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Financial and non-financial private transfers from close ones: beyond family and kinship

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Internally-defined ties such as friendship, trust, or closeness might enhance private transfers. The present study examines the role of these ties on top of the impact of genetic relatedness and legal family relations using families with varied access to filial support as a source of heterogeneity. We investigate, in addition to family support, financial and non-financial transfers received from unrelated individuals by mature adults in childless, dispersed (that is, with an adult child living at a significant distance from parents), and local families using the Survey on Health, Ageing and Retirement in Europe. We find that the structure of support given to mature adults indeed depends on internally-defined ties that are independent from family ties, controlling for other relevant factors. The positive impact on informal support of internally-defined ties concerns particularly, but is not limited to, non-financial support.

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JEL codes: J14, D91, Z13

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Abstract: Internally-defined ties such as friendship, trust, or closeness might enhance private transfers. The present study examines the role of these ties on top of the impact of genetic relatedness and legal family relations using families with varied access to filial support as a source of heterogeneity. We investigate, in addition to family support, financial and non-financial transfers received from unrelated individuals by mature adults in childless, dispersed (that is, with an adult child living at a significant distance from parents), and local families using the Survey on Health, Ageing and Retirement in Europe. We find that the structure of support given to mature adults indeed depends on internally-defined ties that are independent from family ties, controlling for other relevant factors. The positive impact on informal support of internally-defined ties concerns particularly, but is not limited to, non-financial support.

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Introduction

In many developed countries with an increasing proportion of older individuals, a growing variety of family forms, and substantial spatial mobility (Organization for Economic Co-operation and Development, 2016; United Nations, 2016), private transfers of time and money are crucial for wellbeing at older ages. Such transfers are often labelled as intergenerational because adult children are an important source of support to their parents (van den Broek, Dykstra, & van der Veen, 2019; Shanas, 1980), particularly if the parents are widowed or divorced (van den Broek & Grundy, 2018; Matthews & Rosner, 1988). A decline in the provision of assistance to ageing individuals might occur if parity decreases or intergenerational solidarity deteriorates due to parental divorce. Additionally, children's mobility can be challenging because proximity is crucial for exchange of care (Boaz & Hu, 1997; Colombo, Llena-Nozal, Mercier, & Tjadens, 2011; Verbeek-Oudijk, Woittiez, Eggink, & Putman, 2015).

Unpaid informal non-financial assistance (time transfers), as intertwined with informal financial assistance (money transfers), are the focus of the current paper. We exclude formal care, both public and commercial, because it differs substantially from informal support (the latter are less expensive, better suited to individual needs, and more independent from welfare state and market institutions). Non-financial transfers are linked to financial transfers, according to theoretical (Becker, 1974) and empirical considerations (Checkovich & Stern, 2002); thus, the present study includes them both. Although family, understood here broadly in its complexity of kin and legal relationships, remains the most important source of assistance; the role of friends, neighbours, volunteers and other unrelated individuals is also important and has received growing attention in recent studies (Deindl & Brandt, 2017; Kalwij, Pasini & Wu, 2014).

There is little knowledge on the mechanisms underlying the unrelated individuals' inclination to provide private transfers. Most scholars agree that kinship altruism (Elster, 2006; Komter, 2010; Silk, 2006) and filial obligations (Dykstra & Fokkema, 2012) lead to private transfers, but these motivations are inapplicable to unrelated individuals. Alternative motivations for private transfers, such as reciprocal altruism (Trivers, 1971), exchange motive (Cox, 1987), warm-glow (Andreoni, 1989), or strategic considerations (Bernheim, Shleifer, & Summers, 1985), fail to explain the fact that friends are favoured over random strangers in gift-giving (Leider, Möbius, Rosenblat, & Do, 2009). The latter observation suggests that a personal relationship linking two individuals might enhance private transfers within and beyond family. Komter and Vollerbergh (2002) showed separate mechanisms underlying support within and outside of Dutch families, pointing to norms of moral obligation present in the family, and love and affection operating between unrelated friends. However, certain family relationships can also be associated with personal relationships characteristic to friendship. The present study aims to examine the impact of personal relationships rooted in trust, closeness, and confidence on private transfers, independently from kinship altruism and legal family obligations. Moreover, it aims at testing heterogeneity of such personal relationships effects between time transfers performed face-to-face and financial transfers.

