother works	% of population agreeing with the statement that men are less competent than women at performing household tasks
Source	Eurostat (1)	OECD Family database (2)		European Value Survey and International Social Survey Program (3)	Eurobarometer (4)
Denmark	72.63	0.00	0.00	24	22
Sweden	51.25	0.27	0.42	19	30
Belgium	40.63	19.36	21.79	38	36
France	37.25	17.36	19.26	41	31

Notes: Formal childcare represents the percent of children aged 0-3 covered by care provided by public and private institutions. Informal childcare represents the percent of children receiving informal care that is usually provided by a grandparent or by other relatives, friends, or neighbors. The latter category excludes any care that is paid for, regardless of who provides the paid care. The data presented in columns (1) through (4) refer to / are obtained as follows. The data in column (1) represent a mean value for the years 2005-2012, and are extracted from an on-line database available at http://ec.europa.eu/eurostat/data/database. The Column (2) data are for the year 2014, and are extracted from an on-line database OECD Family Database available at http://www.oecd.org/els/family/database.htm. The column (3) data represent a mean value for the years 2002, 2008 and 2012, and are extracted from European Value Survey for 2008, available at http://www.europeanvaluesstudy.eu/ and International Social Survey Program for 2002 and 2012, available at http://www.issp.org/menu-top/home/. The column (4) data refer to the year 2014, and are extracted from Eurobarometer (2015).

An empirical check of the relevance of an alternative hypothesis concerning potential gains from grandparents' childcare assistance could be carried out in several ways. In Table 5 we present additional p-values obtained by testing for differences between the location of daughters with children and the location of childless daughters, sons with children, and childless sons. The reported values are for robustness checks that we performed in order to disentangle the demonstration effect from the effect of grandchild care assistance provided by the grandparents.

Table 5. P-values obtained for robustness tests of the significance of differences in migration behavior of daughters with children, childless daughters, childless sons, and sons with children

Country / Model	Ordered logit	Binary logit (1)	Binary logit (2)	Binary logit (3)	Ordered logit	Binary logit (1)	Binary logit (2)	Binary logit (3)	Ordered logit	Binary logit (1)	Binary logit (2)	Binary logit (3)
Test 1: Daughters with children (mothers M) migrate closer than daughters with no children (non-mothers NM)					**Test 2: Daughters with children (mothers M) migrate closer than sons with children (fathers F)**				**Test 3: Daughters with children (mothers M) migrate closer than sons with no children (non-fathers NF)**			
Sub-sample of childless individuals and individuals with children older than 3 years												
Denmark	0.000	0.001	0.000	0.000	0.584	0.855	0.831	0.018	0.036	0.679	0.023	0.001
Sweden	0.000	0.000	0.000	0.000	0.551	0.834	0.699	0.207	0.000	0.006	0.008	0.000
Belgium	0.000	0.024	0.000	0.002	0.000	0.000	0.000	0.008	0.000	0.004	0.000	0.000
France	0.000	0.000	0.000	0.002	0.030	0.010	0.068	0.165	0.000	0.001	0.000	0.000
Sub-sample of childless individuals and individuals with children older than 6 years												
Denmark	0.000	0.001	0.000	0.000	0.536	0.806	0.782	0.022	0.030	0.620	0.023	0.001
Sweden	0.000	0.000	0.000	0.000	0.629	0.909	0.651	0.251	0.000	0.009	0.008	0.000
Belgium	0.000	0.012	0.000	0.001	0.000	0.000	0.000	0.024	0.000	0.002	0.000	0.000
France	0.000	0.000	0.000	0.006	0.094	0.044	0.145	0.274	0.000	0.002	0.000	0.000
Sub-sample of individuals whose parents are in poor health												
Denmark	0.010	0.249	0.001	0.029	0.356	0.580	0.456	0.058	0.193	0.703	0.219	0.011
Sweden	0.000	0.008	0.001	0.000	0.389	0.764	0.422	0.067	0.018	0.143	0.150	0.001
Belgium	0.001	0.017	0.001	0.088	0.008	0.013	0.058	0.044	0.014	0.057	0.012	0.046
France	0.001	0.002	0.000	0.025	0.112	0.073	0.328	0.190	0.016	0.109	0.015	0.024
Sub-sample of childless individuals and individuals with children that are not cared for by their grandparents “almost daily”												
Denmark	0.000	0.000	0.000	0.000	0.419	0.817	0.641	0.014	0.010	0.525	0.004	0.000
Sweden	0.000	0.000	0.000	0.000	0.363	0.689	0.494	0.171	0.000	0.001	0.007	0.000
Belgium	0.011	0.178	0.003	0.013	0.000	0.000	0.002	0.007	0.004	0.048	0.003	0.002
France	0.000	0.000	0.000	0.004	0.051	0.013	0.120	0.226	0.000	0.013	0.000	0.000
Sub-sample of childless individuals and individuals with children that are not cared for by their grandparents “almost daily” or not cared for “almost every week”												
Denmark	0.000	0.014	0.000	0.000	0.238	0.694	0.503	0.007	0.227	0.912	0.130	0.015
Sweden	0.000	0.004	0.000	0.000	0.529	0.774	0.646	0.295	0.039	0.209	0.431	0.001
Belgium	0.793	0.904	0.640	0.554	0.001	0.002	0.014	0.025	0.725	0.795	0.659	0.340
France	0.424	0.349	0.140	0.685	0.361	0.112	0.434	0.604	0.134	0.804	0.214	0.016
Sub-sample of individuals whose parents have more than two grandchildren												
Denmark	0.000	0.000	0.000	0.000	0.381	0.744	0.630	0.022	0.020	0.518	0.011	0.002
Sweden	0.000	0.000	0.000	0.000	0.382	0.616	0.532	0.221	0.000	0.004	0.051	0.000
Belgium	0.000	0.016	0.000	0.005	0.001	0.002	0.008	0.012	0.000	0.001	0.000	0.001
France	0.000	0.000	0.000	0.000	0.101	0.038	0.271	0.248	0.000	0.002	0.000	0.000
Sub-sample of individuals whose parents have more than three grandchildren												
Denmark	0.000	0.001	0.000	0.000	0.437	0.812	0.559	0.031	0.022	0.512	0.011	0.003
Sweden	0.000	0.002	0.000	0.000	0.891	0.900	0.942	0.684	0.020	0.064	0.311	0.002
Belgium	0.003	0.031	0.003	0.041	0.015	0.022	0.060	0.127	0.001	0.005	0.002	0.012
France	0.000	0.003	0.000	0.003	0.328	0.260	0.449	0.466	0.000	0.042	0.000	0.000

