

Childlessness and Upward Intergenerational Support: Cross-National Evidence from Eleven European Countries

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Abstract

Childless individuals are often depicted as “selfish” as they opt out of raising children in favour of investing resources in themselves. Yet no research has investigated whether this claim holds in alternative domains of social life, such as intergenerational family support. Using data from the Generations and Gender Survey (GGS) for 11 European countries, this article examines differences between childless and non-childless individuals in the provision of financial, care, and emotional transfers to their elderly parents. Results do not support the idea that the childless are less prone to providing transfers upwards than individuals with children. In fact, estimates from multivariate logistic regressions suggest that, *ceteris paribus*, childless adults are 26 to 31 per cent more likely to provide support to their parents as compared to the non-childless, with the effect driven by transfers to the mothers. Some evidence further hints at the existence of a cross-gender effect, whereby childless males are more likely to transfer to their mothers, whereas childless females are more likely to transfer to their fathers. These findings enrich the literature on childlessness and ageing, and support the view that researchers and policy makers should take into more consideration not only what childless people receive or need in old age, but also what they give.

Keywords: Intergenerational support; Upward transfers; Childlessness; Cross-country comparison; Selection

Introduction

Over the last decades, the proportion of childless adults has significantly increased in most European societies, after reaching a minimum in the 1935-1945 birth cohort. Furthermore, demographic forecasts point to a general increase in the rate of childlessness among women born between 1965 and 1975 (Sobotka 2004). Although not without historical precedence (Dykstra and Hagestad 2007; Rowland 2007), childlessness is becoming an increasingly common condition in many European

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countries. It is therefore not surprising that demographic and sociological research has devoted a great deal of attention to this phenomenon and its social consequences.

Despite the increased percentage of childless adults, the social acceptance of childlessness is still a matter of inquiry in both academia (Merz and Liefbroer 2012) and public discourse (Daum 2015). The idea that some women and men prefer not to have children is often met with criticism by the public and mainstream media, which tend to frame parenthood in normative terms, i.e. as the only adult status with positive personal and societal implications. Often embedded in this discussion is the claim that childlessness reflects selfish attitudes on the part of individuals, as they opt out of raising children in favour of investing resources in themselves.

Using data from the Generations and Gender Survey (GGS) on 11 European countries, this paper investigates whether the above claim is consistent with differential transfer behaviour of childless versus non-childless adults to their elderly parents. More precisely, I examine differences between the childless and the non-childless in the provision of financial, care, and emotional transfers to their elderly parents. If there were some validity to the claim that the decision of childless adults not to raise children reflects selfish attitudes or behaviour, we would expect them to be also less supportive to their parents as compared to individuals with children. Conversely, we might hypothesise that the childless provide more transfers to their parents as they are unable to provide for children. As I embrace a broad definition of transfers that accounts for money and assets, as well as help on daily activities and emotional support, in this work the terms intergenerational transfers and intergenerational support will be used interchangeably.

This study makes three important contributions. First, I shed light on whether childless and non-childless individuals differ in their propensity to provide support to their elderly parents, which no prior research has heretofore addressed. In so doing, my analysis offers a descriptive account of age patterns of upward intergenerational transfers across European countries, which is a relatively under-investigated topic of study *per se*. Second, I use data from the GGS, hence moving beyond the established convention of relying on the Survey of Health, Ageing and Retirement in Europe (SHARE) to study intergenerational transfers within the European context. Third, I acknowledge the importance of the issue of selection into childlessness by assessing the robustness of the findings through propensity score matching techniques. In line with odds ratios from logistic regressions, propensity score estimates suggest that the childless are more likely to provide upward support to their parents as compared to individuals with children.

The remainder of the paper is structured as follows. Section II reviews the relevant literature, which intersects studies of upward intergenerational support across Europe, sociological and psychological contributions relating childlessness and selfishness, and emerging research on the interplay between rising rates of childlessness and family transfers. Section III describes the dataset and the variables used in the analysis. Section IV introduces the methodology and raises concerns on the issue of selection into childlessness. Section V presents the main results based on logistic regression and propensity score models. Section VI concludes and discusses limitations to be addressed in future research.

Literature review

Upward intergenerational support within the family in the European context

Scholars have devoted considerable attention to comparative studies on the exchange of financial transfers, help, and care, as well as emotional closeness and proximity between adult family generations across European countries (e.g., Attias-Donfut, Ogg and Wolff 2005; Deindl and Brandt 2011; Hank 2007; Igel and Szydlik 2011; Mudrazija 2014). These studies have documented that most help within the family (in kind or emotionally) is transferred between parents and their children, to the extent that what Bengtson (2001) labelled as the “decline of the family” still seems to be a myth. At the contextual level, public spending enables parents and children to support each other financially and with hands-on-help (Kohli 1999). Overall, these studies show that the state and the family work together, taking over different, complementary tasks for people in need of assistance (e.g., Attias-Donfut and Wolff 2000, Brandt and Deindl 2013).

Notwithstanding the burgeoning number of academic contributions acknowledging the bi-directionality of intergenerational transfer flows (i.e. upwards and downwards), research on downward transfers from elderly parents to adult children continues to play a prominent role. This has led to a relative shortage of studies on upward transfers, especially in more advanced societies in which the welfare state is thought to substitute for most family functions. A key reason why these transfers have been less investigated is because reality shows that private exchanges flow, on average, downwards from old to young age. Using National Transfer Account (NTA) data from 23 economies, Lee and Donehower (2011) confirm that children receive large net private transfers,² typically until their early 20s, and in most societies the elderly continue to make net transfers to younger family members, at

² Their focus is exclusively on *inter vivos* financial transfers, so the net value is computed as the difference between the transfers made (outflows) and received (inflows) at each age within the household.

least into their 70s, except for some Asian countries in which the elderly receive substantial net transfers starting in their 50s or 60s. Albertini, Kohli and Vogel (2007) also document that in the European context transfers of time and money from the elderly parents to their children are much more frequent and usually more intense than those in the opposite direction.

This study seeks to enrich the literature on upward intergenerational transfers relying on the idea that bringing a comparative perspective to these exchanges, even if low and somewhat negligible in absolute terms, may reveal interesting cross-country variation and indirectly hint at the role heterogeneous welfare states play in different countries.

Childlessness and Selfishness

The idea that childless individuals are more selfish than their non-childless counterparts dates back to sociological and psychological contributions from the 1970s. Throughout the past half-century, scholars in these fields have brought to light the stereotypes of the childless held by the general community, which tend to be strongly negative (Blake 1973; Ganong, Coleman and Mapes 1990; Le Masters 1970; Thompson 1974). In particular, the “childfree” are perceived as somewhat less happy and more selfish than individuals with children (Jamison, Franzini and Kaplan 1979; Letherby 2002; Pohlman 1970; Veevers 1973), and they repeatedly experience social pressures to alter or justify their status (Park 2002). Most of this literature has hence focused on the socio-psychological strategies, primarily defensive and reactive, used by voluntarily childless women and men to validate and manage their stigmatized identity within a pronatalist social context (Houseknecht 1987; Park 2005).

Callan (1983) reviews the most negative characterizations attached to the childless about their intention not to have children. Statements are largely unfavourable, with the intentional childless labelled as selfish, unfulfilled, and lonely in old age. Using a multidimensional scaling analysis (MDS) locating individual traits on a “stimulus space”, Callan (1985) further highlights that parents of one child are similar to the voluntarily childless in their being perceived as more individualistic, career-oriented, more financially well-off, less conformist, more selfish and materialistic, and less emotionally mature. In line with Polit (1978), evidence from these studies hence suggests that the fewer children one has, the fewer attributions of positive personality traits one receives.

An alternative line of argument, mainly raised by feminist advocates (Peck 1971; Peck and Senderowitz 1974), suggests instead that individuals opt for parenthood not for reasons relating to what they themselves can do for children, but to what children can do for them, hence hinting at

selfishness on the part of parents. Academic research on the value of children to parents, which outlines the range of companionship, affection and self-perpetuation needs fulfilled in having children, could be more compatible with this claim (Arnold and Fawcett 1975; Hoffman and Manis 1979; Nauck 2007; Nauck 2014; Rempel 1985).³ Leone (1989) further claims that choosing to have children may be the more selfish choice, especially when poor parenting risks creating long-term problems for both the children themselves and society at large.

In general, inferring behaviour or personality traits across different population subgroups is no easy task, as the manifestation of these is highly contingent upon specific situations and domains. My domain of interest here is intergenerational support. Hence, if childless individuals are more selfish and self-absorbed, as part of the above literature suggests, we would expect seemingly selfish behaviour to be reflected in the financial and non-financial support these individuals provide upwards to their parents as they age. To the best of my knowledge, no previous research has investigated traits such as selfishness by looking at the differential extent of intergenerational support provided by childless versus non-childless individuals.

Intergenerational transfers and childlessness

Relating childlessness to intergenerational transfers may at first glance seem paradoxical, as childlessness is perceived as introducing a “break” in the direct intergenerational link (Kohli and Albertini 2009). This belief, however, hinges upon the idea that family transfers within the generational lineage flow downwards from the older to the younger generations (Kohli 2004). This view yields a partial account of reality, as even transfers from childless individuals may flow upwards as well as downwards, and may not be limited to exchanges with close family members such as children.

Scholarly research relating childlessness and private intergenerational transfers is not extensive. A point that is frequently stressed, however, is the weakness of childless people’s informal support networks, and the implication that the increasing number of childless people will create a rising, and likely unsustainable demand for public care services as these individuals age (Wu and Pollard 1998). It is not surprising, therefore, that the available literature on the topic has mostly focused on the intra and inter-generational support childless people receive in old age (Albertini and Kohli 2009).

³ A closely related literature postulates that in a setting where parents face uncertainty about their ability to support themselves during old age, they rear children in the expectation of receiving assistance from their children in their later years (Neher 1971; Nerlove, Razin and Sadka 1987). This “old-age security motive for fertility” hypothesis was first formulated by Leibenstein in 1957.

Dykstra and Hagestad (2007) highlight that childless people face support deficits towards the end of life and that the childless are more likely to be embedded in networks with limited support potential (usually a spouse or a co-resident sibling) than it is the case for parents. Brandt and Deindl (2014) assess the support networks of childless aged 50 and over in 12 European countries, showing that informal help for childless elders is often taken over by the extended family, friends and neighbours, while intense care tasks are more likely supplied by public providers. In countries with low social service provision, hence, childless older people are likely to experience a lack of help, especially when depending on vital care. A study for Italy has also shown that, compared to parents, the childless are more likely to be helped by nonrelatives and not-for-profit organizations, while only to a lesser extent by the welfare system – thus suggesting that public welfare is not able to fully compensate for informal support deficits (Albertini and Mencarini 2012).

