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The informal care provision: what are the genuine incentives of children ?*

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Abstract

Using panel data from the Survey of Health, Ageing and Retirement in Europe (SHARE), I examine the incentives underlying care provision including the effects of altruism (1), the exchange motive (2) and the family norms (3) on the informal care decision in an ascendant family model. These estimates suggest that altruism and the exchange motive are the main drivers of the caregiver's decision. Furthermore, the empirical results are in favour of a North-South gradient since the motives driving the care decision differ according to the countries. Finally, the findings confirm well-known results: females are the main caregivers and having siblings relieves the care burden.

Keywords: Informal care, altruism, exchange model, norm transmission.

JEL codes: D12, D64, I12

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1 Introduction

Most European countries are facing demographic ageing. The number of people aged 80 years and above is likely to double by 2050 (Eurostat). Low fertility levels and growing longevity shift the EU-28's age pyramid to a much older population structure. Hence, the number of old people is expected to increase while the working population share will probably decline. This trend has strong implications for social security systems and begs the question of supporting people who need long-term care (LTC).

The LTC concerns disabled people who are unable to get by with daily activities while living alone, owing to old-age, such as bathing, dressing, feeding, toileting, transferring or walking. While the demand for care is increasing due to ageing population, the LTC supply seems limited. Indeed, public assistance is marginalized and the insurance market dedicated to old-age is almost nonexistent, except in France and in the USA. This gap between the low purchase of LTC private insurance and the growing LTC costs is the so-called "long-term care insurance puzzle". Pestieau and Ponthière (2010) have highlighted the reasons explaining why only few people gravitate towards the market. On the demand side, most elderly cannot afford such excessive costs as those of a LTC private insurance (Cremer, Pestieau, Ponthière, 2012). Furthermore, people do not anticipate the risk of old-age dependency. In that way, elderly decide -or not- to buy a LTC private insurance based on an optimistic perception of their current situation and not on their real health status.

The significance of the formal care is still marginal and studies have shown that elderly rely mainly on informal care. Family support stands in for the market and could also explain the low resort to LTC private insurance. Indeed, old people may prefer staying at home and being cared for close relatives instead of going to a nursing home. Even though the number of informal caregivers tend to decline due to the splitting up of the family unit, the family remains the main care provider.

A prolific literature dealing with the "long-term care insurance puzzle" already exists, notably concerning the low resort to private insurance, but not so many studies focus on the informal care supply. Nevertheless, understanding the family solidarity motives would allow the implementation of fitting policies supporting formal care. The aim of this paper is to examine the incentives underlying the care provided by children to their disabled parents.

Previous works have found both theoretical and empirical evidence supporting the validity of three determinants motivating people to transfer income or time to their relatives: altruism, exchange and family norms. Altru-

ism and exchange are often put forward as significant motives in transferring either money or time inside the family and many studies try to discriminate between both, leaving aside the role of family norms.

Becker (1976) stresses the importance of altruism in social interactions, particularly inside the family. Members of the family try to maximize not only their own income, but also family income. Along the same lines, considering inter-vivos transfers in a descendant altruistic model (from parent to children), a parent chooses to be concerned about the well-being of his child. Thus, the parent's utility function depends positively on both his consumption level and his child well-being (Becker, 1991). This model using exogenous altruism involves a condition based on the non-impact of children's and parents' wages on transfers (neutrality rule). Theoretically, if family relationships are only driven by altruistic thought, changes in children's and parents' wages will affect subsequent transfer behavior in the same proportion. Some authors have questioned the significance of the altruistic hypothesis considering descendant inter-vivos transfers. Hochguertel and Ohlsson (2007) ask whether parental transfers are compensatory; they analyze if parents give more to the poorest child. In other words, is the transfer a compensating amount to balance the financial resources among children? They find empirical evidence supporting that gifts from parents are compensatory since poorer children will receive more than richer siblings. Nevertheless, transfers from parents do not entirely balance the resources between siblings. In that sense, the altruism prediction is only confirmed by their first empirical finding and the second one suggests the existence of the exchange model. Altonji et Al. (1997) analyse an implication of the altruism model: a one dollar rise in the parents' wage, who transfer money to their children, and at the same time a decrease of one dollar in the children's wage lead to an increase of one dollar in the parents' transfer. Altruism would imply a one dollar increase in the transfer but their results prove that the rise in the parents' transfer is smaller than the rise in the parents' wage. These results reject the hypothesis of pure altruism. The papers mentioned above analyse inter-vivos transfers from parents to children and question whether the pure altruism hypothesis is held. Other authors take into account not only transfers from parents to children but also transfers from children to parents. Cox and Rank (1992) also try to discriminate between the altruism and the exchange motive considering inter-vivos transfers. As for the altruism model, they predicted that an increase in the child's wage leads to a decrease in the probability of transferring money as well as in the amount given. On the contrary, the exchange model predicts that an increase in the child's wage implies a decrease in the probability of transferring but a rise in the amount given. Empirically, they validate the second prediction, confirming the ex-

change model. Furthermore, they find a positive relationship between the support provided by children to parents and transfers made by parents to their offspring. This link strengthens the significance of the exchange motive in a two-way transfer model. Based on the model of Cox (1987), Alessie et al. (2014) consider not only money transfers from parents to children but also time transfers from children to parents. Under altruism, the relationship between the child's income and the transfer amount should be negative: parents give more to the child who has less. Empirically, parents do not give more to children who have less and poor children supply more help to their parents, contrary to the altruism prediction.

Inter-vivos transfers are not the only way to transfer income or time: parents can also transfer income through bequests. Based on the pure altruism theory, parents give inheritance to their children regardless of any help. In the exchange mechanism, the child helps his parent for an implicit subsequent compensation. Some studies try to discriminate between either the altruism hypothesis or the exchange motive considering bequests and examine whether inheritance can impact the behavior of caregivers. Bernheim et al. (1985) ask whether parents use bequests to strategically influence the behavior of their beneficiaries. Theoretically, they predict that children are influenced by future bequests and parents can drive their offspring's behaviors when there is more than one child inside the family (threat of disinheritance). They estimate that contacts between parents and children are more important when children are bequeathable which confirms the bequest motive as strategic. Perozek (1998) reassesses the strength of the analysis done by Bernheim et al.. The author wonders whether parents can sway potential behavior beneficiaries through the bequest channel. She finds that attention is not only affected by their "bequeathability" but also by the size of the family: many children inside the family leads to less attention paid by each one. Her results turn weaker than those of Bernheim et al. but remain in the same line, supporting the bequest motive as a part of a strategic behavior. Angelini (2007) tests whether attention from adult children to their parents (mainly via phone calls) is driven by pure altruism or by a strategic bequest motive. The author wonders whether parents use the threat of disinheritance to sway their child's kindness. Their findings support the bequest motive when there is more than one beneficiary. Angelini distinguishes between two types of wealth: financial wealth and real wealth. Children are more influenced by real wealth and they are not aware of the liquidities their parents hold: it is easier to hide assets than houses.

Very few papers concentrate their works on transfer motives from children to parents when the latter is dependent. Using game theory, Hiedemann and Stern (1999) study children's and parents' characteristics and find that vari-

ables such as gender, number of siblings and distance between children's and parents' households impact caregiving decisions. Engers and Stern (2002) confirm the results previously found by Hiedemann and Stern in that gender and distance are put forward as important explanatory variables in the caregiving decisions inside the family.