First, consideration of the age of the children could help distinguish between these two effects, as the age of the children at which assistance from the grandparents in caring for them is most valuable differs from the age of the children at which their amenability to demonstration is the highest; in the former case the children are younger than in the latter (Stark, 1999). Thus, if consideration of the former type is the determinant of proximity then, as the children mature, there will be no reason to limit the distance from the parental home, while retaining proximity will be more in line with the demonstration effect motive. Reasoning in this way, it might be expected that the location choices of parents whose children are not too young to require much care by other family members including the grandparents, yet are old enough to be inculcated (for example by means of being taken to visit the grandparents) are not driven by considerations of grandparents' childcare provision but, rather, by demonstration effect considerations. Constraining the sample to P with K who are at an age in which P could gain considerably less from G caring for K thus enables us to substantially discount childcare as a potential determinant of the location choices of P, and to test whether differences in migration behavior by gender and by parenthood status still hold. The SHARE dataset enables us to elicit information concerning the age of the youngest child (K) of an individual (P). Thus, it is possible to exclude from the analysis individuals (P) whose youngest child (K) is of an age at which grandparents' care is highly valued. We consider this age to be up to three years, and we therefore re-ran the analysis for the sub-sample consisting of childless individuals and individuals who have children that are older than three years. The p-values obtained are different from the ones presented in the preceding subsection, but they indicate that the main conclusions continue to hold: in all four countries, daughters who are mothers tend to live closer to their parents than childless daughters and sons, and in Belgium and France they also choose to live closer to their parents than sons who are fathers (refer to Table 5). This evidence speaks in favor of the demonstration effect hypothesis rather than supporting the notion of proximity being governed by considerations of potential gains from grandparents' childcare assistance. We also restrict the sample to individuals with children of school age (older than six). This restriction yields different p-values for the three tests of differences in the probability of moving farther away from the parental home between daughters who are mothers and the remaining categories. The main conclusions, however, still hold (refer to Table 5).

Another strategy for testing the hypothesis of location choices, based on potential gains from grandparents' childcare, would be to examine the proximity between grandparents and their children while focusing only on grandparents who are not in a physical condition to be able to provide childcare. Such a test will require restricting the sample to grandparents who are in poor health, which is also possible when using the SHARE data.[17] When we did that, we still found significant differences between the location of daughters who are mothers and the location of childless daughters, but less evidence of difference between the location of daughters who are mothers and the locations of childless sons and sons who are fathers.