In contrast to genetic and legal ties in the family being externally-defined, the personal relationship ties are defined internally, subjective, and might be temporary. Simultaneous presence of the two ties' types is the main obstacle in disentangling their respective roles in the analyses focused on intergenerational family transfers, because they occur between parents and children who often are close to and trusted by their parents (Litwin & Stoeckel, 2014). The pure effect of internally-defined ties can

be examined in support given by unrelated individuals. Therefore, we design our study seeking heterogeneity in support sources including settings in which the internally-defined ties manifest their role most pronouncedly. To this end, we include families with varied availability of support from children, so that private transfers in other than child-parent relationships may take place. In particular, we analyse families with a child living nearby (local families), childless families, and spatially dispersed families.

The role of support from non-family donors has been studied mainly for non-financial transfers with an emphasis on formal public or private care of the childless elders (Deindl & Brandt, 2017) and emotional support (Conkova & King, 2018). Few recent studies (Bordone & Valk, 2016; Kiilo, Kasearu, & Kutsar, 2016) address these issues for migrant families in particular. The present study operationalizes non-financial transfers as performed face-to-face personal care and practical help, excluding emotional support. It examines both non-financial and financial transfers, which is rather rare in empirical research, with the studies by Attias-Donfut, Ogg and Wolff (2005), and Evans, Allotey, Imelda, Reidpath and Pool (2018) among the few exceptions. This article makes a unique contribution to understanding private transfers within and beyond family by analysing externally- and internally-defined ties between donors and recipients in different family types, and complements previous studies on financial and non-financial intergenerational transfers (e.g. Altonji, Hayashi, & Kotlikoff, 1992; Attias-Donfut et al., 2005). In addition, it extends previous findings on childless mature adults (Albertini & Kohli, 2009; Deindl & Brandt, 2017) by comparing them to mature parents in local and dispersed families, with respect to received support.

The remainder of this paper is organized as follows. To derive our hypotheses, we elaborate on relevant relationships that might lead to the provision of financial or non-financial support in different family types. In the following sections, we discuss an analytical framework and then describe the strategy of empirical inquiry based on the data from the Survey of Health, Ageing and Retirement in Europe. Then, we present the results of the hypotheses' testing. The article concludes with a discussion and future research prospects.

Conceptual background

The family can be interpreted as an institutionalized form of relationships between individuals related by blood and by law. We refer to the genetic and legal ties linking family members as externally-defined. We juxtapose them against internally-defined intimate ties of trust, confidence and closeness between two individuals. The personal relationship of internally-defined ties is highly likely to occur between family members, but it can also link unrelated individuals. The need for distinction between externally- and internally-defined ties results from the theoretical studies crediting private transfers to the type of tie linking recipient and donor. In the following sections, we briefly present mechanisms underlying transfers in externally-defined ties and then proceed to mechanisms ruling transfers in internally-defined ties.

Kinship plays a fundamental role in the explanation of altruistic giving. The seminal hypothesis of kinship altruism credits its development to the processes of natural selection (Hamilton, 1964; Wispe & Thompson, 1976). The strength of altruistic behaviour is positively correlated with the extent of genetic relatedness, measured as the portion of common genes shared by two individuals. Genetic relatedness between parents and children is the greatest, making the parent-child dyad particularly interesting. Mechanisms discovered by evolutionary biology may also

account for altruistic behaviour between non-kin in a wider social context (Trivers, 1971). Nonetheless, Silk (2006) gives examples of altruistic behaviours that have no other explanation than kinship selection, and empirical studies confirm that the phenomenon of giving occurs more often between the kin and close relatives than between genetically unrelated individuals (Komter, 2010). Therefore, genetic relatedness cannot be omitted in search for the forces leading to private transfers.

Due to the changes in reproduction methods (Stacey, 1997) and partnership patterns over the life course, the concept of genetic relatedness increasingly fails to describe the diversity of family forms. Thus, the role of legal obligations in explanation of support from family members cannot be reduced to genetic relatedness. Legal obligations between (ex-)partners as well as parents and children constitute the second externally-defined tie examined in this study. Filial responsibility (Dykstra & Fokkema, 2012; Mureşan & Hărăguş, 2015; Bulcroft, Van Leynseele & Borgatfa, 1989) obliging children to support their parents in need holds in most states of the USA (Moskowitz, 2000) as well as in most European countries (Saraceno & Keck, 2008; Sundström et al., 2008). In some countries family law enforces members of extended family to support those in need, in addition to children and spouses.

Kinship altruism and legal obligations fall far short of explaining the phenomenon of giving. Leider et al. (2009) found in their field experiment on altruistic behaviour that students were willing to give more to friends than to random individuals, controlling for the impact of reciprocity. Thus, we consider internally-defined ties of closeness, confidence and trust as a possible explanation to some part of private financial and non-financial transfers. We expect to find different effects for financial and non-financial transfers.