Up to this point, altruism was considered as exogenous in that parents could not influence directly the probability of their children to be altruistic. Leaving aside exogenous altruism and exchange, family norms are also stressed as an important motive for transfers from children to parents. Indeed, elderly face both the risk of being dependent and the uncertainty of being helped. In order to reduce the uncertainty of receiving care, parents can influence their children's behaviors by investing in their daily education and instilling them the values of the family. Some authors concede that individual preferences are part of a cultural transmission inside the family. Cavalli-Sforza et al. (1981) distinguish the vertical transmission (offsprings assimilate parents as the cultural model) from the oblique transmission (all the members' parental generation provide a set of cultural traits to the children). Their empirical findings support the vertical transmission and bear out the role of close relatives as the root of behavior traits. Likewise, Bisin and Verdier (2001) study inter-generational cultural transmission of one's preference traits based on his parents' socialization actions. In their paper, parents are imperfectly altruistic and decide to transmit -or not- cultural traits to their offspring. Ponthière (2011) explains that parents who are sure to turn dependent in later life can decide to incite their children to be more altruistic through the socialization process. This decision is a dilemma between the high socialization cost and the potential benefit the parent will receive at old age. Jellal and Wolff (2002) study the cultural transmission of preferences. They make out two types of individuals: altruistic or selfish. The probability of a child to be altruistic depends positively on the care her parents gave to their own old-age parents. They find empirical results in favour of cultural transmission, in that altruistic preferences survive overtime. Cox and Stark (1996) study family norms using the demonstration effect throughout three generations. The authors question whether the presence of a child increases the quantity of services provided by adult children to their elders. In that sense, adult parents care their elder relatives in order to show their children the behaviour they would like them to adopt. The authors find evidence supporting the demonstration effect since the presence of children positively impacts the transfers in time (calls and visits) from adult children to their elders. Accordingly, parents instill behavior preferences in their offspring and could better face the uncertainty of being helped. Cox and Stark conclude that family norms are intentionally shaped by the par-

ents. According to Canta and Pestieau (2013), children decide to care for -or not- their old-age parents based on a norm conveyed in the family through the demonstration effect (Cox and Stark, 1996). Supporting her parents represents a risky investment insofar as children make this decision before the degree of disability of the parents has been known. If the parents do well in later life, children's investment turns out unfruitful. At the same time, the authors distinguish between two types of children: traditional (the child follows the family norm) and modern (the child does not follow the family norm). Investing in the demonstration effect, parents will be helped provided that they turn dependent and they have traditional children. Otherwise, the efforts put in the demonstration process represent a sunk cost. The parents face the uncertainty of being helped since children do not always follow the steady traditional behavior.

Some of the previous studies mentioned analyse the determinants of inter-generational transfers, using either inter-vivos transfers or bequest motive, in order to discriminate between altruism and exchange incentives. The others focus on the significance of family norms whose transmission is still slightly black-boxed.

The ambition of this paper is twofold. The first contribution is to examine in the same framework the three motives underlying transfers inside the family: pure altruism, exchange and family norms. One of these concept viewed in isolation cannot entirely predict behaviors as complex as those of individuals. The second contribution is to test whether these motives explain transfers from children to parents when the latter needs LTC. Using panel data from the Survey of Health, Ageing and Retirement in Europe (SHARE), I examine the effects of altruism, the exchange motive and the family norms on the informal care decision in an ascendant family model (from children to parents). These estimates suggest that altruism and the exchange motive are the main drivers of the caregiver's decision. Furthermore, the empirical results reveal a clear North-South gradient. Long-term care decision is driven by the family norms for southern countries while altruism and exchange motives prevail for both northern and central European countries. Finally, the findings confirm well-known results: female are the main caregivers and having siblings relieves the care burden.

To the best of my knowledge, few papers examine the three motives of LTC in the same framework. Using cross-sectional data, Klimaviciute et al. (2017) test the three motives considering informal care supply: pure altruism, exchange and family norms. They look at both the informal help given by children to their parents and monetary transfers received by children from parents. Empirical evidence supporting the model of altruism and rejecting the exchange motive are found. Additionally, their results suggest that the

informal care in southern European countries is often driven by family norms.

The paper is organized as follows. Section 2 presents the data used in the analysis and discusses the empirical strategy. The main results are reported in Section 3. Robustness tests with regard to econometric strategy as well as the endogeneity issue are presented in Section 4. Section 5 concludes.

2 Data and empirical strategy

The informal care decision (Y_{it}) is a function of altruism (A_{it}), exchange (E_{it}), norms (N_{it}) and a vector of socio-demographic controls (\mathbf{z}_{it}). The following care decision equation is estimated for each individual i ($i=1, \dots, n$) in year t ($t=1, 2$) using a binary response probit model :

$$P_{it} = \text{prob}[Y_{it} = 1 \mid A_{it}, E_{it}, N_{it}, \mathbf{z}_{it}] = \Phi(\beta_1 A_{it} + \beta_2 E_{it} + \beta_3 N_{it} + (\beta_4 \mathbf{z}_{it})) \quad (1)$$

where $\Phi(\cdot)$ is the standard normal cumulative distribution function.

I use data from the first two waves -2004 and 2006- of the Survey on Health, Ageing and Retirement in Europe (SHARE). SHARE is a cross-sectional and multidisciplinary database that gathers representative samples from eleven participating countries: Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Spain, Sweden and Switzerland. It comprises micro data on health, socio-economic status and personal characteristics of individuals aged 50 and over and their partners, irrespective of age.

The respondents are the adult children who decide -or not- to care for their old-age parents. I exclude respondents younger than 45 to be sure that parents are more than 60 since they are more at risk of dependency. In order to insist on this lack of autonomy, I keep only the respondents who perceive their parents as being in poor health. I rule out respondents living with their parents in the same household to avoid joint production. If caregivers and recipients live together, two effects have to be distinguished: the help provided due to poor health of parents and the help provided due to co-habiting. Van Den Berg and Spauwen (2006) point out the issue of joint production in the informal care process: doing different tasks simultaneously bias the real time caregivers dedicate to care. 9953 individuals are included across the two waves; missing values for some variables and restrictions mentioned above constitute an observation panel of 11408.

The dependent variable represents the decision of care. It is a dummy variable equal to one if respondents have helped their parents in the last year.

Based on the questionnaire, three types of help are considered: personal care, housework and administrative work. I focus on respondents who had helped at least one of their parents -or both- in the last twelve months prior the interview regardless of the type of help provided and the frequency.

Pure altruism, exchange and family norms are the main explaining variables. As mentioned above, authors have largely used the neutrality rule in order to discriminate between altruism and the exchange motive considering inter-vivos transfers. They observed the child behavior depending on his own wage and that of his parents. Due to data restrictions, I cannot use this method since variables on parental incomes are not available in SHARE. Nevertheless, a purely altruistic person is often defined as someone whose welfare depends positively on others' (Becker, 1991). Thus, people who give time and money to someone else without acting out of self-interest are considered as altruistic. In this paper, altruism is proxied by respondents who took part into voluntary activities outside the household in the last month. Then, two types of altruism exist: intra-family altruism and extra-family altruism. Assuming the former, altruism would positively impact the informal care decision: the more adult children took part into charity activities, the more altruistic they are and the more they will help their disabled elders. Assuming the latter, altruism would impact negatively the informal care decision: the more adult children took part into charity work, the less they have time to care for their own parents. In that sense, it could be a substitution between intra-family and extra-family altruism. In this paper, the intra-family hypothesis is made.