In a similar way, instead of considering the grandparents' ability to provide care for their grandchildren, it would be reasonable to explore the actual provision of such care. Obviously, if the grandparents do not provide childcare, then the parents do not receive benefits in the form of such assistance, and the parents' choice of location in relation to the grandparents' home will not be affected by such benefits. The SHARE data contain information on the intensity of the grandparents' care for the grandchildren, so it is possible to restrict the analysis to individuals whose parents do not engage in care for their grandchildren on a regular basis. The migration behavior of such individuals should be expected to be less affected by the potential gains from obtaining grandparents' care and, thus, to a greater extent be driven by demonstration activities. We considered regular grandparents' childcare as a care that is provided "almost daily," and we dropped from the sample daughters and sons who have children that are cared for by their grandparents on a daily basis.[18] As shown in Table 5, with the exception of the first binary logit for Denmark, the results reaffirm the finding of a difference between the location of daughters with children and the location of childless sons. Similarly, with the exception of the first binary logit for Belgium, we found a significant difference between the location of daughters who are mothers and the location of childless daughters. With regard to comparisons between the location of daughters who are mothers and the location of sons who are fathers, we found a significant difference for Belgium, but less stark difference for France. In terms of the intensity of childcare provided by the grandparents, we also imposed a less stringent restriction, dropping from the

[17] It might be argued that focusing on very old grandparents could also help to separate the demonstration effect from grandparents' childcare assistance. Focusing on very old grandparents, however, implies that the sample is limited not only to very old first generation but also to old second and third generations. In other words, parents themselves and their children are likely to be old when grandparents are very old.

[18] Grandparents' care refers to care that the grandparents provide to the grandchildren when the parents are not present.

sample daughters and sons who have children that are cared for by their grandparents "almost daily" or "almost every week." This resulted in reduced differences between the location of daughters who are mothers and the location of the other three groups of individuals. Such a finding could possibly stem from the fact that grandparents' care that is provided "almost every week" can also be given during weekly visits that are motivated by demonstration effect considerations.

We also conducted a test aimed at exploring the competition among grandchildren for grandparents' care. It might be postulated that when there are more grandchildren, the grandparents' care is likely to be more dilute than when there is only one grandchild. Thus, when we consider individuals whose parents have many grandchildren and still find differences in the location proximity of daughters who are mothers, childless daughters and sons, and sons who are fathers, we could conjecture that the differences are likely to arise from demonstration activities and not from grandparents' provision of childcare. We imposed two restrictions in terms of the number of grandchildren, thereby limiting the sample to individuals: (1) whose parents have more than two grandchildren, and (2) whose parents have more than three grandchildren. When we confined the sample to individuals whose parents have more than two grandchildren, then for all four countries we still found significant differences between the location of daughters who are mothers and the location of childless daughters and childless sons. The differences between the location of daughters who are mothers and the location of sons who are fathers were also still significant for Belgium, but not for France. When we ran the analysis for the sample that is restricted to individuals whose parents have more than three grandchildren, we obtained somewhat larger p-values in all the tests, yet the main conclusions remained unaffected.

Finally, to disentangle the demonstration effect from childcare provided by the grandparents, we exploited the longitudinal nature of the SHARE data and examined changes in migration over time. If the reason for staying close to the parental home is assistance with childcare provided by the grandparents, we can expect that parents will tend to move farther away from the grandparents' home when their children (and they) get older. After all, if the value of care provided by the grandparents for very young grandchildren is a reason for proximity then, once the children mature, that value will diminish greatly, and migration farther afield will be likely to take place. If demonstration is the cause of proximity, then it will be bad to signal to K that the reason for locating near G is to exploit the K-care services of G rather than for P to care

for G. Thus, if demonstration is the motive, we will not expect to observe intensified migration as would be the case when the motive is grandparent assistance with childcare. The SHARE data allow us to follow individuals for four waves, over a time span of approximately ten years. One limitation of using the SHARE data for tracking change in migration patterns is the measurement of distance in the form of categories. Because this measure is not precise, we observe only changes across aggregate distance categories, and it is possible that there are more frequent changes in location which we are unable to identify. In our sample, for the four countries combined, there are 4,587 individuals and 3,410 parents who in the ten-year time span covered by the four data waves changed their location. The proportion of parents who move far away is higher than 50 percent, but the migration behavior of parents is not distinct from and, in particular, is not more intensified than the migration behavior of childless individuals.

In conclusion, the results obtained from the auxiliary tests aimed at distinguishing the effect of demonstration activities from the effect of potential gains from grandparents' childcare assistance reaffirm our findings that in all four countries, daughters who are mothers choose to live closer to their parents than childless daughters and childless sons. While the role of grandparents' care in driving the difference in the migration behavior of daughters who are mothers and sons who are fathers is also marginal in Belgium, in France we find mixed results, which suggest that grandparents' care assistance could partially influence the location choices of fathers and mothers.

7. Conclusions

We presented a hypothesis that links negatively the optimal migration distance from the parents' home and the importance attached to care to be received from children in the future. We conjectured that daughters who are mothers have a stronger incentive than sons who are fathers, childless daughters, and childless sons to demonstrate to their children appropriate care-giving to parents, and that because proximity to parents renders such a demonstration more effective and less costly, we predicted that the migration distance away from the parental home will be shorter for women who are mothers than for the other three groups.