The disproportionate research focus on the elderly childless as a group in high need of support, and the recurrent media coverage on the social consequences of increasing rates of childlessness for future social care demand have led to neglecting the other side of the coin, i.e. how the absence of children affects what people give. Albertini and Kohli (2009) and Hurd (2009) were among the first to shift the focal interest in childlessness and intergenerational transfers from what childless people receive to what they give to their families, friends and society at large. A shared finding of their research suggests that childless adults usually make up for the lack of own children by passing to next-of-kin, such as nephews and nieces.

Using data from ten European countries, Albertini and Kohli (2009) show that, although the likelihood of giving financial transfers and social support to non-family or family members other than children is lower for childless people, they are still substantial. The support networks of the childless are found to be both more diverse than those of parents, and characterized by tighter links with ascendants and lateral relatives and with non-relatives. Conversely, in the US context Hurd (2009) finds that childless individuals are more likely to give financial transfers to people other than their children, and the amount of these transfers is higher compared to those given by parents. Having a greater need for constructing outside-family social networks, childless people may also be expected to participate more in charitable or community activities, thus contributing more than parents to society at large.

The current analysis fits within this growing literature looking at childless individuals as providers (instead of receivers) of intergenerational support, and specifically restricts the focus to

transfers provided by the childless to their elderly parents. Although Albertini and Kohli (2009) and Hurd (2009) both investigate *inter-vivos* transfers from the childless to ascendants (including parents), descendants, lateral relatives, and non-relatives, the focus of their analyses is never exclusively on transfers to parents. Hence, evidence on whether the childless transfer more to their elderly parents as compared to individuals with children remains partial or inconclusive.

Eventually, to the best of my knowledge no studies have yet addressed this research question cross-nationally using data other than the Survey of Health, Ageing and Retirement in Europe (SHARE). The present analysis suggests that the Generations and Gender Survey (GGS) may constitute a valuable alternative data source to tackle the research question at hand and cross-validate demographic information within the European context. Differently from SHARE, the GGS has the added value that it samples individuals aged 18 to 79 and collects information from the middle generation (i.e. the adult children), hence allowing to: (i) treat survey respondents as children, and (ii) shift the traditional focus from what childless elderly people transfer downwards to what childless survey respondents transfer upwards to their elderly parents. Emery and Mudrazija (2015) recently expressed the concern that the study of private intergenerational transfers in Europe may have become overly dependent on a single data source (SHARE) and wondered whether the findings of many studies would similarly hold with alternative data sources and methodologies⁴. I here welcome Emery and Mudrazija's claim that substantive research should avoid being overly dependent on a single data source, and hope this study may constitute an additional building block towards establishing the GGS as an alternative source for the study of intergenerational family support.

Data and measures

For this analysis I use data from the Generations and Gender Survey (United Nations 2005). The GGS is a set of comparative surveys of a nationally representative sample of the 18–79-year-old resident population in each of the participating countries. In the GGS individual respondents are interviewed face-to-face and provide information on themselves as well as on their partners, children, parents, other household members, and social networks. The overall sample size differs by country, but in most cases it is about 10,000 respondents. The overall response rates vary between 49 % in Russia and 78 % in Bulgaria. A detailed description of the survey's design, scope, and aims can be

⁴ Emery and Mudrazija (2015) interestingly add that by considering the conceptualization, instrument design, and sampling unit associated with intergenerational transfers, there are significant differences in the way the GGS and SHARE conceptualize and measure intergenerational transfers. The extent to which these differing conceptualizations of transfers fit within theories of intergenerational relationships is therefore of considerable importance when making substantive conclusions about the scope and nature of intergenerational support.

found in Vikat et al. (2007).

As of now, complete GGS data are available for 17 European countries in wave one and nine European countries in wave two.⁵ This analysis uses wave one data from 11 nations, namely Belgium, Bulgaria, Czech Republic, France, Georgia, Germany, Netherlands, Poland, Romania, Russia, and Sweden. These countries were chosen both for their heterogeneity in terms of welfare systems and level of childlessness, and for their close-to-complete (and harmonized) information on intergenerational transfers.⁶ Data for these countries were collected between 2004 and 2010⁷ and weighted to adjust for unequal probabilities of sample selection and nonresponse differences within countries.

As the analysis builds upon comparing childless and non-childless individuals, I restrict the overall sample to respondents close to the end of their reproductive span, i.e. individuals aged 45 to 79. I define as childless those respondents 45+ who report having neither biological, nor adopted/foster/step children.⁸ Table 1 reports descriptive statistics by country separately for childless and non-childless respondents. By restricting to ages 45 and above, the sample reduces from 121,066 to 64,617 respondents, of whom 28,624 (44.3%) are males and 35,993 (55.7%) are females.

[Table 1 about here]

Data in Table 1 show that childlessness ranges from a minimum of 4.9% of the sample in Russia to a maximum of 19.8% in Germany. The mean age of respondents is stable across countries, with the non-childless averaging 59.5 years, as compared to 59.8 for the childless. Overall, socio-demographic and economic characteristics of the childless and the parents show some degree of variation, both within and across countries, with particular reference to household composition and schooling attainment. As expected, in all countries the proportion of childless living alone is at least three times the proportion of non-childless, and the childless are less likely to report having a partner

⁵ Wave one and wave two of the GGS also include Australia and Japan, though the present study focuses on European countries with complete transfer data only.

⁶ A few countries were excluded from the analysis, as the age range of sampled respondents is different from 18-79, namely Austria (18-46) and Italy (18-64).

⁷ The survey year is hence not the same across countries, and even within countries the data collection process often spanned more than one year. For the estimation of age profiles, I disregard this discrepancy assuming there are no period effects. In the regression I control for survey-year fixed effects.

⁸ Individuals may still have a child after age 45, hence leading to biases. The GGS includes a variable named “Intention to have a child at all” which, however, reports a high percentage of missing values and is not available for all countries included in the analysis. As a robustness check, I run regressions defining as childless individuals with (i) no biological, adopted, and foster children (the definition adopted throughout the paper), and (ii) no intention at all to have a child in the future - for those countries in which the latter variable is available. Results (available upon request) do not significantly differ if childlessness is defined more narrowly or also accounts for fertility intentions.

and to be married. Moreover, household size is, on average, smaller for the childless by one unit. As far as schooling is concerned, highest educational level of both respondents and their parents is coded according to the International Standard Classification of Education (ISCED). Based on this, I categorize individuals into three groups. Those with ISCED codes 0 through 2 (lower secondary education or less) are classified as “low education”; those with ISCED codes 3 or 4 (higher secondary education) as “medium education”; and those with ISCED codes 5 or 6 (tertiary education) as “high education”. Based on this categorization, the percentage of childless and non-childless individuals with medium education within each country is similar, whereas the childless tend to be over-represented in the high education category, particularly in the Netherlands. No clear pattern emerges when it comes to occupational status. While in Bulgaria, Poland, and the Netherlands the share of childless respondents who are employed or self-employed exceeds that of parents, the reverse is observed in the remaining countries. Lastly, childless and parents do not differ much according to attitudes towards old-age support, except for Belgium, France, and the Netherlands, where the childless report a higher mean value score.

The GGS delves into how family relationships function through their tangible aspects, such as monetary transfers between family members, emotional and practical support, and the satisfaction that individual family members derive from their relationships with other members. As far as intergenerational transfers are concerned, the GGS includes information on both monetary and non-monetary transfers from children to parents (upward transfers) and from parents to children (downward transfers). The focus of this paper is on the former and builds upon the following combination of transfer variables, in a spirit similar to Mudrazija (2014)⁹:

- (i) [*Assets and goods*] “During the last 12 months, have you or your partner/spouse given for one time, occasionally, or regularly money, assets, or goods of substantive value to [R]?”
- (ii) [*Help on daily activities*] “Over the last 12 months, have you given [R] regular help with personal care such as eating, getting up, dressing, bathing, or using toilets?”
- (iii) [*Emotional support*] “Over the last 12 months, has [R] talked to you about his/her personal experiences and feelings?”

Additional variables in the survey allow to identify the recipients of these transfers [R], among whom I keep biological parents, parents of the spouse/partner (if the respondent has a spouse/partner), and step-parents. As mentioned in the introduction, in this paper I treat private intergenerational transfers

⁹ It would indeed be ideal to keep these transfer components (financial, help, and emotional) as separate. Yet, financial transfers upwards are minimal in this context, hence preventing from treating it as a separate dependent variable.

and private intergenerational support as synonyms, and build a dichotomous dependent variable measuring the likelihood that the respondent provides any of the types of support listed above.

[Table 2 about here]

Table 2 reports descriptive statistics for the likelihood of providing transfers upwards, by country, childless status, and transfer recipient (mother, father, or any parent). The table conveys four main ideas. First, in all countries there are sizable differences between unconditional and conditional transfers (i.e. transfers conditional on the survival of parents), hence suggesting that, at the aggregate level, parents' survival is a key determinant of whether the respondent can give transfers to his/her mother/father. In this respect, Table 3 hints at the heterogeneity in mortality patterns across the 11 European countries.¹⁰ For instance, while for a respondent aged 60 the probability of having at least one parent alive is 0.43 in Sweden, the same drops to 0.14 in Russia. Second, upward transfers are low across all countries, but remarkably low in Northern European countries, namely Netherlands and Sweden. No big differences are instead observed in the likelihood of providing upward support between Eastern and Western European countries, although Russia stands out of the picture as the country with the highest unconditional and conditional likelihood of transfer provision, around 0.1 and 0.3, respectively. Third, the likelihood of providing transfers to the mother is at least twice that of providing transfers to the father. Fourth, t-tests for the difference in means suggest that childless respondents transfer significantly more than parents in Georgia and Poland, while they provide less support in Czech Republic. Weak or no significant differences emerge in the remaining countries. Overall, although it is useful to get a first assessment of the magnitude of transfer patterns across countries, these descriptives mask considerable heterogeneity, as the probability of providing support varies by stage of the life course, hence the need to estimate age profiles.

[Table 3 about here]

Lastly, following Margolis and Myrskylä (2011), this study adopts an extended categorization of Esping-Andersen's welfare regimes typology (1990), which describes how welfare production is allocated between the state, the market, and households. Countries are classified according to their welfare states as social democratic, conservative, and former socialist. Social democratic states (Netherlands and Sweden) are the Nordic countries, which are committed to comprehensive risk coverage, generous benefits, and egalitarianism; conservative states (Belgium, France and Germany)

¹⁰ Appendix A provides additional details on parents' survival across countries, with survival curves of parents by respondent's gender, education, and childless status.

are those of continental Europe, which blend public and familial support; former socialist countries (Bulgaria, Czech Republic, Georgia, Poland, Romania and Russia) are more heterogeneous and tend to mix features of the former two.