The very personal nature of the internally-defined ties makes them more suitable for the provision of non-financial support that is performed in person and demands face-to-face, in some cases also frequent and regular contact. Spending time in one's company yields positive external effects for individuals linked with confidence, trust and closeness, which impinges on the willingness to provide time transfers. These features of non-financial private transfers make it distinct from more impersonal financial transfers that can be given without personal presence, instantly, at negligible hassle cost due to the growing availability of money transfer and Internet banking services. In short, the provision of support might be diversified according to the presence of internally-defined ties as well as to the extent of genetic and legal relatedness.

We hypothesize that the internally-defined ties pose a significant impact on private transfers, independent from the role of externally-defined ties and suspect them to enhance rather non-financial transfers than impersonal money transfers. For the role of externally-defined ties, we test whether kinship altruism explains private transfers by examining whether the extent of genetic relatedness is proportional to transfers. We test the following hypotheses.

(1) The internally-defined ties affect private transfers controlling for the role of externally-defined ties and other relevant factors.

(2) The internally-defined ties enhance non-financial transfers rather than financial transfers, keeping other relevant factors constant.

(3) The externally-defined ties enhance private transfers proportionally to genetic relatedness.

Proximity to children as a source of heterogeneity

The spatial distance between the donors and recipients (i.e. proximity) strongly affects non-financial transfers (e.g. Matthews & Rosner, 1988; Stern, 1995; Boaz & Hu, 1997; Colombo et al., 2011; Verbeek-Oudijk et al., 2014). Numerous studies confirm that proximity is crucial for care provision, particularly on a daily basis (Bolin, Lindgren, & Lundborg, 2008). The same arguments hold for other forms of non-financial transfers performed in person, such as practical house-keeping help. In general, the shorter is the time of travel, the larger and more frequent are the non-financial transfers (Checkovich & Stern, 2002). However, globalization, new communication technologies, and fast transportation means can loosen the link between proximity and non-financial transfers, and subsequently alter the frequency of the latter (Kilkey & Merla, 2014). Technological changes make the individuals in need more independent of others' help but may also significantly increase provided time transfers.

We approach our research problem taking into account the fact time transfers are not limited to, but mostly consist of personal care. While various styles of care (Matthews & Rosner, 1988) exist, inter-household shared caregiving by individuals living in diversified proximities seems to prevail (Byrne, Goeree, Hiedemann, & Stern, 2009). It appears that the larger is the set of caregivers, the less the care that is given by each of them (Checkovich & Stern, 2002), which might be beneficial both for the quality of the relationship and care. However important, the association between the quality of the relationship and of time transfers reaches beyond the scope of the present study. There are numerous combinations of caregiver's networks, joined by ties reaching beyond family and kinship. For the sake of theoretical

premises discussed above, the parent-child relationship is crucial, which makes the population of childless individuals particularly informative in this research.

At large geographical distances, the substitution occurs between financial and non-financial transfers (Bonsang, 2007), which are rather complimentary goods in close proximity (e.g. Geerts & van den Bosch, 2012). Remittances provided by migrating children compensate for the lack of non-financial family aid and serve as remuneration to helping non-kins (Biao, 2007; Evans et al., 2018; Krzyżowski & Mucha, 2014). If individuals living at a larger distance replace their non-financial support with financial transfers, this change is likely to affect time and money transfers from all the other donors. Therefore, we argue that the mobility of one child could suffice to disrupt the structure of private transfers received by his or her parents.

Repercussions of the child's absence in the groups of childless and dispersed families seem to be the less pronounced the more individuals engaged in time transfers. Childless people aged 50 and over received informal support not only from close family members but also from other relatives, friends, neighbours, and age-peers (Deindl & Brandt, 2017; Kalwij et al., 2014; Solé-Auró & Crimmins, 2014). Half of elders living alone in the United States of America (USA) received help only from non-relatives (Boaz & Hu, 1997). Widowed and never married childless elders (Johnson & Catalano, 1981) as well as older female spouses (Kelley, 1981) were found to have large non-kin relations. Albertini and Kohli (2009) confirm that the set of individuals caring for childless elders is more diverse than for older parents, which might indicate that the childless develop stronger ties beyond family compared to parents. These considerations might be important in understanding the role of internally-defined ties in the provision of private support.