We obtained empirical support for these predictions. Using SHARE data on the distance between the location of parents and the location of their children who moved out of the parental

home, we found that daughters who have children choose to live closer to their parents' home than otherwise comparable childless daughters, childless sons, and sons who have children. We also found that the difference between the migration behavior of daughters who are mothers and sons who are fathers is related to the extent of the generosity of the welfare state. In particular, the difference is observed in Belgium and France, where state support for the elderly is weak, and care is mostly provided within the family, but not in Denmark and Sweden, where institutional elderly care is generous. The observed differences are quite robust to the econometric model selected for analysis. In addition, the main conclusions hold when, to a large extent, we control for grandparents' childcare assistance as a determinant of proximity.

Our model and findings bear on migration research in a number of ways.

First, a prediction of migration outcomes that fails to take into consideration female migration inertia stemming from demonstration effect activities will be biased because it will overestimate the likelihood of female migration.

Second, because women who are mothers engage in demonstration effect activities and, therefore, hesitate to migrate, they may well reach different conclusions than men who are fathers as well as childless men and childless women, when making decisions concerning geographical mobility. For example, it cannot be excluded that women who are mothers will to a greater extent than the other three categories turn down a career move that requires them to redeploy and, thus, move away or farther away from their parents. In settings in which institutional childcare is patchy, women who are mothers and who seek to participate in the labor force might be better able to achieve this goal if they live near their mother's home and receive some childcare assistance (Compton and Pollak, 2014). This consideration still leaves space for the demonstration effect approach to bite because if this effect is strong and the facilitation of labor market participation effect is weak, we will not discern a significant difference in migration behavior between mothers who participate in the labor force and those who do not.

Third, we add to the line of work which states that there is more to migration than a response to wage differentials (Stark, 1993). We attribute migration behavior to a taste variable, namely we hypothesize that daughters with children reveal distaste for migrating far from the parental home.

Fourth, we point to the usefulness of future research into the influence of the scarcity of public goods (here public provision of old-age care) on migration patterns.

The availability of more refined data than the ones used in this paper will facilitate additional tests of our hypothesis. For example, we could inquire whether in the absence of parents (deceased before their daughters had children) the migration pattern of women with children is similar to that of men with children and childless women and childless men. Specifically, we could test whether, in the absence of parents, women with children choose their place of residence on the same basis as the other three categories.

In closing, it has occurred to us that several of the ailments that nowadays afflict the elderly (dementia, Alzheimer's) require emotional support not less than physical treatment. In this respect, children are better providers, even when institutional care is provided by the state, or even when there are financial means to pay for institutional care. Consequently, instilling in children today the predisposition to care for their parents tomorrow can become especially important. Thus, the return from engagement in demonstration effect activities will not diminish even if and when the state assumes a greater role in old age care.[19]

[19] In a November 27 / December 4, 2017 article, Time magazine aptly noted that "When Congress [in the US] created Medicare and Medicaid in 1965 [as safety nets for older Americans], it was still common for people to die of acute medical issues like heart attacks; now many survive those traumas and go on to live . . . for decades longer."

Appendix A: Modeling the value of care to be received in old age and the choice of migration distance

Consider an individual who belongs to the cohort of parents, P. She (he) seeks to maximize her (his) expected utility, $EU(x,d)$, where x is the intensity of care that P provides to G, and d is the distance between the location to which P migrates and the parental household. Suppose that with probability $\pi(x)\in(0,1)$, K will imitate P's care-giving behavior, whereas with probability $1-\pi(x)$, K will choose to give to P some level of care, y, independently of the values of x and d. P derives utility from the future care to be received from K, and from income obtained in the location to which P migrates, with corresponding weights w and $(1-w)$, where $w\in(0,1)$, and disutility from the cost of engaging in effective demonstration activities. We seek to obtain a relationship between the distance, d, and the weight, w, which is attached to the utility derived from care received.

In this setting, the expected utility function that P maximizes is

$$\begin{aligned} EU(x,d) = {} & \pi(x)[wf(x)+(1-w)a(d)-c(d,x)] \\ & +[1-\pi(x)][wf(y)+(1-w)a(d)-c(d,x)] \end{aligned} \tag{A1}$$

where $\pi(x)$ is an increasing function; $f(\cdot)$ is an increasing function that converts care expected in the future to utility; $a(d)$ is the utility from income earned in the location at distance d from P's parental home (because we take it that migration occurs, $a(d)$ is greater than $a(0)$ for some positive values of d); and $c(d,x)$ represents the cost of engaging in effective demonstration activities, which increases in both its arguments. The functions π, f, a, and c are continuously twice differentiable with respect to their arguments. We further assume that

$$c(d,x) = b(d)g(x) \tag{A2}$$

where the functions $b(d)$ and $g(x)$ are increasing and continuously differentiable. P chooses both x and d so as to maximize her (his) expected utility as given in (A1).