Previous literature has proved that transfers rely not only on altruism but on exchange considerations as well. The aim of this paper is to analyse whether being bequeathable impacts the supply care decision. More precisely, respondents are asked whether they have chances to inherit money, including property, in the next years.

The third motive of caring considered is family norms. I wonder whether respondents are induced to reproduce what both they have observed and received inside the family (Cavalli-Sforza and al, 1981; Cox and Stark, 1996). In the survey, they are asked whether "they have ever received any kind of help from family member outside the household except the parents". In that way, potential caregivers have already been helped by family members in the past and they are more likely to provide care to their own parents.

Explanatory variables include gender, wealth, education, number of siblings, number of children and grandchildren, distance between the parents' and the respondents' households, marital status, occupational status and living countries.

Table 1 reports definitions of all the variables used in the model. The

level of education variable has been created based on the ISCED code ¹. The sample is made of 57 % of women and the mean age of the respondents is 55.06. Moreover, 26 % of the sample has provided care to old-age parents in the last twelve months.

Table 1: Sample variable definitions and descriptive statistics

Variables	Definitions	%
Help	= 1 if respondent has helped a parent living outside the household in the last twelve months	26
Altruism	= 1 if respondent has done voluntary or charity work in the last month	15
Exchange	Chances respondent has to receive any inheritance, including property and other valuables in the next ten years	39
Norms	= 1 if respondent has ever received any kind of help from a family member outside the household except the parents	5
Age	Age at interview	55.06
Gender	= 1 if respondent is female	57
Wealth	Respondent's household net worth in Euro (100k)	8.98
Education	Level of education	
Primary school		17
Secondary school		53
Tertiary school		30
Sisters	Number of sisters	1.15
Brothers	Number of brothers	1.19
Children	Number of children	1.33
Grandchildren	Number of grandchildren	1.09
Distance	Distance in km between parents' hh and respondent's one	
< 5 km away		39
between 5 and 100 km away		39
> 100 kilometers away		22
Married	= 1 if respondent is married living with spouse/husband	69
Homemaker	= 1 if respondent is a homemaker	86
Country	Country identifier	

Descriptive statistics concerning the care decision with respect to the gender caregiver and his living country are presented in Table 2. The first and the third columns compare care decision means by gender. These statistics confirm the well-known result about gender in the informal care process: regardless of country features, 29 % of women report helping their parents to only 23% for men. The fifth column details the care provided by respondents living in different countries. To highlight, 16% of Greek respondents declared caring for their old-age parents while 36% for Swedish children. In the same line, 36% in Denmark declare helping their parents while only 15% declare in Spain.

Table 3 provides further descriptive statistics which summarize the three main explanatory variables of the regression. Country specific patterns are noteworthy: less than 11% of the respondents in Austria, Greece, Italy and

¹International Standard Classification of Education (ISCED) developed by UNESCO.

Table 2: The informal care decision

Country	Males		Females		Total	
	Mean	SD	Mean	SD	Mean	SD
Austria	0.18	0.38	0.20	0.40	0.19	0.39
Belgium	0.27	0.45	0.34	0.47	0.31	0.46
Denmark	0.32	0.46	0.39	0.49	0.36	0.48
France	0.21	0.41	0.27	0.44	0.24	0.43
Germany	0.25	0.44	0.28	0.45	0.27	0.44
Greece	0.13	0.34	0.18	0.38	0.16	0.37
Italy	0.16	0.36	0.27	0.44	0.21	0.42
Netherlands	0.26	0.44	0.38	0.49	0.33	0.47
Spain	0.12	0.32	0.18	0.39	0.15	0.36
Sweden	0.34	0.47	0.37	0.49	0.36	0.48
Switzerland	0.22	0.41	0.28	0.45	0.25	0.43
Total	0.23	0.42	0.29	0.45	0.26	0.44
<i>N</i>	4896		6512		11408	

Table 3: Main explanatory variables

Country	Altruism P($A_{it}=1$)	Exchange Mean	Norms P($N_{it}=1$)	<i>N</i>
Austria	10.88	19.68	11.92	386
Belgium	17.67	51.74	4.93	1358
Denmark	21.36	55.30	10.42	969
France	17.41	36.67	2.63	1712
Germany	12.45	34.31	7.45	1100
Greece	3.73	23.89	3.73	1342
Italy	7.58	26.09	2.63	989
Netherlands	27.55	41.03	4.78	1129
Spain	2.71	29.57	2.71	737
Sweden	17.85	59.97	6.65	1098
Switzerland	21.94	43.93	3.74	588
Total	14.95	39.41	5.14	11408

Spain took part in charity activities in the last twelve months. On the contrary, The Netherlands, Denmark and Switzerland make up more than 20% of altruistic respondents. The third column gives the share of respondents thinking they will inherit in the next ten years. In Austria, Greece, Italy and Spain, this percentage is low -between 20% and 30%- whereas Swedish and Danish respondents are more optimistic about their future inheritance. Considering the whole sample, respondents think they have a 39% chance to receive inheritance. The first three columns support the existence of country patterns. The fourth column reports results about family norms. Austria and Denmark stand out from others with a high percentage of respondents who have been helped by a close relative but there is no obvious pattern among country groups. Based on these statistics, three country groups can be distinguished: northern European countries, exhibiting an above average level of altruism and exchange (Belgium, Denmark, Netherlands, Sweden), central European countries (France, Germany, Switzerland) and southern European countries (Austria², Greece, Italy and Spain). Additionally, Table 11 in the Appendix presents a correlation matrix in order to control for variables correlation. Almost all coefficients are close to zero. This means that the level of correlation between variables is relatively low.

3 Empirical results

The probit estimates are presented in Table 4. Regression (1) includes only the three main explanatory variables: altruism, exchange and norms. In column (2), some control variables about respondent's characteristics such as gender, wealth and level of schooling are added. In column (3), the number of siblings as well as the number of children and grandchildren are taken into account. Column (4) presents results when distance between children's and parents' households is included; both marital and employment status are presented in column (5). The last column shows the results for the main model: a dummy variable for each country is included to capture heterogeneity across European countries. Looking at the whole table, marginal effects as well as p-values remain rather constant when new variables are added. In each of the six specifications, altruism is positively and significantly correlated with the care decision: the more altruistic the child is, the more likely she decides to help her parents. Likewise, the exchange variable is significant at the 0.1% level and has a positive effect on the care decision. It implies

²Even though Austria is not located in the south of Europe, it has similar descriptive statistics as Greece, Italy and Spain. Kalmijn and Saraceno (2008) have found similar patterns.