Data and methods

Data and selection

Our empirical analysis was based on the Survey on Health, Ageing and Retirement in Europe (SHARE) because in 2011–2012 it examined both personal relations and private transfers. We used the data from the fourth wave conducted on a representative sample of persons aged 50 and over, yielding the sample of 16 European countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, the Netherlands, Poland, Portugal, Slovenia, Spain, Sweden and Switzerland. We selected respondents receiving transfers, because the information on the presence of internally-defined ties can be observed only for actual transfers' donors. The sole analysis of the structure of received support can be revealing of the role of internally- and externally-defined ties.

Despite Stark and Cukrowska-Torzewska (2018) find that daughters being mothers make migration decisions based on the parental need for care, we ignored it akin to Bonsang (2009) because first, its bias was found to be limited and negligible (Stern, 1995) and second, our study examines much broader set of donors than daughters and sons. Indeed, the observed probability of selection to the research sample for mature parents was almost exactly the same in dispersed (with at least one child living more than 100 km away) and local families (16.9% and 17.1%, respectively).

Descriptive statistics on individuals in the research sample, by the family type (c.f. Table 1) showed that differences between characteristics of parents in local and dispersed families were minor, even if statistically significant. The childless mature adults, however, substantially differed from the parents with respect to gender and

relationship status. A greater proportion of childless mature adults (22%) than of parents received support.

Table 1. Descriptive statistics of mature individuals receiving informal support by family type

Variable of interest	Family type				Total
	Local	Dispersed	Childless		
Mean values					
Number of children	2.26	2.84	0.00	***	2.15
Age (years)	69.14	69.88	69.34	**	69.36
Number of ADL	0.61	0.60	0.61		0.60
Number of IADL	0.93	0.86	1.00	**	0.92
Household size	2.03	1.84	1.37	***	1.90
Number of education years	10.24	10.96	10.59	***	10.48
Household income *per capita* (euro)	3340	2084	2371	***	2888
Percentage					
Female	67.61	70.71	58.52	***	67.37
In relationship	51.25	50.88	20.42	***	47.53
In large city	16.00	12.27	20.31	***	14.15
In suburbs or outskirts	11.14	8.95	12.84	***	10.24
In large town	16.40	18.93	16.03	***	15.95
In small town	23.96	25.19	21.77	***	24.11
In a rural area	32.49	34.66	29.05	***	35.55
N	5953	2571	1138		9662

Source: Authors' own calculations based on SHARE wave 4, release 6.1.0.
Note: ADL – activities of daily living, IADL – instrumental ADL. Household income is a monthly average from last 12 months prior to the interview. Kruskal-Wallis chi2: ** – p<0.05, *** – p<0.01. Dispersed families – at least one child lives at least 100 km away from parents. Local families – all children live less than 100 km away from parents.

Measures

Respondents provided detailed information on the composition of their families and households, including co-residence with a partner, a child or other individuals. The proximity to four first reported children was recorded, distinguishing children leaving: in the same household, in the same building, less than 1, 1-5, 5-25, 25-100, 100-500, more than 500 km away. Unfortunately, the distance expressed in travel time was unavailable. The latter information seems to be more relevant for caregiving than the

physical distance. To circumvent this limitation of our dataset, we assumed a positive relationship between travel time and physical distance and used the place and country of residence as a proxy for transport infrastructure.

SHARE collected data on informal support in the last 12 months preceding the interview. Respondents reported receipt of 'any financial or material gift from anyone inside or outside this household amounting to 250 euro or more', excluding loans or inheritances. The threshold of 250 euro was adjusted to purchasing power. Receipt of non-financial assistance contained family 'personal care or practical household help' from outside the household and regular 'personal care, such as washing, getting out of bed, or dressing' from household members. Donors of up to three transfers of each type were recorded. Non-financial support was more often given by two or three persons (25% and 15%, respectively) than money and gifts (21%, 8%).

The SHARE data provided us with information on internally- and externally-defined ties between actual transfers' donors and recipients, which was essential for testing our research hypotheses. We operationalized internally-defined ties with SHARE dataset using a module on personal social networks. A following passage introduced this part of the questionnaire: 'Most people discuss with others the good or bad things that happen to them, problems they are having, or important concerns they may have. Looking back over the last 12 months, who are the people with whom you most often discussed important things? These people may include your family members, friends, neighbours, or other acquaintances. Please refer to these people by their first names.' Each respondent reported up to seven such persons, to which we further refer as confidants.

According to the theoretical considerations on the role of genetic and legal family ties, we aggregated relationships for externally-defined ties into: partners,

genetically related family members (genetically related), non-genetically related family members (other relatives), and unrelated individuals. For internally-defined ties, we used the simple measure whether the tie of trust, confidence and closeness occurred or not.