Methodology

I begin my analysis of upward intergenerational support by investigating the age profile of upward transfer flows between respondents aged 45 and above and their elderly parents.¹¹ Age pattern of transfers are estimated by means of a local polynomial regression fitting procedure - kernel-weighted local polynomial smoothing - applied to individual-level data for each European country included in the study. The age profiles provide a representation of the following variables as a function of age of the survey respondent:

- (i) Probability of providing a transfer (financial, care, or emotional) to any parent (“unconditional transfers”);
- (ii) Probability of providing a transfer (financial, care, or emotional) to any parent, conditional on at least one parent being alive (“conditional transfers”);

As evidenced above, the comparison between unconditional and conditional transfers is insightful as it reflects the contribution of parental survival to the observed transfer patterns (Kohler et al. 2012). The same fitting procedure is applied when estimating age profiles of intergenerational support for the whole sample or for the childless and non-childless sub-groups separately.

Second, I use logistic regression to estimate the social, demographic, and economic correlates of transfer patterns as a way to assess whether and how these patterns vary both by childless status and as a function of measures of socio-economic status (SES), gender of the respondent, and welfare regimes. Models are estimated separately for the full sample (“unconditional sample”) and for the sample restricted to respondents whose parents are alive (“conditional sample”). I further investigate whether the relationship between childlessness and upward transfers varies by gender of the transfer recipient (transfer to mother versus transfer to father). All models control for survey-year dummies to account for potential period effects, and either country or welfare regime fixed-effects.

Third, as a robustness check, I use propensity score methods to address the possibility that non-random selection into childlessness may result in biased estimates. Childless and non-childless individuals may in fact be compositionally different along observed and unobserved dimensions. If most childlessness were unintentional because of genetic factors or exogenous health conditions that

¹¹ In more technical terms, this amounts to building a synthetic cohort out of a cross-sectional design.

prevented successful pregnancy, endogenous selection would be minor and likely to have little effects on the estimates. The GGS, however, does not include comprehensive information to identify individuals who were unable to become biological parents.¹²

Although a natural or randomized experiment would constitute the ideal scenario to deal with selection, it is obviously impossible to conduct an experiment to generate an estimate of the effect of the “treatment” of being childless that is unbiased by self-selection. In the absence of experimental data, a second-best approach to address selection issues of this kind is either to include person or family fixed-effects, or to identify an instrumental variable for childlessness, i.e. a variable that affects the probability of providing transfers to parents only through its effect on the respondent being childless. While the former strategy cannot be pursued due to the cross-sectional nature of the data, the implementation of the latter builds on the challenge of finding variables that capture factors that affect childbearing decisions over a long period - roughly ages 18–45 years - but are not controlled by respondents, and are unlikely to have directly affected transfer behaviour. Past research in the field has mostly relied on country-specific policy variables, such as Supreme Court rulings on contraception and abortion, as instruments for fertility outcomes (Ananat et al. 2009). However, the multipurpose scope of the GGS and the cross-national nature of this work prevent from following this same route.

Hence, I resort to nonparametric propensity score models (Rosenbaum and Rubin 1985). In this study the propensity score is the probability of being childless, conditional on a set of observed characteristics. I use logistic regression to predict each respondent’s propensity score. Once all respondents’ propensity scores are calculated, a childless person is matched to one or more parents who have similar propensity scores using one of several established procedures for determining matches.¹³ The mean of the difference in outcome between each treated case and its match (or matches) provides the estimate of the relationship between childlessness and the outcome.

One advantage of propensity score techniques is that, unlike regression models, they do not impose strong restrictions on the functional form of the relationship between childlessness and the outcomes. They hence provide a useful tool to explore the results’ sensitivity to the linearity

¹² The GGS provides some variables related to infertility treatment, but the information is not included for all countries and has a very high percentage of missing cases.

¹³ “Radius matching” matches a childless case to all cases with children that have propensity scores within a specified tolerance level (caliper) of the childless case’s score. When multiple control cases fall within the radius, their average outcome is compared to the childless case’s outcome. The Epanechnikov kernel approach matches a childless case to all cases with children that have scores within the specified bandwidth. When multiple control cases fall within the bandwidth, their kernel-weighted average outcome is compared to the childless case’s outcome. Henry and Yi (2009) offer evidence that radius and Epanechnikov kernel matching are among the matching designs that produce the least bias compared to an experimental estimate.

assumption of regression, as documented in several other studies dealing with demographic outcomes (Chevalier and Viitanen 2003; Gertler, Levine and Ames 2004; Levine and Painter 2003). In fact, a potential pitfall of the regression approach entails that if the difference between the average values of the covariates in the childless and non-childless groups is large, the results are sensitive to the linearity assumption. However, propensity score methods rely on the “conditional independence assumption” (CIA), i.e. all factors related to receiving a treatment are observed and measured (Black and Smith 2004). Then, conditional on those factors, the choice between treatment and control status is not influenced by the outcomes resulting from the choice. Hence, such models contribute to reducing the selection bias driven by observables, whereas they do not satisfactorily help to deal with selection driven by unobserved characteristics likely to influence both childlessness and transfer provision to parents. If the treatment and control groups differ in unobserved ways, between-group differences may reflect those differences rather than the treatment (i.e. being childless) itself. Therefore, although I believe propensity score estimates may provide a useful benchmark, no claim of causality will be made throughout this analysis.

Due to the inherent complexity of dealing with the issue of selection into childlessness, very few studies have addressed it. In this endeavour, I follow Plotnick (2009, 2011), who complements linear regression models with propensity scores estimates to study how childlessness relates to the economic wellbeing and the health status of the elderly in the US.

Results

Age profiles of upward support

Figures 1 and 2 show the age patterns of transfers made by respondents aged 45 and above to any parent (‘unconditional transfers’) by childless status, and country and welfare regime, respectively.¹⁴ These graphs provide more complete information with respect to the simple tabulations presented in section III, as they permit to grasp both how the probability of providing upward support unfolds across the adult life course, and how this likelihood differs for childless versus non-childless respondents. Eastern European countries, particularly Czech Republic, Georgia, and Russia are those

¹⁴ Appendix B provides additional details on age profiles of transfers by age, transfer recipient, gender, and education of the respondent. Specifically it shows that (i) in all countries the probability of providing support to the mother is far higher across the entire adult life course of an individual (Figure 1); (ii) female respondents tend to provide higher upward support than males, even though in some countries there tends to be a crossover around ages 60-65 (Figure 2); (iii) there is a clear educational gradient in transfer provision that keeps stable across the life-course, whereby the better-educated are one to three times more likely to provide support to their elderly parents as compared to their low-educated counterparts (Figure 3).

in which respondents aged 45 have the highest likelihood (around 0.2) of providing upward support to their parents. This probability declines to approximately 0.15-0.17 in Western European countries, characterized by conservative welfare states, and it reaches a minimum of 0.05 in Northern countries with a social democratic type of welfare regime. Hence, these figures provide *prima facie* evidence that the more generous the welfare state, the lower the need to provide upward support within the family. As for differences between childless and non-childless, some interesting heterogeneity unravels when looking at specific countries instead of welfare regime categories. In line with the descriptive statistics, in Czech Republic individuals with children transfer more to their elderly parents as compared to the childless, with this higher likelihood being observed throughout the whole adult life course. Conversely, in Georgia and Poland, the childless transfer more up until age 70. In the remaining countries no noticeable patterns emerge, as the likelihood of childless and non-childless respondents overlaps at multiple stages. Overall, estimates show that transfers to any parent decline rapidly with the age of the respondent, hence suggesting that a declining probability of having a living parent determines a strong age pattern in the unconditional transfers.

[Figures 1 and 2 about here]

In order to assess the contribution of parental survival to the observed transfer patterns, Figures 3 and 4 show the age patterns of transfers made by respondents aged 45 and above to any parent, conditional on at least one parent being alive ('conditional transfers'), by childless status, and country and welfare regime, respectively. Conditional on parental survival, the likelihood of providing upward transfers does not follow a steep age pattern and, on average, respondents are more likely to transfer to their parents across all ages. More discrepancies emerge between childless and non-childless respondents, especially in Eastern European countries, hence suggesting that mortality trends in these countries play an even stronger role in shaping observed transfer patterns.¹⁵

[Figures 3 and 4 about here]

Correlates of transfer patterns: logistic regression models

In this sub-section I analyse the correlates of transfer patterns between respondents and their elderly parents by means of multivariate logistic regression models. The dependent variable in Table 4 is the likelihood of providing transfers to any parent, and each model is estimated separately for the full

¹⁵ Caution should be exercised when interpreting these latter estimates, as the sample is much smaller once conditioning on parental survival, especially for the childless subgroup.

sample and for the sample restricted to respondents with at least one living parent. The main independent variable is a dummy for childlessness, which equals one if the respondent is childless. My analyses are based on four sets of models. Model (1) estimates a simple bivariate relationship between childlessness and the dependent variable; model (2) adds controls for age, gender, and an interaction term between gender and childlessness; model (3) includes the remaining controls, namely education, employment status, availability of partner, number of siblings alive, health status, and attitudes towards old-age support; model (4) is the same as (3) with welfare regime categories replacing country dummies.

[Table 4 about here]

The key findings of the analysis reported in Table 4 are as follows. First and foremost, childless respondents are more likely to provide support to their elderly parents as compared to individuals with children. Although this relationship is only weakly significant on the unconditional sample, estimates from the conditional sample are stable and strongly statistically significant. These suggest that childless adults are 26 to 31% (model 4 and model 3, respectively) more likely to transfer to any of their parents compared to the non-childless, *ceteris paribus*. Second, age seems to be a crucial driver of transfer patterns, with the odds ratios declining (i.e., lower probability of transferring) in each subsequent age group. While respondents aged 50-54 have roughly a 20% lower chance of transferring to their parents compared to individuals 45-49, the same likelihood drops to a 90% lower chance for the 70+. However, the age profiles suggest that this steep age pattern weakens or disappears once conditioning upon parental survival. Models (2), (3), and (4) on the conditional sample confirm this expectation, as most coefficients lose statistical significance and some even change in sign (i.e. odds ratios greater than one). For instance, conditioning upon parental survival, respondents aged 55-64 turn out to be more likely to provide support to their parents, compared to the 45-49. Third, in all specifications female respondents provide more upward support than males¹⁶, while no differential effect emerges between childless female and childless male respondents, i.e. the interaction term between gender and childlessness is not statistically significant. Fourth, measures of socio-economic status suggest that there is a clear educational gradient in transfer provision, which is robust to every specification.¹⁷ Moreover, compared to respondents who are still employed or self-employed, retirees have a 15% lower chance of providing transfers. Fifth, respondents with more positive attitudes towards providing care and financial transfers to parents are effectively showing a higher likelihood of

¹⁶ Also shown in Appendix B through the estimation of age profiles by gender.

¹⁷ Another control of interest is parents' highest educational level, the only proxy for parents' SES included in the GGS. I didn't explicitly include this as a covariate in the models presented due to the high correlation with respondents' own educational level. Yet models replacing own education with parental education deliver exactly the same results (available upon request).

transfer provision.¹⁸ Lastly, model (4) including dummies for welfare regime categories confirms that respondents in countries characterised by former socialist and conservative welfare regimes do not differ much in terms of transfer behaviour, while respondents in countries with social democratic welfare regimes face a 70-75% lower chance of helping their parents.