After inserting (A2) into (A1) and rearranging, (A1) takes the form

$$EU(x,d) = \pi(x)wf(x)+[1-\pi(x)]wf(y)+(1-w)a(d)-b(d)g(x). \tag{A3}$$

We assume that functions π, f, a, b, g and the values of the parameter w considered are such that the maximization problem has a unique internal solution. The first order conditions of the maximization problem are

$$EU_x(x,d) = \pi_x(x)wf(x) + \pi(x)wf_x(x) - \pi_x(x)wf(y) - b(d)g_x(x) = 0 \tag{A4}$$

and

$$EU_d(x,d) = (1-w)a_d(d) - b_d(d)g(x) = 0. \tag{A5}$$

Using the implicit function theorem, we can express x which is a solution to (A5) as a function of d, namely $x = x(d)$, and rewrite equation (A5) as

$$EU_d(x(d),d) = 0. \tag{A6}$$

Differentiating (A6) with respect to d yields

$$EU_{dx}(x(d),d)x_d(d) + EU_{dd}(x(d),d) = 0, \tag{A7}$$

which can be rewritten as

$$x_d(d) = -\frac{EU_{dd}(x(d),d)}{EU_{dx}(x(d),d)}. \tag{A8}$$

Thus, the first order conditions (A4) and (A5) are equivalent to the condition

$$\begin{aligned} &EU_x(x(d),d) \\ &= \pi_x(x(d))wf(x(d)) + \pi(x(d))wf_x(x(d)) - \pi_x(x(d))wf(y) - b(d)g_x(x(d)) = 0. \end{aligned} \tag{A9}$$

Equation (A9) gives the optimal distance d^* as a function of the parameter w, which we can express as $d^* = d^*(w)$. Thus, the optimal care given is $x^* = x(d^*(w))$. Equation (A9) can then be written as

$$\begin{aligned} &EU_x(x(d^*(w)),d^*(w)) = \pi_x\left(x(d^*(w))\right)wf\left(x(d^*(w))\right) \\ &+\pi\left(x(d^*(w))\right)wf_x\left(x(d^*(w))\right) - \pi_x\left(x(d^*(w))\right)wf(y) - b(d^*(w))g_x\left(x(d^*(w))\right) = 0. \end{aligned} \tag{A10}$$

We differentiate (A10) with respect to w, and obtain

$$\begin{aligned}&\pi\left(x(d^*(w))\right)f_x\left(x(d^*(w))\right)+\pi_x\left(x(d^*(w))\right)\left[f\left(x(d^*(w))\right)-f(y)\right]\\&+d_w^*(w)\left[x_d(d^*(w))EU_{xx}(x(d^*(w)),d^*(w))+EU_{xd}(x(d^*(w)),d^*(w))\right]=0\end{aligned}\tag{A11}$$

which can be rearranged into

$$d_w^*(w)=-\frac{\pi\left(x(d^*(w))\right)f_x\left(x(d^*(w))\right)+\pi_x\left(x(d^*(w))\right)\left[f\left(x(d^*(w))\right)-f(y)\right]}{x_d(d^*(w))EU_{xx}(x(d^*(w)),d^*(w))+EU_{xd}(x(d^*(w)),d^*(w))}.\tag{A12}$$

We naturally assume that the intensity of care chosen by P so as to set in motion the demonstration effect, $x(d^*(w))$, is higher than the intensity of care to be provided by K to P independent of the demonstration effect, y, namely we assume that $x(d^*(w))>y$. Because the functions f and π are increasing ($f_x(\cdot)>0,\pi_x(\cdot)>0$), we then know that the numerator in (A12) is positive.

We use (A8) to establish that the denominator in (A12) is positive too:

$$\begin{aligned}&x_d(d^*(w))EU_{xx}(x(d^*(w)),d^*(w))+EU_{xd}(x(d^*(w)),d^*(w))\\&=-\frac{EU_{dd}(x(d^*(w)),d^*(w))}{EU_{dx}(x(d^*(w)),d^*(w))}EU_{xx}(x(d^*(w)),d^*(w))+EU_{xd}(x(d^*(w)),d^*(w))\\&=\frac{-1}{EU_{dx}(x(d^*(w)),d^*(w))}\begin{bmatrix}EU_{dd}(x(d^*(w)),d^*(w))EU_{xx}(x(d^*(w)),d^*(w))\\-EU_{xd}(x(d^*(w)),d^*(w))EU_{dx}(x(d^*(w)),d^*(w))\end{bmatrix}.\end{aligned}\tag{A13}$$