Methods

To describe the structure of support, we used parametric and non-parametric statistical methods. We conducted multivariate estimation to assess the impact of internally- and externally- defined ties on the structure of support received by mature adults. Based on the theoretical background, we employ as explanatory variables: the measure of the strength of genetic relatedness and legal obligation (dummies for partners, genetic relatives, other relatives, the unrelated); and a measure of close personal relationship (dummy for its presence). Our identification of the effects of externally- and internally-defined ties stems from the inclusion of individuals form various family types receiving support from various sources, where the exclusive role of the internally-defined (i.e. confidants outside the family) and externally-defined ties (e.g. relatives who are not confidants) can be observed.

We included the following control variables grasping the need for support and its availability from various sources: age, gender, number of close and trusted individuals, household size, years of education, number of limitations in performing activities of daily living (ADL) and instrumental ADL (IADL), place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), country, and quartiles of average monthly household income *per capita*.

We estimated the relative risk ratio in the multinomial logit model according to the following equation

$$\ln \frac{P(\text{support}_i = \text{type}_j)}{P(\text{support}_i = \text{only non-financial})} = \beta_j' X_i + \gamma_j' c_i + \varepsilon_{ij}$$

where:

$\text{type}_j = \{\text{financial, financial and non-financial}\}$,

X – vector of explanatory variables,

c – vector of control variables,

β, γ – vectors of parameters to be estimated,

ε – random term,

i – individual index,

j – support type index.

We controlled for the transfers received from partners because it is crucial for the demand for support from other sources. However, we refrained from interpreting estimates on the partnership tie because they might inform rather on the bargaining power within a household than the actual assistance, particularly as far as financial transfers are concerned. In order to avoid imposing linearity assumption in case of (quasi-)continuous variables, we used the inverse hyperbolic sine transformation instead of logarithmic transformation excluding observations with zero values. To eliminate the problem of heteroscedasticity, we used the robust covariance matrix. Because our explanatory variables were dichotomous, the values of assessed relative risk ratio were comparable between the categories. Finally, we checked for the robustness of the results using alternative thresholds of distance between parents and children. Recent studies on non-kin support in Europe point to regional differences (Conkova, Fokkema, & Dykstra, 2018; Katz, Gur-Yaish, & Lowenstein, 2010). Therefore, we, check for the robustness of the results obtained in the general sample at a country-specific level.

Results

Descriptive analysis

Proportions observed in Table 2 showed that support given to mature adults is mostly non-financial. The percentage of parents in local and dispersed families receiving only financial, only non-financial, and simultaneously both transfers were almost the same for parents in local and dispersed families. Childless individuals, however, received significantly less often financial support and more often only non-financial transfers compared to parents.

Table 2. Percentage of mature adults receiving support by the support and family type

Support type	Family type				Total
	Local	Dispersed	Childless		
Only financial	18.63	19.95	12.57	***	18.27
Only non-financial	72.53	71.02	81.63	***	73.20
Financial and non-financial	8.84	9.02	5.80	***	8.53
N	5953	2571	1138		9662

Source: Authors' own calculations based on SHARE wave 4, release 6.1.0.
Significance level: Kruskal-Wallis test: *** – p<0.01.

Table 3 presents sources of support with respect to externally-defined ties. In general, informal support, particularly financial, came predominantly from genetically related family members. The assistance from unrelated individuals was also substantial, as in case of non-financial transfers; it concerned from 32 to 60 per cent of mature adults receiving support, depending on their family situation. Not surprisingly, childless mature individuals received such support from the unrelated more often than mature parents.

The proportion of mature adults receiving financial transfers from partners and non-genetically related family members (other relatives) was the same in all family types. In case of non-financial support, the role of all externally-defined ties was

diversified between family types. Not surprisingly, parents in local families received time transfers from genetic relatives most often (67%) while childless individuals least often (44%). A majority of the childless mature adults reported receipt of non-financial support from the unrelated individuals, who were less involved but still important in dispersed families and to a lesser extent in local families. A partner's engagement in care and help was most pronounced in the dispersed families (17%). Other non-genetic relatives gave hardly any non-financial support to the childless.