[Table 5 about here]

Table 5 reports odds ratios from an analogous specification, although I examine separately the likelihood of providing transfers to the mother and to the father. My goal is to assess whether, even after controlling for differential survival chances of mothers and fathers, the gender of the transfer recipient plays a role. For the sake of brevity, Table 5 only includes the full models (3) and (4), though the full tables are available upon request. Results show that childless individuals transfer significantly more to their mothers as compared to the non-childless, while there is no evidence of a differential transfer behaviour towards fathers. Hence, transfers to the mother mostly drive the relationship between childlessness and transfers to any parent highlighted in Table 4. This is reasonable, as the likelihood of transferring to fathers is considerably lower than the likelihood of transferring to mothers (as shown in Table 2). Moreover, estimated odds ratios on the interaction term between childlessness and gender hint at the existence of a cross-gender effect, i.e. childless males are more likely to transfer to their mothers, whereas childless females are more likely to transfer to their fathers.

Robustness checks: propensity score estimation

The goal here is to match childless individuals with non-childless individuals with similar observed characteristics, and get an estimate of the Average Treatment Effect on the Treated (ATT) by means of propensity score estimation techniques. Concerning the choice of covariates to include in the propensity score model, Sianesi (2004) and Smith and Todd (2005) recommend choosing: (1) variables that influence simultaneously the treatment status (i.e. childlessness) and the outcome variable (i.e. likelihood of transfer provision); (2) variables that are unaffected by the treatment itself. As the set of variables at my disposal is limited, I estimate the score including only age, sex, education, and number of siblings alive, grouping by country. The logit specification used to estimate the propensity score for each individual passes the balancing test (Dehejia and Wahba 2002), and the distributions of propensity scores for childless and non-childless adults closely overlap within the region of common

¹⁸ The control “Attitude towards old-age support” is built as a combination of two variables asking respondents if they agree with the statement that “children should take responsibility for parental care if parents are in need” and “children should provide financial help if parents face financial difficulties”. It ranges from 1 to 5 and it is used in this analysis as a continuous variable.

support. This indicates that there are ample numbers of parents well matched with each childless person.¹⁹

[Table 6 about here]

Table 6 reports estimates of the ATT by means of three types of matching algorithms, namely nearest-neighbour, Epanechnikov kernel, and radius matching. Standard errors are bootstrapped. Although the odds ratios from Tables 4 and 5 and the matching estimators in Table 6 are not directly comparable, as the latter show the difference between childless and non-childless' mean probability of the outcome, findings from Table 6 are fully consistent with the regression results. More specifically, there is evidence that childless adults transfer more to any of their parents as compared to non-childless, both unconditionally and conditionally on parental survival. Conditional on at least one parent alive, the difference between the mean probability of the outcome ranges from a minimum of 0.0289 with nearest-neighbour matching and a maximum of 0.0315 with Epanechnikov kernel matching. Hence, results are quite consistent across matching methods, and all of the estimated ATTs are highly statistically significant. In line with the descriptive statistics, conditional estimates are at least twice as large as unconditional ones. Moreover, the likelihood of transfer provision to any parent is fully captured by the transfers to the mother.

Conclusions

This study has shed light on the reality of intergenerational support from respondents aged 45 and above to their elderly parents across 11 European countries. Analyses of GGS data have shown that the likelihood of upward transfer provision is low in all countries, but particularly low in Northern European ones. As these are countries characterized by social democratic types of welfare state, committed to extensive risk coverage, generous benefits, and widespread egalitarianism, the analysis provides suggestive evidence that individuals take up more responsibilities towards their elderly parents in those contexts in which public support is less comprehensive. Second, by means of logistic regression and propensity score methods I have shown that the childless are more prone towards providing upward support as compared to the non-childless. Third, separate analyses by gender of the transfer recipient have revealed that transfers to fathers are far lower than transfers to mothers, and that childless/non-childless differences in transfer behaviour only arise when predicting the latter. Lastly, *prima facie* evidence on a gender-childlessness interaction hints at the emergence of a cross-

¹⁹ I here report the Average Treatment Effect on the Treated (ATT), though the complete propensity score regressions, the balancing tests and the sensitivity analyses are available upon request.

gender effect, whereby childless males are more likely to transfer to their mothers, whereas childless females are more likely to transfer to their fathers.

The findings of this research support the argument that researchers and policy makers should take into more consideration not only what childless people receive or need in old age, but also what they give. The available literature stresses that, from a social policy perspective, increasing childlessness rates may be a challenge - in addition to that of population ageing - to the current configuration of the systems of long-term care provision. My findings are not at odds with this claim. However, as they point towards the idea that childless adults are more likely to provide support to the elderly, they suggest that the rise in childlessness may be less worrisome for public care policies than what is commonly held. Lastly, this research may contribute to further shaping the policy and media discourse that depicts childless adults as selfish, and self-absorbed individuals.

This study has some limitations that may well lay the ground for subsequent research. First, due to data restrictions, the current analysis makes no distinction between voluntary and involuntary childlessness. As the involuntary childless would likely behave as the non-childless in terms of downwards transfers to children (if they could have any), one could raise the concern that the involuntary childless would also resemble the non-childless in their propensity to provide transfers to parents, hence biasing our estimates upwards. If data allowed, it would hence be ideal to treat the voluntary childless as a separate group. Second, this study builds upon a dependent variable that accounts for financial, day care, and emotional transfers jointly. As the motivations behind these types of transfers are likely to differ, future research may consider keeping these as separate dimensions. Although the GGS includes these as distinct variables, the proportion of GGS respondents aged 45+ who report providing each of these types of upward support separately is not sufficient to warrant variability in the dependent variable. Third, the GGS does not provide good comparative measures of income and wealth. This may raise some concerns, as one could hypothesise that the childless provide more transfers to their parents simply because they are wealthier on average.²⁰ Scholars tend to agree that the childless do not differ from parents in mean income, and parenthood tends not to be associated with lower wages²¹ (Lundberg and Rose 2000; Plotnick 2009).²² According to data from Netherlands, fathers between ages 40 and 59 have even higher incomes than childless men (Dykstra and Keizer 2009). Conversely, evidence on wealth differences is more blurred. While Plotnick (2009) documents that mean differences in wealth between childless and non-childless are not statistically

²⁰ As I don't have a good measure of income, in the analyses I control for educational attainment and employment status.

²¹ More precisely, scholars claim that parenthood is associated with a "fatherhood bonus" and a "motherhood penalty" (Correll, Benard and Paik 2007; Kmec 2011; Kuhhirt and Ludwig 2012; Brandt and Deindl 2014).

²² Data from the GGS for those countries in which income is available confirm this evidence. Additional robustness checks with GGS data reveal that, across the 11 countries, 68% of childless respondents are owners of the dwelling (assuming this to be a proxy for wealth), as compared to 77% of parents.

significant, Lundberg and Rose (2000) find that childless unmarried men have greater wealth arising from not paying the costs of raising children. Further investigation is needed to assess whether accounting for wealth could alter the estimates. Fourth, and most importantly, is the issue of selection into childlessness. Although propensity score matching is a useful tool to reduce the bias driven by selection on observables, unobserved heterogeneity still prevents from making causal claims. The broad agreement across logistic regression and propensity score models suggests a degree of reliability to my findings. Yet they are certainly not undisputable, since the sensitivity of the estimates to possible selection on unobservable characteristics cannot be assessed with any of the methodologies at hand.

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Table 1 - Descriptive statistics for GGS respondents aged 45-79 (N=64,617), by country and childless status

Country	Eastern Europe												Western Europe						Northern Europe			
	Bulgaria		Czech Republic		Georgia		Poland		Romania		Russia		Belgium		France		Germany		Netherlands		Sweden	
	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless	Parent	Childless
# observations	4,845	340	4,115	769	4,564	455	10,444	1,413	6,245	919	5,568	431	3,205	778	4,669	785	4,303	1,096	3,628	671	4,873	501
Childlessness (%)	6.4		14.0		9.0		11.2		11.9		4.9		19.1		11.8		19.8		11.5		10.5	
Female (%)	53.8	41.6	55.7	43.3	55.2	69.3	56.1	43.2	55.1	47.5	64.1	66.4	52.2	47.0	52.9	49.2	52.7	48.4	54.0	54.7	51.3	39.1
Mean age (years)	61.1	59.8	59.2	59.2	59.7	59.9	59.7	57.8	60.0	60.5	58.3	61.0	58.5	61.7	59.8	60.3	60.0	61.2	57.8	56.6	60.9	59.8
Age (prop.)																						
45-54	0.28	0.35	0.37	0.39	0.39	0.39	0.35	0.42	0.36	0.34	0.44	0.32	0.41	0.27	0.35	0.35	0.36	0.30	0.43	0.54	0.31	0.36
55-64	0.33	0.31	0.34	0.29	0.24	0.24	0.33	0.33	0.30	0.28	0.25	0.27	0.32	0.35	0.33	0.32	0.29	0.29	0.32	0.24	0.29	0.29
65-74	0.30	0.20	0.22	0.21	0.27	0.26	0.23	0.18	0.26	0.26	0.23	0.25	0.19	0.25	0.23	0.20	0.26	0.28	0.19	0.15	0.31	0.25
75+	0.09	0.13	0.08	0.11	0.10	0.11	0.09	0.06	0.09	0.12	0.08	0.15	0.08	0.13	0.09	0.14	0.09	0.13	0.06	0.06	0.10	0.10
Schooling attainment (%)																						
Low	40.2	34.7	23.5	31.2	19.2	17.8	22.4	23.0	51.1	46.7	23.3	26.3	40.6	44.1	47.4	42.8	15.9	20.7	46.9	33.1	24.1	26.4
Medium	41.5	37.0	63.4	57.3	56.2	48.5	63.9	62.2	41.0	41.7	38.3	32.2	29.5	27.3	34.6	36.8	60.7	59.6	23.3	23.9	51.1	50.0
High	18.3	28.4	13.1	11.5	24.7	33.8	13.8	14.8	7.9	11.6	38.4	41.5	29.9	28.6	17.9	20.4	23.4	19.7	29.8	43.0	24.9	23.7
Mean HH size	2.8	1.8	2.5	1.7	4.0	2.0	2.8	1.8	2.8	1.8	3.0	1.8	2.7	1.7	2.5	1.6	2.4	1.6	2.6	1.6	2.3	1.4
Living alone (%)	12.4	39.2	16.4	42.9	6.9	44.4	12.5	38.8	10.0	31.5	10.9	40.7	12.7	36.6	15.3	50.4	19.5	41.8	12.0	46.0	18.8	61.7
Marital status (%)																						
Never married	5.7	56.4	5.8	50.7	6.2	72.1	2.3	57.8	3.4	27.9	6.0	39.3	6.9	29.2	7.7	54.5	12.6	35.1	2.6	48.3	14.3	63.1
Married	75.2	34.1	69.9	37.5	73.1	17.5	74.6	30.2	76.5	54.4	64.2	36.6	75.2	57.4	74.1	31.7	73.2	53.4	79.1	37.6	63.9	23.3
With partner (%)	76.9	37.6	73.5	45.3	75.4	24.2	75.9	33.9	79.3	58.4	71.8	44.8	83.2	62.6	81.6	48.4	78.4	59.7	85.1	55.8	82.0	48.3
Mean # of siblings alive	1.43	1.12	1.42	1.25	2.08	1.67	2.24	2.00	2.11	1.74	1.64	1.43	2.59	2.29	2.70	2.40	1.80	1.38	3.34	2.89	2.11	2.00
Employed or self-employed (%)	29.7	32.9	40.5	38.8	38.7	38.4	33.9	36.0	30.8	29.2	35.4	24.4	45.2	33.1	38.0	36.9	41.2	39.8	45.3	56.5	51.8	50.5
Poor health (%)	20.4	19.2	13.8	16.9	34.9	35.4	18.9	18.7	18.8	21.1	28.1	35.5	6.7	7.3	8.1	7.4	8.7	9.9	6.8	7.1	6.0	6.8
Mean attitudes old-age supp.	4.0	4.0	3.7	3.7	4.4	4.4	3.7	3.8	4.1	4.1	4.2	4.3	3.1	3.4	3.6	4.0	3.7	3.8	3.1	3.4	2.9	3.1
Survival of parents (prob.)																						
Mother alive	0.27	0.34	0.30	0.32	0.30	0.31	0.33	0.36	0.29	0.29	0.29	0.24	0.28	0.24	0.40	0.38	0.35	0.28	0.38	0.40	0.37	0.40
Father alive	0.13	0.16	0.14	0.19	0.14	0.12	0.14	0.15	0.15	0.15	0.11	0.09	0.23	0.15	0.20	0.20	0.18	0.15	0.16	0.20	0.20	0.23
At least one parent alive	0.32	0.39	0.34	0.36	0.34	0.36	0.37	0.41	0.33	0.33	0.34	0.28	0.41	0.31	0.46	0.43	0.39	0.33	0.43	0.45	0.41	0.46
Both parents alive	0.09	0.11	0.11	0.16	0.10	0.08	0.10	0.09	0.11	0.11	0.07	0.06	0.10	0.08	0.15	0.15	0.14	0.10	0.12	0.15	0.15	0.17