We know that the term in square brackets in (A13) is positive because this term is one of the second order conditions of the maximization (the determinant of the Hessian matrix of $EU(x,d)$ has to be positive when evaluated at $(x,d)=(x^*,d^*)$). In addition, from differentiation of (A3) with respect to d and x, it follows that

$$EU_{dx}(x(d^*(w),d^*(w))=-b_d(d^*(w))g_x\left(x(d^*(w))\right)<0,\tag{A14}$$

because the functions b and g are increasing. Thus, the denominator in (A12) is positive. We conclude then that (A12) must be negative, namely

$$d_w^*(w)<0.\tag{A15}$$

Inequality (A15) displays the relationship between the distance, d, and the weight, w, attached to the utility derived from the future care to be received from K: the higher the weight, the smaller the distance chosen by P.

We postulate that the weight attached by a female P (a daughter) to the utility derived from care to be received in the future from K, $w_f \in (0,1)$, is higher than the weight attached by a male P (a son) to the utility derived from care to be received in the future from K, $w_m \in (0,1)$, namely $w_f > w_m$. Assuming that for all $w = \{w_f, w_m\}$ the maximization problem has a unique internal solution, condition (A15) ensures that

$$d^*(w_f) < d^*(w_m) \tag{A16}$$

namely daughters who are mothers choose to live closer to their parents than comparable sons.

Appendix B: Coefficients and standard errors obtained from estimating ordered logit and binary logit models for each country

Table B. 1. Estimated coefficients from the ordered logit model by country

Variable	Denmark coef/se	Sweden coef/se	Belgium coef/se	France coef/se
Parent	-0.165**	-0.276***	-0.048	-0.287***
	(0.074)	(0.065)	(0.065)	(0.066)
Female	0.297***	0.246***	-0.034	-0.046
	(0.078)	(0.070)	(0.073)	(0.070)
Parent x female	-0.313***	-0.270***	-0.190**	-0.073
	(0.093)	(0.083)	(0.086)	(0.084)
Age	0.002	0.004	-0.010***	0.007***
	(0.003)	(0.003)	(0.003)	(0.003)
Education: lower secondary	0.283*	-0.149	-0.248**	0.154
	(0.172)	(0.162)	(0.106)	(0.104)
Education: upper secondary and secondary non-tertiary	0.490***	0.010	-0.142	0.157*
	(0.165)	(0.159)	(0.100)	(0.081)
Education: first and second stage tertiary	1.013***	0.766***	0.386***	0.946***
	(0.167)	(0.162)	(0.101)	(0.086)
Married or in a relationship	0.018	-0.001	-0.007	0.006
	(0.051)	(0.053)	(0.056)	(0.046)
Married but living separately from a spouse	0.430**	-0.150	0.153	0.041
	(0.209)	(0.330)	(0.153)	(0.148)
Divorced	0.219**	0.069	0.130	0.008
	(0.086)	(0.094)	(0.081)	(0.085)
Widowed	0.479*	-0.047	0.087	0.285
	(0.278)	(0.309)	(0.212)	(0.197)
Working indicator	-0.210***	-0.319***	-0.218***	-0.189***
	(0.054)	(0.050)	(0.053)	(0.048)
Number of siblings	-0.006	0.063**	0.071***	-0.007
	(0.030)	(0.026)	(0.022)	(0.021)
Being the youngest child indicator	-0.076	-0.044	-0.112***	-0.031
	(0.048)	(0.043)	(0.042)	(0.040)
Parent: presence of a partner	0.002	0.050	-0.058	0.106**
	(0.061)	(0.057)	(0.051)	(0.052)
Parent: good health indicator	0.110*	0.080*	0.019	0.188***
	(0.057)	(0.047)	(0.045)	(0.044)
Place of living: a big city	-0.772***	-0.752***	0.025	-0.232**
	(0.101)	(0.085)	(0.089)	(0.102)
Place of living: the suburbs or outskirts of a big city	-0.705***	-0.653***	-0.307***	-0.371***
	(0.080)	(0.068)	(0.067)	(0.070)
Place of living: a large town	-0.287***	-0.285***	-0.039	-0.110
	(0.081)	(0.068)	(0.078)	(0.074)
Place of living: a small town	-0.162**	-0.254***	-0.171***	-0.077
	(0.064)	(0.065)	(0.058)	(0.055)
Cutpoint 1	-0.920***	-1.265***	-1.194***	-0.849***
	(0.247)	(0.248)	(0.184)	(0.176)
Cutpoint 2	0.362	-0.208	0.262	0.247
	(0.246)	(0.248)	(0.183)	(0.176)
Cutpoint 3	1.461***	0.610**	1.683***	1.099***
	(0.246)	(0.248)	(0.184)	(0.177)
Number of observations	12,083	15,017	17,361	16,665

Notes: Cluster-robust standard errors in parenthesis; time fixed effects included in the regressions; *** denotes statistical significance with p-value <0.01, ** denotes statistical significance with p-value <0.05, * denotes statistical significance with p-value <0.1.