Table 3. Donors of financial and non-financial transfers given to mature adults by externally-defined tie and family type in percentages

Externally-defined tie	Financial transfers					Non-financial transfers				
	Family type					Family type				
	Local	Dispersed	Childless		Total	Local	Dispersed	Childless		Total
Partner	8.32	6.85	7.66		7.80	14.82	17.10	9.25	***	14.64
Genetic relatives	78.23	80.00	68.42	***	77.79	66.72	55.39	43.62	***	60.85
Other relatives	9.11	8.72	4.78		8.53	10.36	6.90	1.41	***	8.30
Unrelated	12.42	9.53	23.92	***	12.39	32.20	43.63	59.40	***	38.73
N	1635	745	209		2719	4838	2057	993		8315

Source: Authors' own calculations based on SHARE wave 4, release 6.1.0.
Significance level: Kruskal-Wallis test: *** – p<0.01.

In sum, taking into account externally-defined relationships (Table 3) revealed previously unobserved (Table 2) systematic and significant differences in the provision of financial support between parents living in two family types. In some ways, parents in dispersed families are somewhere between parents in local families and the childless mature adults (e.g. with respect to non-financial transfers received from the unrelated individuals), but in some ways they seem to be distinct from other family types (e.g. financial transfers from genetic relatives).

In the following paragraphs, we extend our analysis with the internally-defined ties linking individuals with sense of trust, confidence, and closeness. Childless mature adults reported a smaller number of confidants (2.5 individuals on average), than parents with local and distant children (2.8 and 2.9, respectively). The differences were statistically significant, but not very sizeable (for more details, see Figure A1 in the Appendix).

Table 4. Prevalence of internally-defined ties by externally-defined tie and family type in percentages

| Externally-defined tie | Internally-defined tie present | | | | |
| | Family type | | | | |
	Local	Dispersed	Childless		Total
Partner	42.61	42.75	20.35	***	40.05
Genetic relatives	81.24	79.21	64.83	***	78.78
Other relatives	7.88	6.46	2.12	***	6.83
Unrelated	43.65	47.85	64.73	***	47.24
N	5721	2491	1086		9298

Source: Authors' own calculations based on SHARE wave 4, release 6.1.0.
Note: Kruskal-Wallis test: *** – p<0.01.

The associations between externally- and internally-defined ties were examined in Table 4, showing the percentage of mature individuals who reported being close to individuals belonging to the four relationships rooted in externally-defined ties. The vast majority of mature adults (almost 80%) reported internally-defined tie with at least one genetically related person. Most interestingly, statistics in Table 4 pointed to deep differences between the childless families and families with children. The unrelated individuals were close to almost exactly the same portion of childless mature adults (64.7%) as the genetic relatives (64.8%), while in families with children, the unrelated were substantially less often linked with internally-defined ties than the relatives. As expected, mature adults in dispersed families were

slightly more often (by four percentage points) close with the unrelated ones than in local families.

Multivariate and heterogeneity analyses

We examined the structure of support controlling for relevant factors in multivariate analysis using the multinomial logit model. The ratios of estimated relative risks greater than one indicate positive impact on the probability of receiving given support type as compared to the baseline support type (that is exclusively non-financial transfers).

Table 5. The results of the multinomial logit model

Received informal support	Only financial versus only non-financial			Financial and non-financial versus only non-financial		
Variables of interest	Rel. risk ratio		Robust st. error	Rel. risk ratio		Robust st. error
Family type						
Dispersed	1.40	***	0.12	1.22	*	0.13
Childless	0.81		0.11	0.73	*	0.12
Externally-defined ties						
Genetic relatives	0.79	**	0.08	0.94		0.13
Partner	0.22	***	0.03	1.05		0.15
Other relatives	0.62	***	0.07	2.56	***	0.32
Unrelated	0.13	***	0.01	1.38	***	0.14
Internally-defined ties						
Present	0.63	***	0.05	1.76	***	0.19
Controls	Yes			Yes		
N	Wald chi2	7340			1652.38	***	

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.
Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), and country. Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. $*-p<0.10$, $**-p<0.05$, $***-p<0.01$.

We found that mature adults in dispersed families were less likely to receive only non-financial support than such adults in local families (cf. Table 5). The

opposite was observed for mature childless adults. Genetic relatives and partners were relatively most likely to give exclusively non-financial support, compared to other externally-defined ties.

Non-genetically related family members were relatively less likely to give financial support than genetic relatives. Similar, but more pronounced, a difference was observed between unrelated individuals and genetic relatives. The non-genetic ties enhanced mixed support (comprised both of financial and non-financial transfers), and the effect was greater for family members than for the unrelated.

In the following estimations we examine differences in the effects of internally-defined ties by, firstly, the family type, and secondly, the externally-defined tie. Table 6 shows that presence of internally-defined ties in the support networks of mature adults in childless and local families reduces the chances of receiving exclusively financial support. Moreover, their presence in local and dispersed families significantly increases the chances of mixed transfers. In sum, we observe that the internally-defined ties shift the structure of received transfers from exclusively financial towards mixed support.