Table 4: Probit marginal effects: main regression

	Marginal effects: care decision					
	(1)	(2)	(3)	(4)	(5)	(6)
Altruism	0.095*** (7.36)	0.085*** (6.62)	0.089*** (6.92)	0.087*** (6.95)	0.088*** (7.04)	0.064*** (5.13)
Exchange	0.002*** (14.64)	0.002*** (12.91)	0.002*** (12.33)	0.002*** (12.69)	0.002*** (12.58)	0.001*** (9.60)
Norms	0.054** (2.57)	0.049** (2.35)	0.057*** (2.68)	0.047** (2.26)	0.042** (2.01)	0.035* (1.68)
Female		0.085*** (8.47)	0.083*** (8.19)	0.083*** (8.46)	0.092*** (8.86)	0.083*** (8.08)
Wealth (100k)		0.001*** (3.25)	0.001*** (3.16)	0.001*** (3.80)	0.001*** (3.78)	0.000 (1.10)
Education						
Primary		ref	ref	ref	ref	ref
Secondary		0.087*** (5.92)	0.079*** (5.34)	0.081*** (5.63)	0.077*** (5.28)	0.051*** (3.42)
Higher		0.099*** (6.10)	0.088*** (5.38)	0.123*** (7.63)	0.115*** (6.99)	0.089*** (5.37)
Sister			-0.018*** (-4.52)	-0.014*** (-3.49)	-0.013*** (-3.31)	-0.016*** (-3.96)
Brother			-0.010** (-2.47)	-0.007* (-1.75)	-0.006 (-1.61)	-0.009** (-2.21)
Grandchild			0.002 (0.70)	0.004 (1.43)	0.004 (1.39)	-0.002 (-0.69)
Child			-0.006* (-1.71)	-0.005 (-1.47)	-0.005 (-1.48)	-0.005 (-1.50)
Distance						
< 5 km				ref	ref	ref
between 5 and 100 km				-0.091*** (-8.75)	-0.093*** (-8.88)	-0.112*** (-10.67)
> 100 km				-0.254*** (-17.94)	-0.257*** (-17.99)	-0.272*** (-18.78)
Married					-0.016 (-1.62)	-0.012 (-1.20)
Homemaker					-0.041*** (-2.79)	-0.008 (-0.53)
Countries						
France						ref
Austria						-0.104*** (-3.41)
Belgium						-0.004 (-0.22)
Denmark						0.062*** (2.95)
Germany						-0.023 (-1.13)
Greece						-0.120*** (-5.77)
Italy						-0.075*** (-3.50)
Netherlands						0.061*** (3.07)
Spain						-0.148*** (-5.87)
Sweden						0.080*** (4.02)
Switzerland						-0.021 (-0.86)
Observations	11408	11408	11408	11408	11408	11408
Log-likelihood	-6381.51	-6319.58	-6300.07	-6124.65	-6122.87	-6032.14

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

that a higher probability to inherit (inheritance from a parent to his child) leads to a higher probability to care for his parents which highlights the role of exchange in the care decision and excludes altruism as the single explanation. While family norms has a strong positive effect in column (1), its coefficient weakens when country dummies are added but remains significant at the 10% threshold. These results support the hypothesis that each of the three main determinants matter and prove that discrimination between either altruism or exchange, leaving aside family norms, is not enough to understand intergenerational transfers motivation.

Considering other explicative variables, some results are in line with those presented in literature. Caregivers are usually women. Moreover, the number of sisters and brothers is negatively correlated with the dependent variable. The more siblings a potential caregiver has, the less likely she decides to help his parents; thinking that others can do it for them. In other words, having sisters and brothers reduces the workload. However, the results show that having children, grandchildren or being married has no impact on the care decision. These results are counter-intuitive and seem to be in contradiction with the literature. The coefficients concerning the second and the third levels of education are highly significant and positive. Respondents with a high level of education tend to declare helping more their own parents. Additionally, distance between children and parents' households has a strong negative effect on the informal care decision: if the child lives far away from his parents' household, she is less able to take care of them. Through the six specifications, some coefficients change when other control variables are included. The wealth of the caregiver has a positive and significant impact on the care decision, except when country variables are taken into account in the regression. Likewise, being a homemaker seems to have a negative impact on the dependent variable (5th column) but this effect disappears when country variables are added.

The last specification includes country specific fixed effects. Four countries are significantly but negatively correlated (compared to France) with the dependent variable: Austria, Greece, Italy and Spain. This means that respondents living in these countries declare helping their parents less than those living in France³. On the contrary, coefficients from Denmark, the Netherlands and Sweden are positive. In these countries, respondents declare helping their parents more than the French respondents. Similar patterns had been found in the descriptive statistics of Table 2.

³Even though these results can appear surprising, one has to note that children and parents living in the same household have been excluded in order to avoid joint production.

Table 5: Probit marginal effects for subsamples

	Marginal effects: care decision			
	Female	Male	At home	Employed
Altruism	0.070*** (3.84)	0.057*** (3.38)	0.083** (4.47)	0.044*** (2.60)
Exchange	0.001*** (7.67)	0.001*** (5.83)	0.001*** (6.17)	0.001*** (7.40)
Norms	0.030 (1.06)	0.043 (1.39)	0.008 (0.28)	0.056** (1.92)
Female			0.083*** (5.48)	0.073*** (5.69)
Wealth (100k)	0.000 (0.66)	0.000 (0.99)	-0.000 (-1.19)	0.000* (1.95)
Education				
Primary	ref	ref	ref	ref
Secondary	0.045** (2.17)	0.062*** (2.90)	0.003* (1.88)	0.081*** (3.32)
Higher	0.068*** (2.86)	0.113*** (4.83)	0.125*** (5.39)	0.098*** (3.87)
Sister	-0.018*** (-3.24)	-0.012** (-2.22)	-0.017** (-2.86)	-0.013** (-2.54)
Brother	-0.004 (-0.71)	-0.013** (-2.48)	-0.015** (-2.57)	-0.003 (-0.62)
Grandchild	0.003 (0.71)	-0.008** (-2.13)	-0.003 (-1.08)	0.000 (0.00)
Child	-0.008 (-1.58)	-0.002 (-0.50)	-0.005 (-1.02)	-0.007 (-1.40)
Distance				
< 5 km	ref	ref	ref	ref
between 5 and 100 km	-0.144*** (-9.56)	-0.074*** (-5.16)	-0.121*** (-7.82)	-0.104*** (-7.41)
> 100 km	-0.329*** (-15.75)	-0.201*** (-10.26)	-0.293*** (-13.06)	-0.251*** (-13.37)
Married	-0.005 (-0.38)	-0.021 (-1.54)	-0.011 (-0.76)	-0.009 (-0.69)
Homemaker	-0.031* (-1.76)	0.067 (0.83)		
Countries				
France	ref	ref	ref	ref
Austria	-0.129*** (-2.92)	-0.069* (-1.71)	-0.159*** (-3.89)	-0.058 (-1.31)
Belgium	-0.004 (-0.14)	-0.001 (-0.04)	0.035 (-1.31)	0.020 (0.78)
Denmark	0.071** (2.31)	0.051* (1.84)	-0.058* (1.65)	0.080*** (3.02)
Germany	-0.039 (-1.37)	0.000 (0.01)	-0.052* (-1.74)	0.003 (0.13)
Greece	-0.117*** (-3.91)	-0.116*** (-4.10)	-0.128*** (-4.41)	-0.115*** (-4.01)
Italy	-0.061** (-1.96)	-0.085*** (-2.87)	-0.095*** (-3.30)	-0.067** (-2.13)
Netherlands	0.098*** (3.39)	0.024 (0.90)	0.035 (1.20)	0.077*** (2.96)
Spain	-0.155*** (-4.31)	-0.131*** (-3.76)	-0.140*** (-4.25)	-0.169*** (-4.51)
Sweden	0.079*** (2.75)	0.077*** (2.89)	0.038 (1.14)	0.113*** (4.46)
Switzerland	-0.020 (-0.56)	-0.020 (-0.58)	-0.106*** (-2.36)	0.023 (0.78)
Observations	6512	4896	4612	6719
Log-likelihood	-3588.07	-2426.05	-2373.59	-3633.74

t-statistics in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In order to capture effects of caregiver's characteristics on informal care, Table 5 presents the results for specification (6) for different subsamples. The first two columns show the estimates when the caregiver is either a woman or a man. Altruism and exchange still have a strong and positive effect on the care decision, regardless of gender while the norms have no significant effect. The care decision tends to depend on the gender of siblings. Having either a brother or a sister does not have the same impact on the care burden: if the sister is the main caregiver, the brother will not intervene, but if the brother is classified as the main caregiver, the two will share the workload. This result proves that female are the main careproviders. The dummy variable for Netherlands is significantly different whether the caregiver is a man or a woman. It implies that Dutch women declare helping their parents more compared to French women while Dutch men declare helping their parents as much as French men.