Table B. 2. Estimated coefficients from the binary logit (1) by country

Variable	Denmark coef/se	Sweden coef/se	Belgium coef/se	France coef/se
Parent	-0.067	-0.305***	0.002	-0.115
	(0.096)	(0.081)	(0.072)	(0.085)
Female	0.419***	0.189**	-0.064	0.135
	(0.106)	(0.087)	(0.081)	(0.097)
Parent x female	-0.351***	-0.167	-0.163*	-0.323***
	(0.126)	(0.104)	(0.097)	(0.114)
Age	0.000	0.002	-0.015***	-0.001
	(0.004)	(0.004)	(0.003)	(0.003)
Education: lower secondary	0.203	-0.309	-0.320**	0.257**
	(0.219)	(0.206)	(0.129)	(0.123)
Education: upper secondary and secondary non-tertiary	0.353*	-0.096	-0.238*	0.166*
	(0.212)	(0.201)	(0.123)	(0.094)
Education: first and second stage tertiary	0.754***	0.525**	0.181	0.871***
	(0.216)	(0.205)	(0.125)	(0.102)
Married or in a relationship	0.158**	0.168**	0.090	0.099
	(0.070)	(0.066)	(0.061)	(0.061)
Married but living separately from a spouse	0.597*	-0.164	0.179	0.044
	(0.352)	(0.402)	(0.170)	(0.193)
Divorced	0.322***	0.202*	0.202**	-0.034
	(0.115)	(0.116)	(0.094)	(0.101)
Widowed	0.443	-0.057	0.105	0.317
	(0.360)	(0.315)	(0.222)	(0.222)
Working indicator	-0.162**	-0.327***	-0.168***	-0.130**
	(0.071)	(0.066)	(0.058)	(0.060)
Number of siblings	-0.020	0.047	0.049**	0.004
	(0.035)	(0.034)	(0.022)	(0.028)
Being the youngest child indicator	-0.059	-0.105*	-0.090*	-0.098*
	(0.065)	(0.055)	(0.048)	(0.055)
Parent: presence of a partner	0.045	0.062	-0.088	0.059
	(0.077)	(0.068)	(0.056)	(0.065)
Parent: good health indicator	0.020	0.038	-0.014	0.106*
	(0.072)	(0.056)	(0.049)	(0.056)
Place of living: a big city	-1.083***	-0.996***	-0.109	-0.371***
	(0.119)	(0.108)	(0.093)	(0.120)
Place of living: the suburbs or outskirts of a big city	-0.749***	-0.603***	-0.302***	-0.328***
	(0.113)	(0.103)	(0.075)	(0.091)
Place of living: a large town	-0.754***	-0.699***	-0.146*	-0.372***
	(0.107)	(0.093)	(0.083)	(0.086)
Place of living: a small town	-0.331***	-0.421***	-0.181***	-0.249***
	(0.100)	(0.093)	(0.062)	(0.070)
Constant	1.209***	1.644***	1.494***	1.102***
	(0.309)	(0.307)	(0.205)	(0.221)
Number of observations	12,083	15,017	17,361	16,665

Notes: The same as per Table B.1.