Note: The table includes weighted percentages and unweighted number of cases.

Table 2 - Descriptive statistics on transfers to parents, by country, childless status, and transfer recipient

Country	Transfers to any parent						Transfers to mother						Transfers to father					
	Full sample			At least one parent alive			Full sample			Mother alive			Full sample			Father alive		
	Parent	Childless	Diff.	Parent	Childless	Diff.	Parent	Childless	Diff.	Parent	Childless	Diff.	Parent	Childless	Diff.	Parent	Childless	Diff.
Bulgaria	0.089	0.115	-0.026 (0.016)	0.199	0.246	-0.047 (0.035)	0.072	0.106	-0.034** (0.015)	0.183	0.252	-0.069* (0.036)	0.028	0.024	0.005 (0.009)	0.123	0.133	-0.010 (0.044)
Czech Republic	0.139	0.083	0.057*** (0.013)	0.254	0.172	0.082*** (0.031)	0.125	0.075	0.05*** (0.013)	0.243	0.164	0.079** (0.032)	0.024	0.015	0.010 (0.006)	0.087	0.075	0.012 (0.03)
Georgia	0.082	0.127	-0.045*** (0.014)	0.194	0.333	-0.139*** (0.034)	0.072	0.116	-0.045*** (0.013)	0.191	0.333	-0.142*** (0.036)	0.018	0.018	0.001 (0.007)	0.090	0.091	-0.001 (0.04)
Poland	0.097	0.126	-0.029*** (0.008)	0.237	0.327	-0.09*** (0.021)	0.084	0.105	-0.021*** (0.008)	0.232	0.306	-0.074*** (0.022)	0.023	0.029	-0.006 (0.004)	0.120	0.263	-0.143*** (0.031)
Romania	0.054	0.059	-0.004 (0.008)	0.142	0.175	-0.034 (0.023)	0.045	0.052	-0.007 (0.007)	0.131	0.174	-0.043* (0.024)	0.016	0.011	0.005 (0.004)	0.087	0.060	0.027 (0.027)
Russia	0.114	0.100	0.015 (0.016)	0.311	0.408	-0.097** (0.048)	0.100	0.088	0.012 (0.015)	0.311	0.384	-0.073 (0.052)	0.023	0.021	0.002 (0.007)	0.141	0.241	-0.100 (0.067)
Belgium	0.111	0.091	0.020 (0.012)	0.189	0.213	-0.023 (0.028)	0.096	0.076	0.02* (0.012)	0.172	0.178	-0.006 (0.031)	0.034	0.033	0.001 (0.007)	0.109	0.168	-0.06* (0.032)
France	0.100	0.110	-0.009 (0.012)	0.205	0.237	-0.032 (0.024)	0.091	0.097	-0.006 (0.011)	0.204	0.238	-0.034 (0.025)	0.027	0.029	-0.003 (0.006)	0.114	0.107	0.007 (0.027)
Germany	0.060	0.056	0.004 (0.008)	0.129	0.156	-0.028 (0.02)	0.053	0.049	0.003 (0.007)	0.120	0.151	-0.031 (0.02)	0.014	0.010	0.004 (0.004)	0.057	0.057	-0.001 (0.02)
Netherlands	0.022	0.030	-0.008 (0.006)	0.044	0.063	-0.019 (0.014)	0.016	0.024	-0.008 (0.005)	0.037	0.059	-0.021 (0.014)	0.006	0.009	-0.003 (0.003)	0.030	0.040	-0.010 (0.018)
Sweden	0.039	0.038	0.001 (0.009)	0.068	0.071	-0.003 (0.017)	0.030	0.020	0.010 (0.008)	0.058	0.043	0.015 (0.017)	0.011	0.016	-0.005 (0.005)	0.030	0.042	-0.011 (0.017)

Note: The table includes weighted percentages; * p < 0.1; ** p < 0.05; *** p < 0.01.

Table 3 – Probability of at least one parent of the respondent being alive, by country and selected ages of the respondent

Probability of having at least one parent alive			
Age of the respondent	50	60	70
Bulgaria	0.71	0.30	0.07
Czech Republic	0.60	0.15	0.03
Georgia	0.63	0.27	0.02
Poland	0.69	0.30	0.06
Romania	0.68	0.20	0.04
Russia	0.61	0.14	0.02
Belgium	0.64	0.28	0.06
France	0.73	0.40	0.11
Germany	0.67	0.28	0.03
Netherlands	0.69	0.30	0.05
Sweden	0.81	0.43	0.08

Note: GGS data, weighted

Figure 1 – Probability of providing a transfer to any parent, by country and childless status

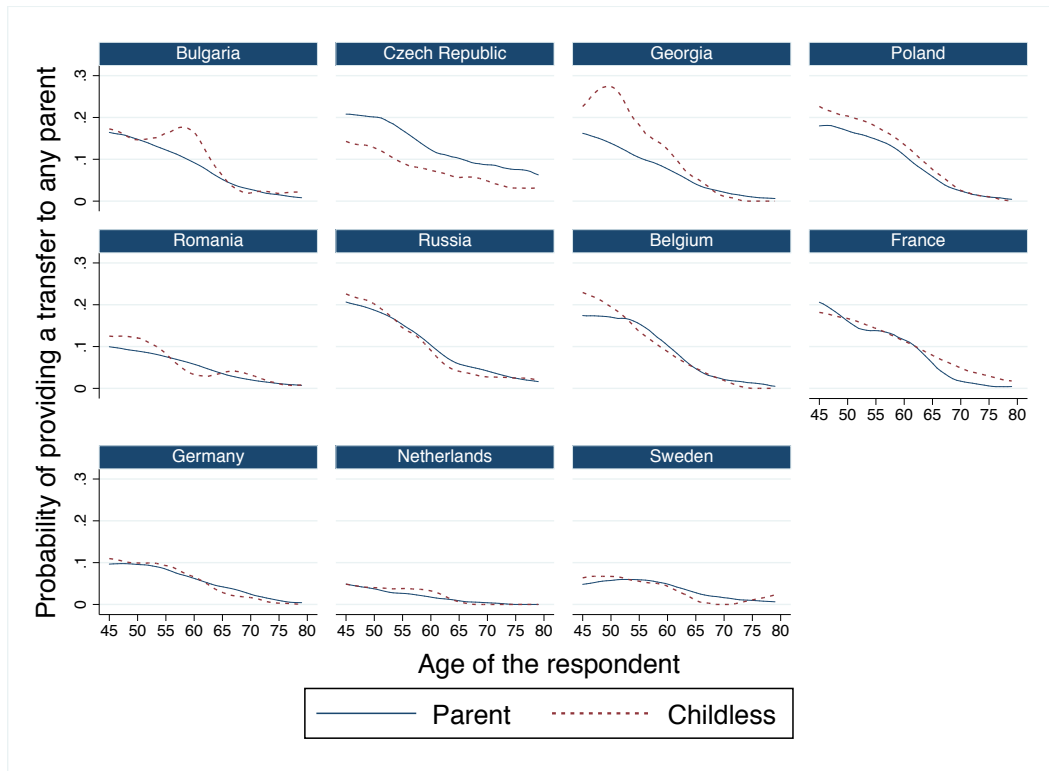


Figure 2 – Probability of providing a transfer to any parent, by welfare regime and childless status

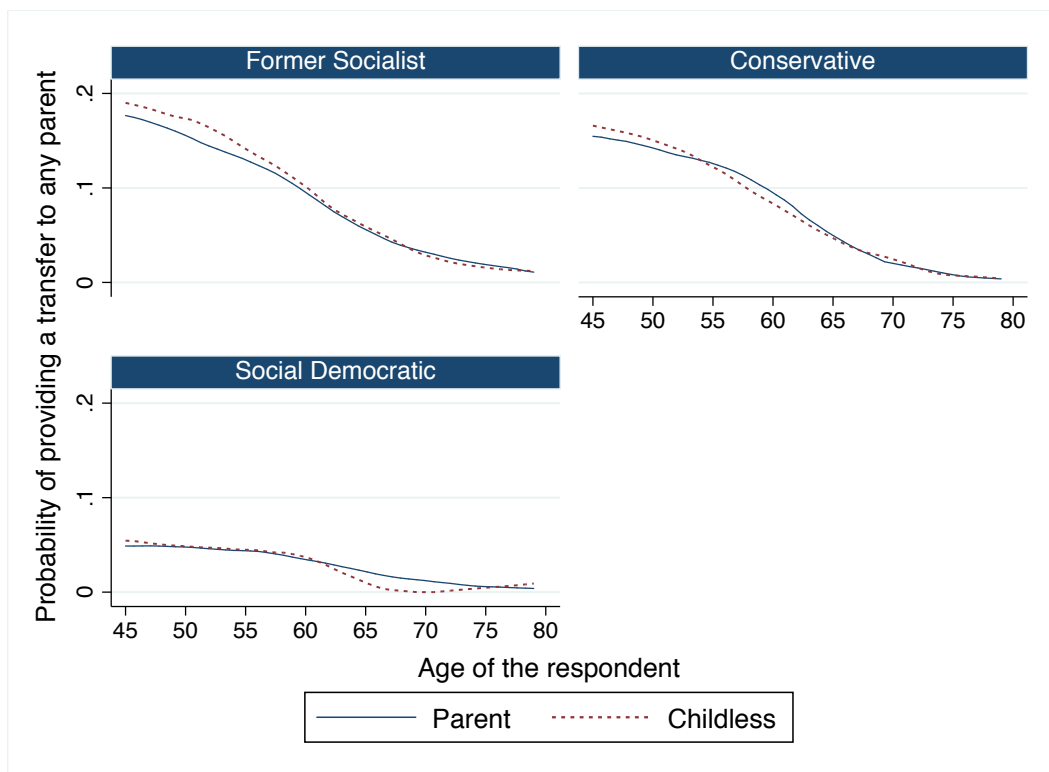


Figure 3 – Probability of providing a transfer to any parent, conditional on at least one parent alive, by country and childless status