The last two specifications show the results for both people who do not work and employees (or self-employed people) since the employment status could impact the supply care decision given that the care provider has probably more free time. Whatever the occupational status is, women are the main helpers. Coefficients of both altruism and exchange remain significant while the one of norms has only an impact when the potential caregiver works.

Further results suggest that the effect of the employment status on the informal care supply is different between countries due to the labour market heterogeneity across Europe. Employed caregivers declare helping their parents less in Greece, Italy and Spain compared to France and caregivers at home declare helping less than French caregivers (coefficients turn non-significant). In other words, a Greek homemaker helps his parents less than a French homemaker would do and a Greek employee also helps less his parents than a French employee would help. On the contrary, a Danish employee helps more his parents than a French employee would do but Danish people at home help less his parents than French caregivers who do not work. These results could be explained by the large share of part-time workers in total employment in Denmark, the Netherlands and Sweden. In these countries, employees can dedicate more time to caring their old-age parents.

Results using country groups are presented in Table 6 with the aim of capturing differences between countries in terms of transfer motivations. Based on the descriptive statistics, three groups are considered: northern European countries (Denmark, the Netherlands, Sweden), central European countries (Belgium, France, Germany, Switzerland) and southern European countries (Austria, Greece, Italy and Spain). The first two coefficients - altruism, exchange - are still significant and positively correlated with the care decision.

Table 6: Probit marginal effects by country groups

<u>Marginal effects: care decision</u>			
	Northern European countries	Central European countries	Southern European countries
Altruism	0.077*** (3.20)	0.065*** (3.40)	0.060** (2.49)
Exchange	0.002*** (6.90)	0.001*** (5.64)	0.001*** (3.71)
Norms	0.031 (0.76)	-0.006 (-0.17)	0.081*** (2.93)
Female	0.103*** (4.66)	0.077*** (4.77)	0.061*** (4.20)
Wealth (100k)	0.000 (0.75)	0.000 (0.21)	0.001 (1.36)
Education			
Primary	ref	ref	ref
Secondary	0.046 (1.24)	0.072*** (2.82)	0.029* (1.91)
Higher	0.089** (2.25)	0.095*** (3.41)	0.077*** (3.85)
Sister	-0.020** (-2.42)	-0.016** (-2.57)	-0.011* (-1.94)
Brother	-0.010 (-1.17)	-0.011* (-1.69)	-0.005 (-0.87)
Grandchild	0.004 (0.80)	-0.002 (-0.57)	-0.008* (-1.73)
Child	-0.008 (-1.14)	-0.005 (-0.87)	-0.003 (-0.66)
Distance			
< 5 km	ref	ref	ref
between 5 and 100 km	-0.130*** (-5.49)	-0.098*** (-5.96)	-0.102*** (-6.27)
> 100 km	-0.360*** (-10.79)	-0.261*** (-11.70)	-0.164*** (-6.97)
Married	-0.004 (-0.18)	-0.011 (-0.71)	-0.018 (-1.37)
Homemaker	0.030 (0.76)	-0.062** (-2.46)	0.009 (0.57)
Observations	3196	4758	3454
Log-likelihood	-1924.32	-2599.43	-1495.07

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

These results are similar to those found in the main regression. Another result supports the presence of a North-South gradient. While the family norms variable is weakly significant in the main regression presented in Table 4, the coefficient turns significant ($p < 0.001$) for southern European countries only. An intuitive explanation would be the strong family ties. Indeed, in order to avoid joint production, children and parents who live in the same household have been excluded from the sample. Compared to northern and central European countries, there is a higher rate of cohabitation in the southern European countries. It means that people living in Greece, Italy, Spain and Austria are less numerous to declare helping their parents since a part of them has been excluded from the analysis due to cohabiting. Descriptive statistics show that most people who have declared cohabiting with their parents live in Greece, Italy and Spain. Kalmijn and Saraceno (2008) analyse whether Southern European countries are more "familialistic in their culture" than Western and Northern European countries. Their empirical evidence prove that co-residence prevails in Southern European countries. They establish a ranking of the most familialistic countries in Europe; the first four are Greece, Spain, Italy and Austria. Their results are in line with those presented in Table 6.

4 Robustness tests

Robustness tests are performed in order to confirm the robustness of the results. Firstly, I want to test whether findings remain constant using different estimators. Then, the same regressions as those presented before are run using new definitions for both the dependent variable and altruism. Finally, I deal with the problem of endogeneity, especially due to eventual simultaneity.

4.1 Other econometric specifications

Probit with standard errors clustered by country and logit estimators are shown in Table 7. Data are grouped into clusters, with standard errors independent across clusters but correlated within clusters. In this paper, Probit with standard errors clustered by country is presented since the outcome could be correlated for people living in the same country. Actually, the efficiency of the formal care in each country probably impact the informal care decision and acts as a substitute. So, data may be correlated within countries due to a common unobserved specific pattern: the formal care (Cameron and Trivedi, 2005).

For almost each coefficient, the significance level as well as the sign of the

Table 7: Alternative specifications

Marginal effects: care decision		
	Probit clustered	Logit
Altruism	0.057*** (8.56)	0.063*** (5.12)
Exchange	0.001*** (9.75)	0.001*** (9.55)
Norms	0.028 * (1.82)	0.034* (1.65)
Observations	11408	11408

t-statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Note: Table including all the covariates is presented in Appendix

correlation remain unaltered in comparison to specification (6) in Table 4. Furthermore, the rough size of the marginal effects is still the same between clustered probit and logit. These constant results prove that the results are not driven by the use of estimators. A difference has to be notified concerning the family norms. The coefficient is positively significant in the logit although this coefficient is non-significant in the clustered probit.

4.2 New definitions for both the dependent variable and altruism

Table 8: Probit marginal effects: alternative definitions

Marginal effects: care decision		
	Help	Helpbis
Altruismbis	0.061*** (4.03)	0.059*** (5.71)
Exchange	0.001*** (9.76)	0.001*** (8.23)
Norms	0.036* (1.72)	0.24* (1.72)
Observations	11408	11408

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Note: Table including all the covariates is presented in Appendix

A first issue is the questionable definition of the dependent variable -the informal care decision-. Until now, it concerns respondents living outside the

household and who declare helping their parents in the last twelve months, regardless the type of help. In order to strengthen this definition, a condition on frequency is added. Respondents now considered are those who help their parents in the last twelve months, almost every week or almost every day. The definition of altruism is also a matter of concern. Up to this point, an altruistic caregiver is defined as someone who took part voluntarily into charity activities in the last month. This definition could seem a little bit hazy in the sense that "charity activities" are not precisely defined in the questionnaire. In order to identify altruism as clearly as possible, I take into account a frequency criterion to supplement the definition previously used. Henceforth, a respondent is considered as altruistic if "he did charity work every day or almost and every week or almost". Other variables are still the same than those analysed in previous regressions. Table 8 presents the probit regressions using new definitions of both the dependent variable and altruism.