Interesting results were found for the role of externally-defined ties refined from the impact of internally-defined ties (cf. Table 7). In other words, we obtain estimates for genetic relatives, partners, other relatives and the unrelated who are not confidants to the respondent. Unsurprisingly, the chances of receiving transfers from genetic relatives are slightly smaller in the absence of internally-defined ties than on average and the differences are significant. Interestingly, non-genetic relatives who are not confidants are significantly more likely to give exclusively financial transfers than such relatives on average. The presence of internally-defined ties seems not to

differentiate the unrelated, which might result from the small number of the unrelated

transfer donors who are not confidants.

Table 6. The effects of family type if internally-defined ties are present

Received informal support	Only financial *versus* only non-financial		Financial and non-financial *versus* only non-financial	
Variables of interest	Rel. risk ratio	Robust st. error	Rel. risk ratio	Robust st. error
Internally-defined ties present &				
Local families	0.58 ***	0.06	1.53 ***	0.20
Dispersed families	0.96	0.12	2.23 ***	0.35
Childless families	0.41 ***	0.08	1.02	0.23
Externally-defined ties	Yes		Yes	
Controls	Yes		Yes	
Interactions	Internally-defined ties & Family type		Internally-defined ties & Family type	
N | Wald chi2	7340		1656.72 ***	

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.
Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), and country. Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. * – p<0.10, ** – p<0.05, *** – p<0.01.

Table 7. The effects of externally-defined ties if internally-defined ties are absent

Received informal support	Only financial *versus* only non-financial		Financial and non-financial *versus* only non-financial	
Variables of interest	Rel. risk ratio	Robust st. error	Rel. risk ratio	Robust st. error
Internally-defined ties absent &				
Genetic relatives	0.75 **	0.09	0.65 ***	0.12
Partner	0.18 ***	0.05	1.04	0.38
Other relatives	0.78 *	0.12	2.56 ***	0.61
Unrelated	0.12 ***	0.02	1.02	0.19
Family type	Yes		Yes	
Controls	Yes		Yes	
Interactions	Internally- & Externally-defined ties		Internally- & Externally-defined ties	
N | Wald chi2	7340		1656.72 ***	

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.
Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), and country. Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. * – p<0.10, ** – p<0.05, *** – p<0.01.

Robustness checks

We checked the robustness of the above results using the alternative to 100 km thresholds of distance between parents and children (namely, 25 and 500 km) and restricting the population of support recipients to those aged at least 65 or 80. They confirm patterns observed in baseline analysis yielding qualitatively equal results. Almost exactly the same values of estimates representing the impact of internally- and externally-defined ties were found using the alternative distance thresholds (see Table A1 in the Appendix), and their significance is consistent across the alternatives. This implies that our results are robust and conclusions concerning the role of the ties linking transfers' donors and recipients are insensitive to the arbitrarily chosen distance or age threshold.

Finally, we obtained country-specific estimates for 10 countries of 16 covered by the research sample because of insufficient number of observations to identify the model in Denmark, the Netherlands, Portugal, Slovenia, Spain, and Sweden (see Table A2 in the Appendix). Country-specific analysis yielded similar results as far as the role of externally- and internally-defined ties was concerned in the majority of countries. The role of family types, however, differed significantly between the countries.

Discussion and concluding remarks

Our results showed that the presence of internally-defined ties affected the type of support received by mature adults, independently from the impact of externally-defined ties, controlling for other relevant factors, which confirmed Hypothesis 1. The positive impact of internally-defined concerned particularly, but was not limited to, non-financial support, which supported Hypothesis 2. Our findings did not support Hypothesis 3 and unravelled the complicated role of externally-defined ties. The

unrelated individuals were unlikely to engage in exclusively financial support, which was most likely to occur between genetic relatives. The non-genetically related family members were the second most likely to provide exclusively financial support. These findings indicated the positive role of genetic and legal family ties in informal support. The kinship altruism and legal family norms seemed to explain support comprised only of financial transfers, as the probability of such support was proportional to relatedness, which was not the case of other support types.

The presence of confidants in support networks increased the chances of receiving financial transfers, but its impact was smaller than of the genetic ties. We did not find similar effects for non-financial support, which explains why childlessness, often accompanied with lifelong singleness, led to the receipt of mainly non-financial support. The abovementioned findings lead us to the conclusion that other forms of support than exclusively financial transfers cannot be explained with kinship altruism and filial obligations. In our interpretation, the externally-defined ties are to a greater extent bound by social and legal norms specifying the obligations towards family members in need than the internally-defined ties. Because the latter are rooted in an affection, they are more individualized, personal, and manifest themselves in a more diverse and flexible forms than exclusively financial support.