Table B. 3. Estimated coefficients from the binary logit (2) by country

Variable	Denmark coef/se	Sweden coef/se	Belgium coef/se	France coef/se
Parent	-0.252***	-0.194***	-0.103	-0.305***
	(0.085)	(0.073)	(0.079)	(0.073)
Female	0.328***	0.289***	-0.015	0.042
	(0.088)	(0.076)	(0.084)	(0.079)
Parent x female	-0.308***	-0.296***	-0.198*	-0.142
	(0.108)	(0.092)	(0.101)	(0.094)
Age	0.003	0.004	-0.006*	0.008***
	(0.003)	(0.003)	(0.003)	(0.003)
Education: lower secondary	0.331	-0.255	-0.172	0.092
	(0.236)	(0.188)	(0.144)	(0.119)
Education: upper secondary and secondary non-tertiary	0.603***	-0.099	-0.058	0.134
	(0.230)	(0.187)	(0.134)	(0.091)
Education: first and second stage tertiary	1.186***	0.665***	0.601***	0.920***
	(0.232)	(0.189)	(0.134)	(0.097)
Married or in a relationship	-0.031	-0.053	-0.096	-0.022
	(0.058)	(0.059)	(0.066)	(0.054)
Married but living separately from a spouse	0.472*	-0.211	0.166	-0.006
	(0.255)	(0.374)	(0.178)	(0.162)
Divorced	0.184*	0.026	0.049	0.017
	(0.099)	(0.106)	(0.097)	(0.095)
Widowed	0.504*	-0.007	0.078	0.197
	(0.303)	(0.326)	(0.241)	(0.207)
Working indicator	-0.239***	-0.314***	-0.240***	-0.219***
	(0.062)	(0.057)	(0.063)	(0.053)
Number of siblings	-0.019	0.050*	0.077***	-0.000
	(0.034)	(0.028)	(0.024)	(0.025)
Being the youngest child indicator	-0.089	-0.030	-0.158***	-0.010
	(0.055)	(0.048)	(0.052)	(0.046)
Parent: presence of a partner	0.010	0.005	-0.055	0.113**
	(0.069)	(0.064)	(0.063)	(0.058)
Parent: good health indicator	0.134**	0.094*	0.061	0.156***
	(0.067)	(0.053)	(0.055)	(0.050)
Place of living: a big city	-0.884***	-0.829***	0.080	-0.464***
	(0.113)	(0.096)	(0.099)	(0.107)
Place of living: the suburbs or outskirts of a big city	-0.939***	-0.851***	-0.314***	-0.531***
	(0.099)	(0.085)	(0.085)	(0.081)
Place of living: a large town	-0.180**	-0.292***	0.049	-0.219***
	(0.090)	(0.078)	(0.088)	(0.079)
Place of living: a small town	-0.112	-0.272***	-0.132*	-0.113*
	(0.079)	(0.078)	(0.070)	(0.061)
Constant	-0.430	0.383	-0.546**	-0.200
	(0.307)	(0.283)	(0.228)	(0.198)
Number of observations	12,083	15,017	17,361	16,665

Notes: The same as per Table B.1.

Table B. 4. Estimated coefficients from the binary logit (3) by country

Variable	Denmark coef/se	Sweden coef/se	Belgium coef/se	France coef/se
Parent	-0.147	-0.343***	-0.154	-0.396***
	(0.094)	(0.078)	(0.122)	(0.078)
Female	0.168*	0.256***	-0.081	-0.199**
	(0.095)	(0.077)	(0.120)	(0.079)
Parent x female	-0.351***	-0.320***	-0.188	0.120
	(0.119)	(0.096)	(0.151)	(0.098)
Age	0.001	0.005	0.000	0.011***
	(0.004)	(0.003)	(0.005)	(0.003)
Education: lower secondary	0.425	0.089	-0.353	0.077
	(0.314)	(0.223)	(0.239)	(0.142)
Education: upper secondary and secondary non-tertiary	0.654**	0.189	0.020	0.144
	(0.303)	(0.219)	(0.214)	(0.107)
Education: first and second stage tertiary	1.257***	1.054***	0.703***	1.002***
	(0.303)	(0.222)	(0.212)	(0.110)
Married or in a relationship	-0.059	-0.087	-0.210**	-0.034
	(0.066)	(0.062)	(0.099)	(0.054)
Married but living separately from a spouse	0.277	-0.252	0.055	0.056
	(0.284)	(0.433)	(0.282)	(0.180)
Divorced	0.194*	0.015	0.045	0.086
	(0.113)	(0.114)	(0.142)	(0.101)
Widowed	0.498	0.049	0.159	0.363*
	(0.339)	(0.392)	(0.328)	(0.215)
Working indicator	-0.280***	-0.338***	-0.429***	-0.227***
	(0.069)	(0.058)	(0.097)	(0.057)
Number of siblings	0.014	0.079***	0.130***	-0.022
	(0.042)	(0.030)	(0.040)	(0.023)
Being the youngest child indicator	-0.096	-0.013	-0.081	-0.002
	(0.063)	(0.051)	(0.079)	(0.048)
Parent: presence of a partner	-0.050	0.069	0.122	0.141**
	(0.080)	(0.068)	(0.098)	(0.062)
Parent: good health indicator	0.191**	0.102*	0.019	0.284***
	(0.078)	(0.059)	(0.091)	(0.053)
Place of living: a big city	-0.300**	-0.589***	0.320**	-0.005
	(0.125)	(0.106)	(0.143)	(0.116)
Place of living: the suburbs or outskirts of a big city	-0.493***	-0.716***	-0.457***	-0.279***
	(0.114)	(0.089)	(0.135)	(0.088)
Place of living: a large town	-0.070	-0.047	0.134	0.151*
	(0.101)	(0.080)	(0.130)	(0.084)
Place of living: a small town	-0.148*	-0.176**	-0.350***	0.082
	(0.088)	(0.082)	(0.119)	(0.064)
Constant	-1.684***	-0.938***	-2.243***	-1.325***
	(0.393)	(0.319)	(0.354)	(0.215)
Number of observations	12,083	15,017	17,361	16,665

Notes: The same as per Table B.1.

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