Another way to define the care decision is the type of help. Three types of help are considered in Table 9: administrative work, housework and personal care. Altruism and exchange are still significant and confirm the results of the main regression. Country specific patterns remain stable: Austrian, Italian, Greek and Spanish respondents declare helping less in terms of both administrative work and housework than French respondents. Considering alternative definitions, results stay roughly similar to those presented in the main regression.

Table 9: Probit marginal effects: three types of help

<u>Marginal effects</u>			
	Administrative work	Housework	Personal care
Altruism	0.036*** (5.10)	0.046*** (4.27)	0.020*** (3.90)
Exchange	0.001*** (8.05)	0.001*** (8.84)	0.000*** (4.40)
Norms	-0.010 (-0.85)	0.028 (1.61)	0.008 (1.17)
Observations	11408	11408	11408

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: Table including all the covariates is presented in Appendix

4.3 Endogeneity

Endogeneity has to be controlled in order to correct a potential bias which would underestimate or overestimate the impact of the variables considered on the informal care supply. I control the reverse causality concerning the exchange variable which could be a source of simultaneity bias: does the child decide to help his parents in order to increase his chances to inherit in the future or does he think he has a high probability to inherit because he had helped his parents before ? The estimations suggest that the care decision is explained by the bequeathability a potential caregiver has but the chances to inherit are also determined by the care decision. I did not find a well fitted instrumental variable to redefine the exchange variable.

Another point of concern is omitted variables. To control unobserved heterogeneity, I use a probit marginal effects with correlated random effects (CRE), presented in Table 10. The CRE approach allows the use of both fixed and random effects (Wooldridge, 2009). The means of time-varying variables are included and time-constant variables are used as controls. Coefficients on altruism, exchange and norms are the fixed effect estimates: removing the time-invariant characteristics, it shows the real effect of the three main variables on the informal care decision. The second definition of the dependent variable is used. When controlling for time-invariant effects, the coefficient of altruism turns non-significant but the mean of altruism still impact the informal care decision. Conversely, the exchange coefficient is significant at the 5 % threshold while the exchange mean has no effect. The coefficient of norms turns non-significant.

Table 10: Probit marginal effects: correlated random effects

Marginal effects: care decision		
	Help	Helpbis
<i>Altruism</i>	0.061*	0.049**
	(1.89)	(2.14)
Altruism	0.015	0.002
	(0.51)	(0.11)
<i>Exchange</i>	0.001**	-0.000
	(2.31)	(-0.28)
Exchange	0.001*	0.001***
	(1.87)	(3.63)
<i>Norms</i>	-0.052	-0.016
	(-1.07)	(-0.48)
Norms	0.073*	0.035
Observations	11408	11408

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Note: Table including all the covariates is presented in Appendix

5 Conclusion

This paper analyses the informal care decision. Based on the previous literature, I have identified three main motives explaining the supply care: altruism, the exchange motive and family norms. Using a European panel database, I try to estimate the significance of both the three main determinants mentioned above and a set of control variables.

Empirical results are in line with those found in the literature. I find a positive relationship between the care decision and altruism. Likewise, the exchange variable positively impacts the informal care decision. These results exclude the model of pure altruism. Nevertheless, results concerning family norms are not stable enough to conclude that it plays an important role in the care decision process. One of the explanations could be the definition of norms I used in this paper.

The results have to be interpreted cautiously. If we start from the assumption that informal and formal care work together, one has to take into account the social security system features in each country. In a given country, maybe children will not help as much as in another country since the social security system is very effective and acts as an informal care substitute. Moreover, my analysis only deals with the care decision. I do not study the amount of help provided either in time or money. In fact, maybe children cannot help their parents because they do not have time to do it. Likewise, they can pay (or they can help to pay) private services such as employing a

cleaner or a home helper. This type of help has to be consider as informal care. Additionally, I work with a panel database including two waves. One can easily imagine that norms will evolve over time. It should be better to drive this analysis using more waves in order to depict changes in family behaviors and to approve the role of the demonstration effect. Furthermore, I focus this study on eleven European countries. I settle on those ones because I had exactly the same information for each: these countries were included in both waves.

Forthcoming research should extend the time framework in order to catch changes over generations. The last remark would be about the policy implications; the level of informal care probably depends on the formal care effectiveness. As I mentioned above, each country studied in this analysis has a social security system with its own features. These differences have to be taken into consideration; one option would be to model the formal care implication degree of the social security system for each country.

6 Appendix

Table 11: Correlation matrix

Variables	Altruism	Exchange	Norms	Female	Wealth	Sister	Brother	Grdchild	Child	Education			Distance					
										P	S	H	<5km	btwn5and100km	>100km	Homemaker	Married	
Altruism	1.00																	
Exchange	0.11***	1.00																
Norms	0.01	-0.00	1.00															
Female	-0.00	-0.04***	0.04***	1.00														
Wealth	0.05***	0.14***	0.02*	-0.02*	1.00													
Sister	0.01	-0.11***	0.03***	0.01	-0.03***	1.00												
Brother	0.01	-0.11***	0.02**	-0.04***	-0.02**	0.28***	1.00											
Grandchild	0.02**	-0.03***	0.09***	0.06***	0.01	0.07***	0.03***	1.00										
Child	0.04***	0.02*	0.15***	-0.07***	0.02*	0.07***	0.07***	0.26***	1.00									
Education																		
Primary	-0.1***	-0.19***	0.02**	0.05***	-0.06***	0.09***	0.12***	0.16***	0.04***	1.00								
Secondary	-0.02*	-0.03***	-0.02*	-0.01	-0.07***	0.00	-0.03***	-0.02**	-0.03***	-0.48***	1.00							
Higher	0.10***	0.20***	0.00	-0.02***	0.13***	-0.08***	-0.07***	-0.11***	-0.01	-0.30***	-0.69***	1.00						
Distance																		
< 5 km	-0.02***	-0.05***	0.02**	-0.00	-0.06***	-0.07***	-0.05***	-0.04***	-0.03**	0.06***	0.07***	-0.13***	1.00					
Between 5 and 100 km	0.02**	0.05***	-0.01	0.00	0.03***	0.03***	0.01	0.04***	0.01	-0.05***	0.02**	0.02*	-0.64***	1.00				
> 100 km	0.00	0.00	-0.01	0.00	0.03***	0.05***	0.04***	0.01	0.03***	-0.02**	-0.11***	0.14***	-0.42***	-0.42***	1.00			
Homemaker	-0.00	-0.09***	-0.02**	0.34***	-0.07***	0.05***	0.02***	0.03***	-0.01	0.17***	0.02***	-0.17***	0.06***	-0.03***	-0.03***	1.00		
Married	-0.00	-0.03***	-0.09***	-0.05***	0.05***	0.08***	0.08***	0.00	-0.04***	0.02**	0.03***	-0.05***	0.04***	0.00	-0.04***	0.09***	1.00	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Probit marginal effects: alternative specifications