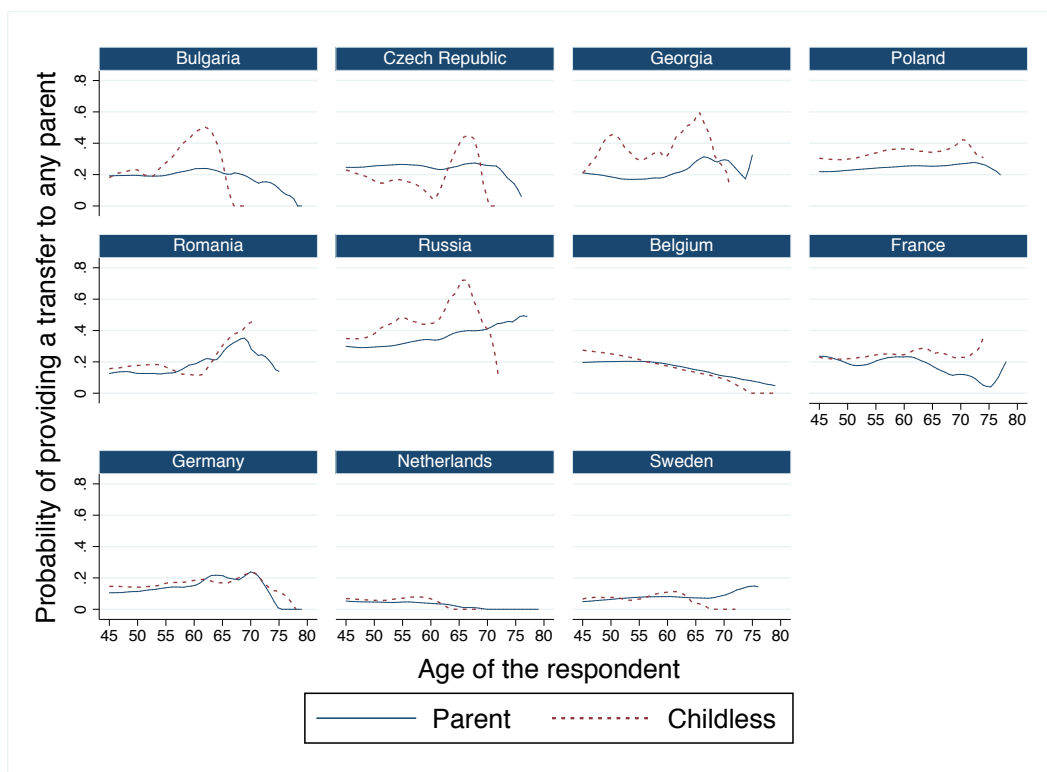


Figure 4 – Probability of providing a transfer to any parent, conditional on at least one parent alive, by welfare regime and childless status

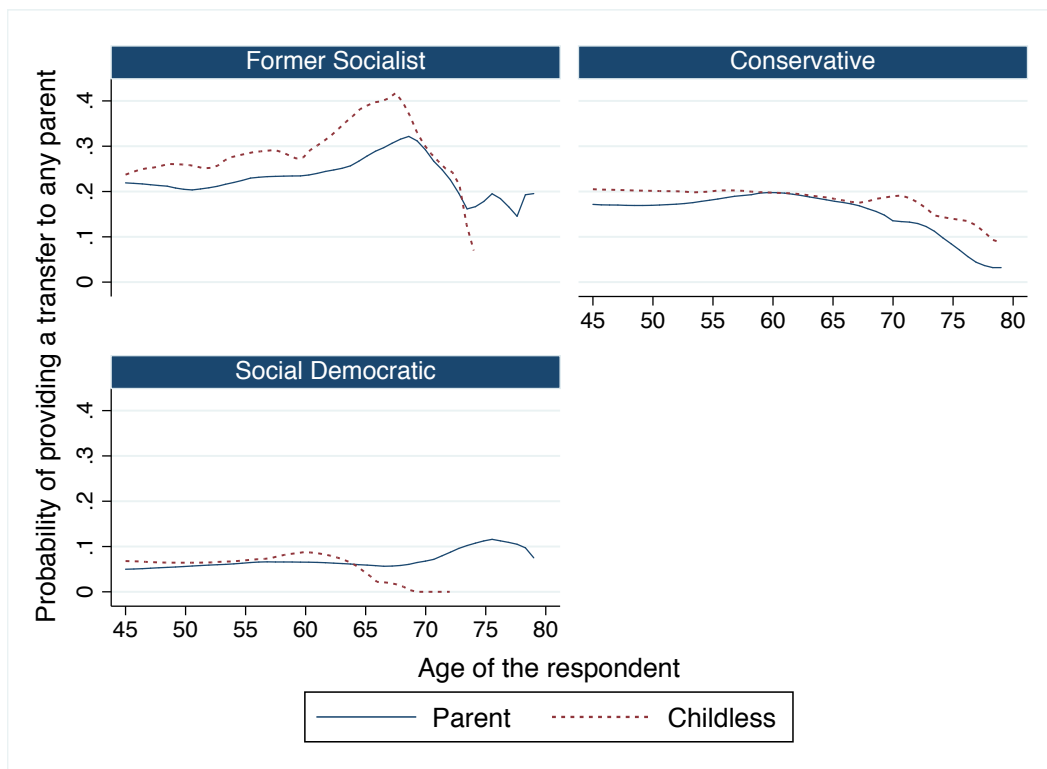


Table 4 - Logistic regression: likelihood of providing transfers to any parent, unconditional and conditional on at least one parent being alive (odds ratios)

Transfers to any parent	(1)		(2)		(3)		(4)	
	Full sample	Parent alive	Full sample	Parent alive	Full sample	Parent alive	Full sample	Parent alive
Childless (Ref.: Parent)	1.038 (0.045)	1.290*** (0.066)	1.043 (0.070)	1.376*** (0.107)	1.182** (0.086)	1.314*** (0.113)	1.152* (0.083)	1.264*** (0.107)
Age of R (Ref.: 45-49)								
Between 50 and 54			0.796*** (0.032)	0.972 (0.043)	0.800*** (0.034)	0.975 (0.046)	0.835*** (0.035)	0.992 (0.046)
Between 55 and 59			0.664*** (0.027)	1.160*** (0.056)	0.709*** (0.033)	1.165*** (0.062)	0.758*** (0.034)	1.190*** (0.062)
Between 60 and 64			0.391*** (0.019)	1.186*** (0.076)	0.453*** (0.028)	1.189** (0.092)	0.492*** (0.029)	1.243*** (0.093)
Between 65 and 69			0.200*** (0.013)	1.207* (0.117)	0.249*** (0.020)	1.234* (0.139)	0.261*** (0.020)	1.240* (0.138)
More than 70			0.080*** (0.006)	0.956 (0.149)	0.106*** (0.010)	1.013 (0.173)	0.114*** (0.010)	1.035 (0.175)
Female (Ref.: Male)			1.469*** (0.048)	1.746*** (0.069)	1.584*** (0.056)	1.789*** (0.076)	1.645*** (0.058)	1.832*** (0.078)
Childless * Female			1.100 (0.098)	0.967 (0.101)	0.921 (0.086)	0.878 (0.096)	0.927 (0.086)	0.887 (0.097)
Education (Ref.: Low)								
Medium					1.523*** (0.068)	1.390*** (0.078)	1.531*** (0.067)	1.392*** (0.076)
High					2.130*** (0.106)	1.906*** (0.118)	2.127*** (0.102)	1.981*** (0.118)
Employment status (Ref.: Employed)								
Unemployed					0.916 (0.057)	0.926 (0.066)	0.882** (0.055)	0.896 (0.063)
Retired					0.871*** (0.044)	1.018 (0.064)	0.870*** (0.043)	1.028 (0.063)
Housecare (ill/elderly)					0.908 (0.064)	0.919 (0.074)	0.812*** (0.056)	0.854** (0.068)
Other					0.976 (0.068)	1.036 (0.086)	1.105 (0.076)	1.115 (0.091)
With partner (Ref.: No partner)					1.138*** (0.043)	0.850*** (0.039)	1.110*** (0.042)	0.819*** (0.037)
Number of siblings alive					0.934*** (0.009)	0.922*** (0.011)	0.939*** (0.009)	0.935*** (0.010)
Health status (Ref.: Bad)								
Fair					1.110** (0.058)	0.913 (0.061)	1.173*** (0.061)	0.947 (0.063)
Good					1.162*** (0.065)	0.914 (0.063)	1.234*** (0.066)	0.907 (0.061)
Attitude towards old-age support					1.190*** (0.026)	1.192*** (0.031)	1.103*** (0.023)	1.141*** (0.028)
Welfare regime (Ref.: Former socialist)								
Conservative							0.914** (0.035)	0.828*** (0.037)
Social democratic							0.284*** (0.021)	0.231*** (0.020)
Constant	0.099*** (0.005)	0.249*** (0.015)	0.161*** (0.009)	0.176*** (0.012)	0.045*** (0.006)	0.083*** (0.013)	0.059*** (0.007)	0.109*** (0.016)
Country FE	Yes		Yes		Yes		No	
Observations	64,539	22,764	64,539	22,764	60,859	21,135	60,859	21,135

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Note: All models control for survey-year dummies.