	Marginal effects: care decision	
	Probit clustered	Logit
Altruism	0.057*** (8.56)	0.063*** (5.12)
Exchange	0.001*** (9.75)	0.001*** (9.55)
Norms	0.028 * (1.82)	0.034* (1.65)
Female	0.069*** (10.14)	0.082*** (8.10)
Wealth (100k)	0.000 (1.35)	0.000 (1.09)
Sister	-0.014*** (-4.48)	-0.016*** (-3.93)
Brother	-0.008** (-3.24)	-0.009** (-2.21)
Grandchild	-0.001 (-0.54)	-0.002 (-0.65)
Child	-0.005* (-1.31)	-0.005 (-1.51)
Education		
Primary	ref	ref
Secondary	0.043*** (4.12)	0.051*** (3.44)
Higher	0.076*** (6.06)	0.089*** (5.36)
Distance		
< 5 km	ref	ref
between 5 and 100 km	-0.095*** (-7.61)	-0.110*** (-10.65)
> 100 km	-0.232*** (-22.38)	-0.270*** (-18.39)
Married	0.002 (0.15)	-0.012 (-1.23)
Homemaker	-0.007 (-0.43)	-0.008 (-0.56)
Countries		
France	ref	ref
Austria	-0.086*** (-31.36)	-0.103*** (-3.39)
Belgium	-0.010 (-2.50)	-0.004 (-0.20)
Denmark	0.050*** (15.18)	0.061*** (2.98)
Germany	-0.021 (-5.32)	-0.023 (-1.14)
Greece	-0.107*** (-18.92)	-0.119*** (-5.70)
Italy	-0.068*** (-10.36)	-0.074*** (-3.46)
Netherlands	0.047*** (9.09)	0.061*** (3.09)
Spain	-0.128*** (-16.51)	-0.147*** (-5.82)
Sweden	0.068*** (21.65)	0.079*** (4.04)
Switzerland	-0.022 (7.53)	-0.021 (-0.85)
Observations	11408	11408
Log-likelihood	-6087.55	-6033.51

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Probit marginal effects: alternative definitions

	Marginal effects: care decision	
	Help	Helpbis
Altruismbis	0.061*** (4.03)	0.059*** (5.71)
Exchange	0.001*** (9.76)	0.001*** (8.23)
Norms	0.036* (1.72)	0.024* (1.72)
Female	0.083*** (8.07)	0.072*** (9.72)
Wealth (100k)	0.000 (1.17)	-0.000 (-0.75)
Sister	-0.016*** (-3.97)	-0.008*** (-2.94)
Brother	-0.009** (-2.24)	-0.008*** (-2.80)
Grandchild	-0.002 (-0.71)	0.003* (1.84)
Child	-0.005 (-1.42)	-0.004* (-1.68)
Education		
Primary	ref	ref
Secondary	0.051*** (3.48)	0.027*** (2.62)
Higher	0.091*** (5.53)	0.027** (2.37)
Distance		
< 5 km	ref	ref
between 5 and 100 km	-0.111*** (-10.64)	-0.092*** (-12.39)
> 100 km	-0.272*** (-18.77)	-0.249*** (-17.81)
Homemaker	-0.007 (-0.47)	0.006 (0.55)
Married	-0.012 (-1.17)	-0.009 (-1.29)
Countries		
France	ref	ref
Austria	-0.104*** (-3.43)	-0.047** (-2.21)
Belgium	-0.003 (-0.18)	0.021 (1.62)
Denmark	0.063*** (3.02)	-0.001 (-0.09)
Germany	-0.023 (-1.17)	-0.009 (-0.67)
Greece	-0.123*** (-5.94)	-0.044*** (-3.05)
Italy	-0.077*** (-3.57)	-0.027* (-1.79)
Netherlands	0.062*** (3.12)	0.015 (1.08)
Spain	-0.151*** (-5.98)	-0.087*** (-4.84)
Sweden	0.081*** (4.08)	0.008 (0.58)
Switzerland	-0.019 (-0.80)	-0.043** (-2.38)
Observations	11408	11408
Log-likelihood	-6037.70	-4525.41

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table 14: Probit marginal effects: three types of help

	Marginal effects		
	Administrative work	Housework	Personal care
Altruism	0.036*** (5.10)	0.046*** (4.27)	0.020*** (3.90)
Exchange	0.001*** (8.05)	0.001*** (8.84)	0.000*** (4.40)
Norms	-0.010 (-0.85)	0.028 (1.61)	0.008 (1.17)
Female	0.020*** (3.48)	0.067*** (7.61)	0.046*** (5.77)
Wealth (100k)	0.000 (1.15)	0.000 (0.67)	-0.000 (-0.60)
Sister	-0.012*** (-4.71)	-0.013*** (-3.77)	-0.002 (-1.42)
Brother	-0.008*** (-3.46)	-0.007* (-1.94)	0.001 (0.53)
Grandchild	-0.001 (-0.71)	-0.002 (-0.81)	0.000 (0.41)
Child	0.002 (0.81)	-0.004 (-1.31)	-0.003** (-2.28)
Education			
Primary	ref	ref	ref
Secondary	0.032*** (3.62)	0.024* (1.88)	0.007 (1.50)
Higher	0.058*** (5.62)	0.046*** (3.23)	0.018*** (3.03)
Distance			
< 5 km	ref	ref	ref
between 5 and 100 km	-0.047*** (-7.18)	-0.094*** (-10.46)	-0.019*** (-4.13)
> 100 km	-0.107*** (-9.96)	-0.221*** (-17.50)	-0.040*** (-5.10)
Married	-0.008 (-1.46)	-0.003 (-0.32)	-0.005 (-1.47)
Homemaker	-0.015* (-1.71)	0.009 (0.70)	-0.001 (-0.28)
Countries			
France	ref	ref	ref
Austria	-0.053*** (-2.97)	-0.051** (-1.98)	-0.007 (-0.73)
Belgium	-0.016 (-1.53)	0.015 (0.92)	-0.006 (-1.01)
Denmark	-0.011 (-0.91)	0.087*** (4.90)	-0.006 (-0.82)
Germany	-0.009 (-0.81)	0.006 (0.35)	-0.004 (-0.63)
Greece	-0.058*** (-4.63)	-0.113*** (-6.16)	0.002 (0.23)
Italy	-0.025** (-2.10)	-0.085*** (-4.48)	0.030*** (3.79)
Netherlands	-0.009 (-0.77)	0.068*** (4.00)	0.006 (0.91)
Spain	-0.048*** (-3.33)	-0.136*** (-6.10)	0.010 (1.35)
Sweden	0.005 (0.47)	0.084*** (4.95)	-0.007 (-1.03)
Switzerland	-0.005 (-0.41)	-0.038* (-1.76)	-0.011 (-1.26)
Observations	11408	11408	11408
Log-likelihood	-4252.48	-5433.92	-3093.57

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: Probit marginal effects: correlated random effects

Marginal effects: care decision		
	Help	Helpbis
Altruism	0.015 (0.51)	0.002 (0.11)
<i>Altruism</i>	0.061* (1.89)	0.049** (2.14)
Exchange	0.001* (1.87)	0.001*** (3.63)
<i>Exchange</i>	0.001** (2.31)	-0.000 (-0.28)
Norms	0.073* (1.78)	0.035 (1.24)
<i>Norms</i>	-0.052 (-1.07)	-0.016 (-0.48)
Female	0.083*** (8.09)	0.072*** (9.72)
Wealth	0.000 (1.19)	0.000 (0.18)
<i>Wealth</i>	-0.000 (-0.71)	-0.000 (-0.62)
Sister	-0.015*** (-3.88)	-0.008*** (-2.97)
Brother	-0.009** (-2.15)	-0.008*** (-2.71)
Grandchild	-0.002 (-0.23)	-0.002 (-0.31)
<i>Grandchild</i>	0.001 (0.09)	0.006 (0.87)
Child	0.010 (1.05)	0.009 (1.31)
<i>Child</i>	-0.018* (-1.71)	-0.016** (-2.05)
Education		
Primary	ref	ref
Secondary	0.049*** (3.31)	0.027*** (2.64)
Higher	0.087*** (5.26)	0.028** (2.43)
Distance		
< 5 km	ref	ref
between 5 and 100 km	-0.112*** (-10.67)	-0.093*** (-12.49)
> 100 km	-0.272*** (-18.78)	-0.250*** (-17.98)
Married	-0.007 (-0.47)	-0.003 (-0.26)
<i>Married</i>	-0.011 (-0.60)	-0.013 (-0.98)
Homemaker	-0.007 (-0.49)	0.007 (0.67)
Countries		
France	ref	ref
Austria	-0.101*** (-3.32)	-0.048** (-2.28)
Belgium	-0.007 (-0.35)	0.019 (1.45)
Denmark	0.062*** (2.94)	-0.002 (-0.13)
Germany	-0.021 (-1.03)	-0.010 (-0.69)
Greece	-0.118*** (-5.68)	-0.044*** (-3.04)
Italy	-0.073*** (-3.40)	-0.026* (-1.77)
Netherlands	0.061*** (3.06)	0.016 (1.14)
Spain	-0.145*** (-5.76)	-0.087*** (-4.81)
Sweden	0.080*** (3.98)	0.007 (0.51)
Switzerland	-0.021 (-0.87)	-0.044** (-2.39)
Observations	11408	11408
Log-likelihood	-6025.73	-4520.25

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table 16: Probit marginal effects per country

Marginal effects: care decision											
	Austria	Belgium	Denmark	France	Germany	Greece	Italy	Netherlands	Spain	Sweden	Switzerland
Altruism	-0.016 (-0.25)	0.073* (1.86)	0.046 (0.97)	0.069** (2.44)	0.092** (1.98)	0.019 (1.01)	0.096** (2.05)	0.085** (2.30)	0.072 (1.03)	0.102** (2.37)	0.026 (0.59)
Exchange	0.001** (2.03)	0.001*** (2.78)	0.002*** (3.09)	0.001*** (2.69)	0.001** (2.49)	0.000 (0.29)	0.001*** (3.27)	0.002*** (4.14)	0.001*** (2.64)	0.002*** (4.25)	0.001*** (2.66)
Norms	0.122** (2.21)	-0.040 (-0.59)	0.011 (0.16)	-0.024 (-0.34)	0.057 (0.93)	0.029 (1.38)	-0.010 (-0.11)	0.045 (0.59)	0.148** (2.18)	0.037 (0.54)	-0.062 (-0.58)
Female	0.043 (1.02)	0.111*** (3.27)	0.073* (1.73)	0.080*** (3.16)	0.045 (1.32)	0.025* (1.88)	0.103*** (3.24)	0.147*** (3.80)	0.054* (1.72)	0.079** (2.23)	0.076* (1.83)
Wealth (100k)	0.004 (0.71)	0.001 (0.88)	0.000 (0.23)	-0.000 (-0.02)	0.001 (0.46)	0.002* (1.69)	0.001 (0.98)	-0.001 (-0.51)	-0.006 (-1.62)	0.000 (0.79)	-0.000 (-0.06)
Sister	-0.026 (-1.42)	-0.031** (-2.46)	-0.042** (-2.16)	-0.015 (-1.53)	-0.010 (-0.70)	0.003 (0.62)	-0.033** (-2.50)	-0.015 (-1.28)	-0.004 (-0.36)	-0.015 (-1.01)	-0.011 (-0.66)
Brother	-0.012 (-0.66)	-0.004 (-0.33)	-0.029 (-1.52)	-0.014 (-1.44)	-0.019 (-1.18)	-0.001 (-0.27)	0.006 (0.52)	0.004 (0.33)	-0.011 (-1.03)	-0.018 (-1.08)	-0.026 (-1.52)
Grandchild	-0.025* (-1.91)	-0.017* (-1.86)	0.011 (1.11)	0.002 (0.32)	0.005 (0.50)	-0.003 (-0.74)	-0.026** (-2.12)	-0.005 (-0.55)	0.009 (1.23)	0.004 (0.56)	-0.007 (-0.61)
Child	0.022 (1.41)	0.018 (1.47)	-0.033** (-2.03)	-0.002 (-0.19)	-0.020 (-1.42)	0.000 (0.06)	-0.012 (-1.04)	-0.018 (-1.47)	-0.012 (-1.35)	0.013 (1.09)	-0.032** (-2.27)
Education											
Primary	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Secondary	-0.022 (-0.31)	0.066 (1.32)	0.004 (0.04)	0.075** (2.29)	1.668 (0.02)	0.020 (1.55)	0.045 (1.30)	0.138* (1.89)	-0.003 (-0.11)	0.038 (0.77)	0.121 (1.64)
Higher	0.071 (0.90)	0.064 (1.13)	0.084 (0.82)	0.091** (2.39)	1.745 (0.02)	0.037* (1.96)	0.061 (1.30)	0.212*** (2.69)	0.088** (2.10)	0.026 (0.49)	0.114 (1.50)
Distance											
< 5 km	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
between 5 and 100 km	-0.118*** (-2.83)	-0.133*** (-4.14)	-0.169*** (-3.55)	-0.087*** (-3.12)	-0.024 (-0.68)	-0.052** (-2.37)	-0.088*** (-2.85)	-0.107*** (-2.82)	-0.080** (-2.43)	-0.126*** (-3.18)	-0.175*** (-4.12)
> 100 km	-0.232*** (-3.16)	-0.416*** (-4.96)	-0.395*** (-5.85)	-0.239*** (-7.67)	-0.213*** (-4.31)	-0.066** (-2.45)	-0.177*** (-3.26)	-0.320*** (-5.50)	-0.169*** (-3.52)	-0.350*** (-6.99)	-0.233*** (-4.51)
Married	-0.031 (-0.76)	0.005 (0.16)	0.025 (0.57)	0.032 (1.38)	-0.105*** (-2.86)	-0.001 (-0.09)	-0.043 (-1.23)	-0.027 (-0.65)	-0.033 (-1.10)	-0.004 (-0.12)	-0.007 (-0.17)
Homemaker	0.034 (0.53)	-0.018 (-0.38)	-0.261 (-1.42)	-0.068 (-1.58)	-0.055 (-1.04)	-0.004 (-0.42)	0.032 (0.90)	0.041 (0.91)	0.024 (0.72)	0.142 (0.87)	-0.184*** (-2.70)
Observations	386	1358	969	1712	1100	1342	989	1129	737	1098	588

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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