Table 5 - Logistic regression: likelihood of providing transfers to the mother or the father, unconditional and conditional on the mother or the father being alive, respectively (odds ratios)

	Transfers to mother				Transfers to father			
	(3)		(4)		(3)		(4)	
	Full sample	Mother alive	Full sample	Mother alive	Full sample	Father alive	Full sample	Father alive
Childless (Ref.: Parent)	1.259*** (0.097)	1.383*** (0.130)	1.224*** (0.094)	1.324*** (0.123)	0.825 (0.120)	0.934 (0.162)	0.820 (0.118)	0.920 (0.159)
Age of R (Ref.: 45-49)								
Between 50 and 54	0.779*** (0.035)	0.987 (0.051)	0.817*** (0.036)	1.008 (0.051)	0.756*** (0.056)	1.060 (0.096)	0.773*** (0.057)	1.056 (0.095)
Between 55 and 59	0.706*** (0.034)	1.223*** (0.071)	0.758*** (0.036)	1.250*** (0.071)	0.577*** (0.050)	1.378*** (0.149)	0.610*** (0.052)	1.370*** (0.145)
Between 60 and 64	0.462*** (0.030)	1.291*** (0.108)	0.503*** (0.032)	1.345*** (0.109)	0.303*** (0.038)	1.444** (0.264)	0.326*** (0.040)	1.510** (0.270)
Between 65 and 69	0.251*** (0.021)	1.343** (0.163)	0.264*** (0.022)	1.352** (0.161)	0.174*** (0.029)	2.126*** (0.615)	0.179*** (0.029)	1.912** (0.547)
More than 70	0.111*** (0.011)	1.037 (0.192)	0.120*** (0.011)	1.052 (0.193)	0.066*** (0.014)	3.687*** (1.527)	0.070*** (0.014)	3.115*** (1.275)
Female (Ref.: Male)	1.655*** (0.063)	1.889*** (0.089)	1.723*** (0.065)	1.937*** (0.090)	1.147** (0.076)	1.107 (0.094)	1.163** (0.076)	1.100 (0.093)
Childless * Female	0.815** (0.081)	0.799* (0.096)	0.825* (0.081)	0.807* (0.096)	1.390* (0.254)	1.370 (0.302)	1.383* (0.252)	1.369 (0.301)
Education (Ref.: Low)								
Medium	1.500*** (0.072)	1.369*** (0.084)	1.516*** (0.070)	1.381*** (0.082)	1.617*** (0.147)	1.378*** (0.170)	1.507*** (0.134)	1.282** (0.154)
High	2.108*** (0.112)	1.910*** (0.130)	2.115*** (0.108)	2.011*** (0.131)	2.279*** (0.225)	1.790*** (0.234)	2.085*** (0.199)	1.743*** (0.221)
Employment status (Ref.: Employed)								
Unemployed	0.950 (0.063)	0.969 (0.074)	0.910 (0.059)	0.938 (0.071)	0.742** (0.093)	0.799 (0.124)	0.726*** (0.090)	0.770* (0.118)
Retired	0.857*** (0.047)	0.987 (0.067)	0.856*** (0.045)	0.999 (0.066)	0.877 (0.088)	0.921 (0.127)	0.870 (0.086)	0.951 (0.128)
Housecare (ill/elderly)	0.888 (0.067)	0.914 (0.081)	0.796*** (0.059)	0.853* (0.074)	0.908 (0.124)	0.829 (0.147)	0.814 (0.109)	0.781 (0.136)
Other	0.997 (0.074)	1.054 (0.095)	1.129* (0.082)	1.128 (0.100)	0.812 (0.114)	0.891 (0.164)	0.945 (0.130)	0.987 (0.180)
With partner (Ref.: No partner)	1.160*** (0.047)	0.844*** (0.041)	1.127*** (0.045)	0.808*** (0.039)	1.051 (0.078)	0.743*** (0.071)	1.050 (0.078)	0.729*** (0.069)
Number of siblings alive	0.933*** (0.009)	0.922*** (0.012)	0.939*** (0.009)	0.937*** (0.011)	0.927*** (0.017)	0.917*** (0.023)	0.934*** (0.017)	0.932*** (0.023)
Health status (Ref.: Bad)								
Fair	1.125** (0.063)	0.901 (0.065)	1.189*** (0.066)	0.933 (0.066)	1.015 (0.106)	0.909 (0.137)	1.067 (0.111)	0.929 (0.139)
Good	1.180*** (0.070)	0.911 (0.068)	1.244*** (0.072)	0.888* (0.064)	0.969 (0.106)	0.781 (0.119)	1.117 (0.119)	0.814 (0.122)
Attitude towards old-age support	1.180*** (0.027)	1.176*** (0.034)	1.096*** (0.024)	1.137*** (0.031)	1.196*** (0.050)	1.165*** (0.061)	1.097** (0.043)	1.096* (0.055)
Welfare regime (Ref.: Former socialist)								
Conservative			0.931* (0.038)	0.802*** (0.040)			1.084 (0.078)	0.898 (0.081)
Social Democratic			0.254*** (0.021)	0.198*** (0.019)			0.384*** (0.052)	0.284*** (0.048)
Constant	0.036*** (0.005)	0.076*** (0.013)	0.049*** (0.006)	0.102*** (0.016)	0.021*** (0.005)	0.080*** (0.026)	0.022*** (0.005)	0.095*** (0.028)
Country FE	Yes		No		Yes		No	
Observations	60,859	18,464	60,859	18,464	60,859	8,696	60,859	8,696

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Note: All models control for survey-year dummies.

Table 6 – Estimated coefficient for the childless dummy variable using different propensity score estimators (ATT – Average Treatment Effect on the Treated)

ATT	<u>Transfers to any parent</u>		<u>Transfers to mother</u>		<u>Transfers to father</u>	
	Full sample	Parent alive	Full sample	Mother alive	Full sample	Father alive
Nearest neighbor matching	0.0103 (0.007)	0.0289** (0.014)	0.0102 (0.006)	0.0298** (0.014)	-0.0007 (0.004)	0.0077 (0.016)
Epanechnikov kernel matcing	0.009** (0.003)	0.0315*** (0.009)	0.0075** (0.003)	0.0295*** (0.009)	0 (0.002)	.0111 (0.010)
Radius matching	0.0097** (0.004)	0.0294** (0.009)	0.0083** (0.003)	0.0316*** (0.01)	0.0001 (0.002)	0.0079 (0.011)

Bootstrapped standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Note: caliper set at 0.0005

Appendix A – Survival of parents

Figure 1: Survival of respondent's parents, by country and respondent's age

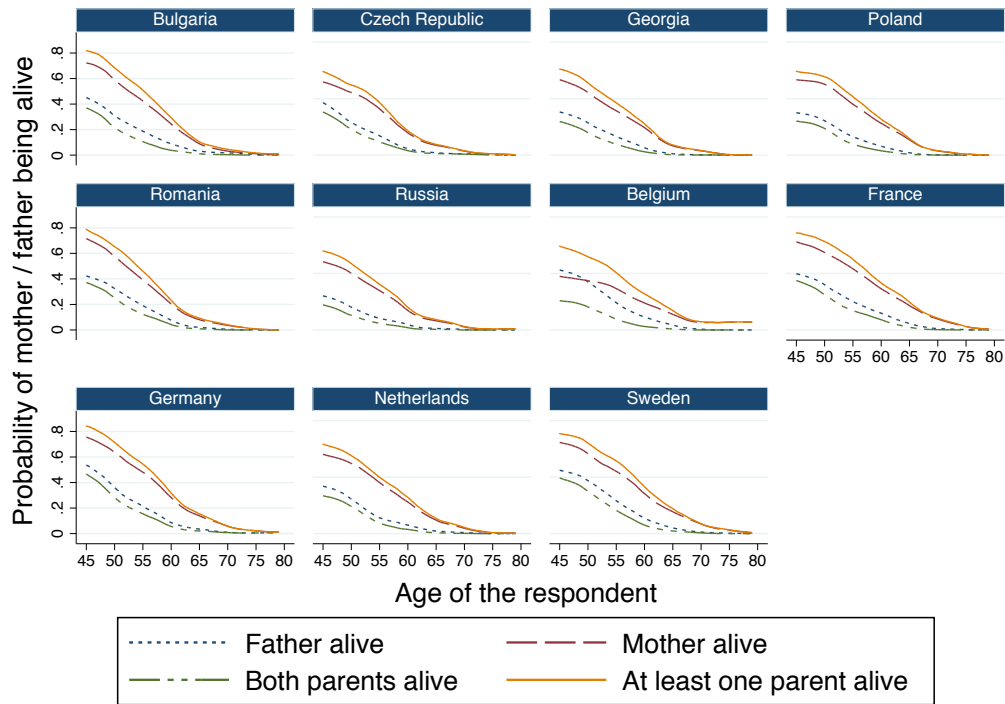


Figure 2: Probability of at least one parent alive by country, respondent's age and gender

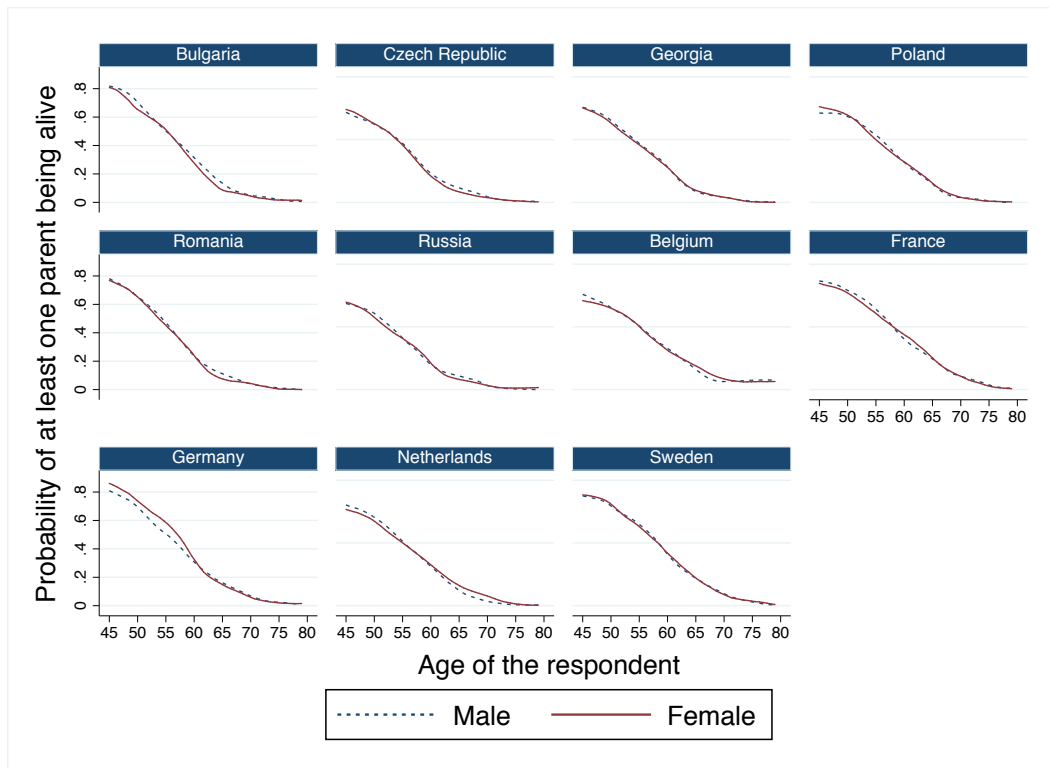


Figure 3: Probability of at least one parent alive by country, respondent's age and education

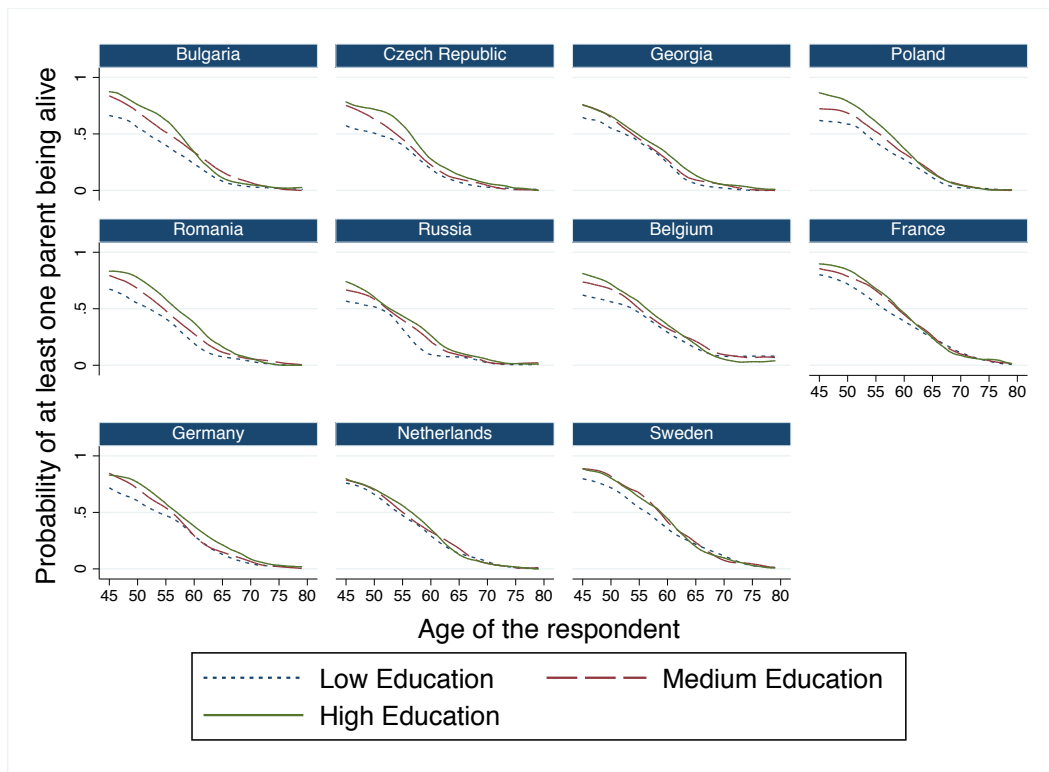
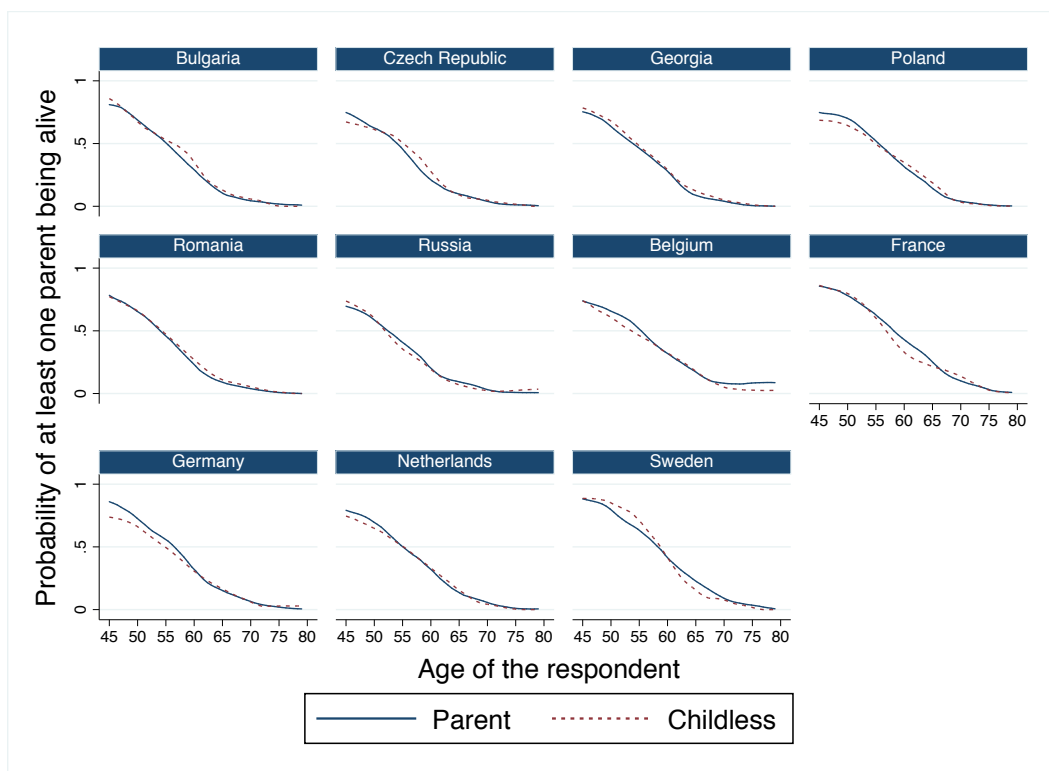


Figure 4: Probability of at least one parent alive by country, respondent's age and childless status



Appendix B – Age profiles of upward support

Figure 1: Probability of providing upward support, by country, respondent's age and gender of the transfer recipient (unconditional transfers)

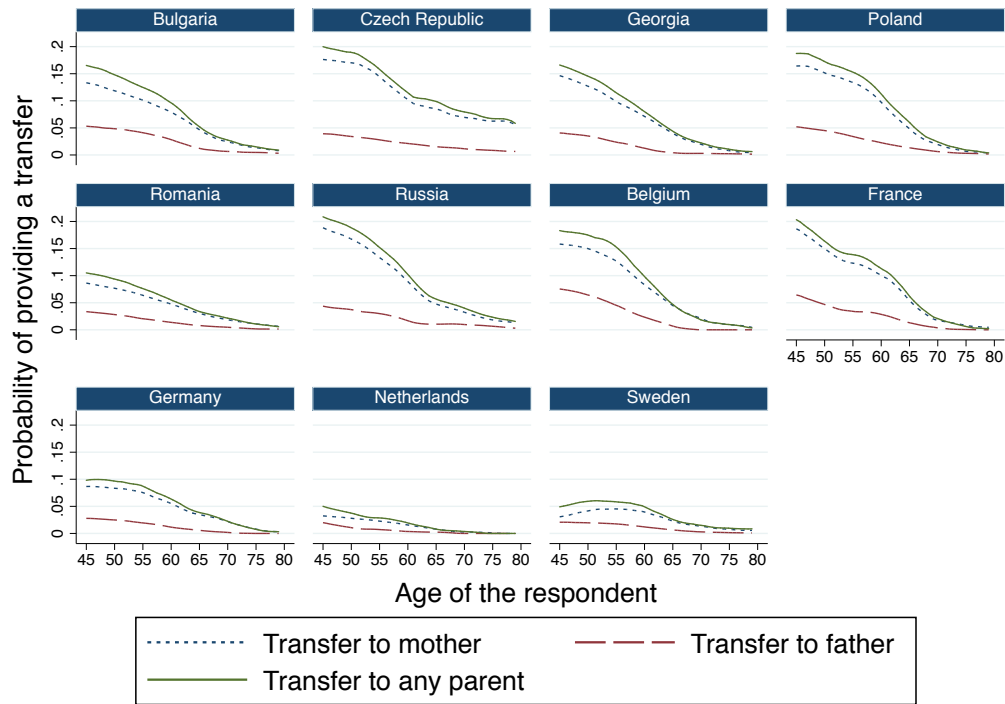


Figure 2: Probability of providing upward support to any parent, by country, respondent's age and gender (unconditional transfers)

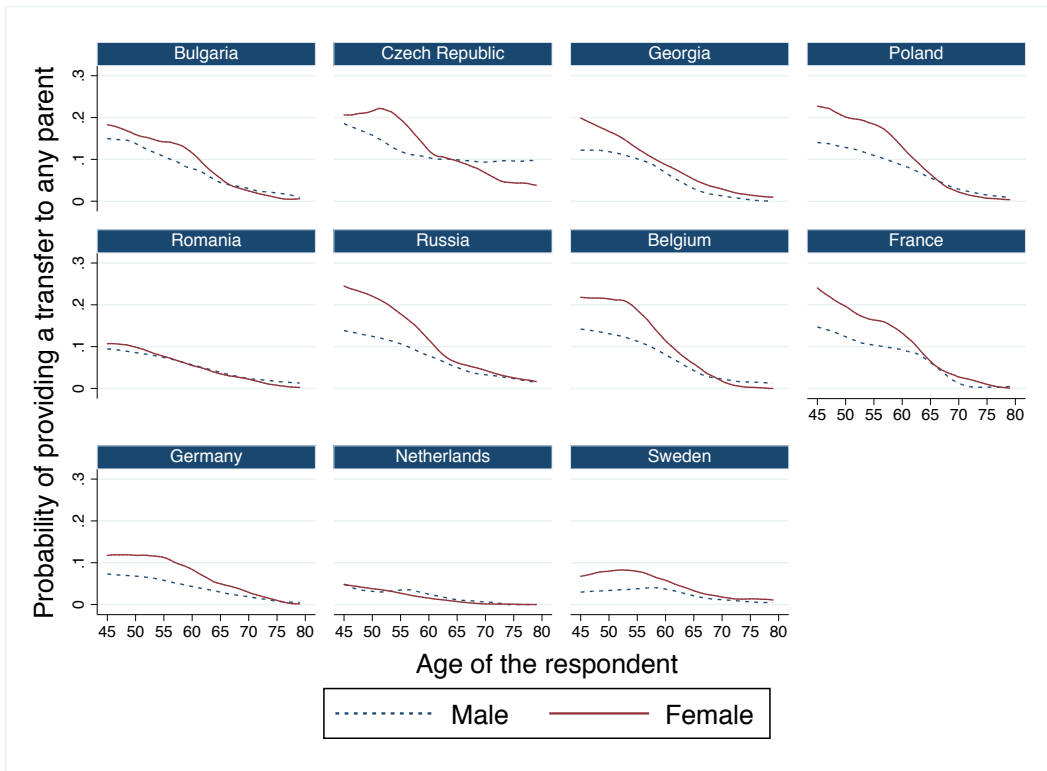


Figure 3: Probability of providing upward support to any parent, by country, respondent's age and level of education (unconditional transfers)