The internally-defined ties shifting the structure of informal support towards its non-financial component, yield relevant policy implications. Taking into account the fact that majority of the childless mature adults and almost half of mature parents have at least one unrelated confidant, the informal support from the unrelated has a potential to enhance the replacement of institutional formal care with less costly home-based care services. We found that care and help was more often given by two or three persons than money and gifts. Receipt of exclusively non-financial support

from the unrelated was substantial in all family types reaching almost 60 per cent for the childless mature adults receiving support. These make the caregiving networks more flexible and easier to adapt to changes than financial supporters. Indeed, the same frequency of only financial, only non-financial, and both financial and non-financial transfers reported in local and dispersed families indicates that the unavailability of care due to mobility of a child could be, at least partially, compensated by other donors. There might be differences in the *intensity*, but the conditional *probability* of respective support type remains the same because of the adjustments in the support from all its sources. Further research on the shared inter-informal support is needed.

Results of heterogeneity analyses indicate that the effects of internally-defined ties shifting the structure of transfers from financial towards non-financial and mixed support are driven mainly by the non-genetic family members. One interpretation of this finding is that the informal support from extended family is tailored to individual needs when internally-defined ties are present; otherwise the support is more likely to be limited to financial component, which might not address all particular needs.

The financial support network, with genetic relatives in its centre, overlaps with the non-financial support network but is smaller. Taking into account our finding that exclusively financial support is unlikely to occur, particularly from the unrelated individuals, a permanent loss of financial support from family members might be difficult to replace. A shortage of financial support threatens, in particular, childless mature adults while mature parents of mobile children are more likely to face a shortage of non-financial transfers. Current fertility and marriage formation patterns make future cohorts of mature adults deprived of siblings and genetic children more numerous than the present cohorts. Presumably, the future cohorts develop stronger

internally-defined ties within and beyond family. Nevertheless, they will be more likely to face the lack of financial support and in turn poverty than the current cohorts of mature adults.

On the surface, parents in local and dispersed families seemed to receive the same support, distinct from less finance-oriented support given to childless mature adults. Taking into account ties linking transfers' donors and recipients, we showed that one child's absence from close proximity to parents was sufficient to reveal substantial differences in the structure of support given to ageing individuals. Mature parents in dispersed families were relatively most likely to receive financial support while childless mature adults exclusively non-financial support, keeping other relevant factors constant. In many countries of the analysed group, labour migration prevails (United Nations, 2016), so parents in dispersed families have, on average, wealthier children than parents in local families, and the wealth effects enhance financial assistance. However, this is only a small part of the story. We argue that the mobility of one child may shift the structure of support from all sources engaged in financial and non-financial assistance unnecessarily towards the patterns observed for childless mature adults.

A plethora of studies show that time transfers, in particular caregiving, are gendered (e.g. Attias-Donfut, 2001). Our study shows that one explanation for that tendency might be the gender differences in internally-defined ties, which are indeed gender-specific (Suitor & Pillemer, 2006). Unfortunately, SHARE data allow for retrieving the gender for only a small portion of transfers' donors, disabling investigation of the above presumption.

Finally, we address the shortcomings of the present study. Even though our conceptual framework refers to universal concepts, it is realized in specific context.

Macro- and mezzo- factors, such as the welfare state, economic activity levels, social norms, and gender equality as well as technological infrastructure, vary largely in space and time. A more detailed study dedicated to their influence is needed. Our robustness analysis showed similarity in analysed European countries, but further analysis at a country level, possibly reaching beyond Europe, might be very informative. Our results hold if reciprocity in transfers is symmetric, which seems to be a feasible assumption to start with.

The potential endogeneity of the presence of internally-defined ties and support structure seems negligible because we observed only small differences in the size and composition of internally-defined ties between family types. However, the differences were significant and might play a critical role in assistance from the unrelated, particularly to the childless. Parental confidants' networks were larger and more often included partners and friends in dispersed families than in local families, akin to childless mature adults. Other studies showed that childless (Johnson & Catalano, 1981) and widowed (Kelley, 1981) older individuals enlarge their network of close and trusted persons, thus reinforcing their links with the community. Our results should be interpreted bearing in mind that it is equally possible that parents extend their confidants' networks, thus compensating for the lack of a child in close proximity, or the fact that parents are more socially integrated and have more diversified sources of support may facilitate their children's mobility.

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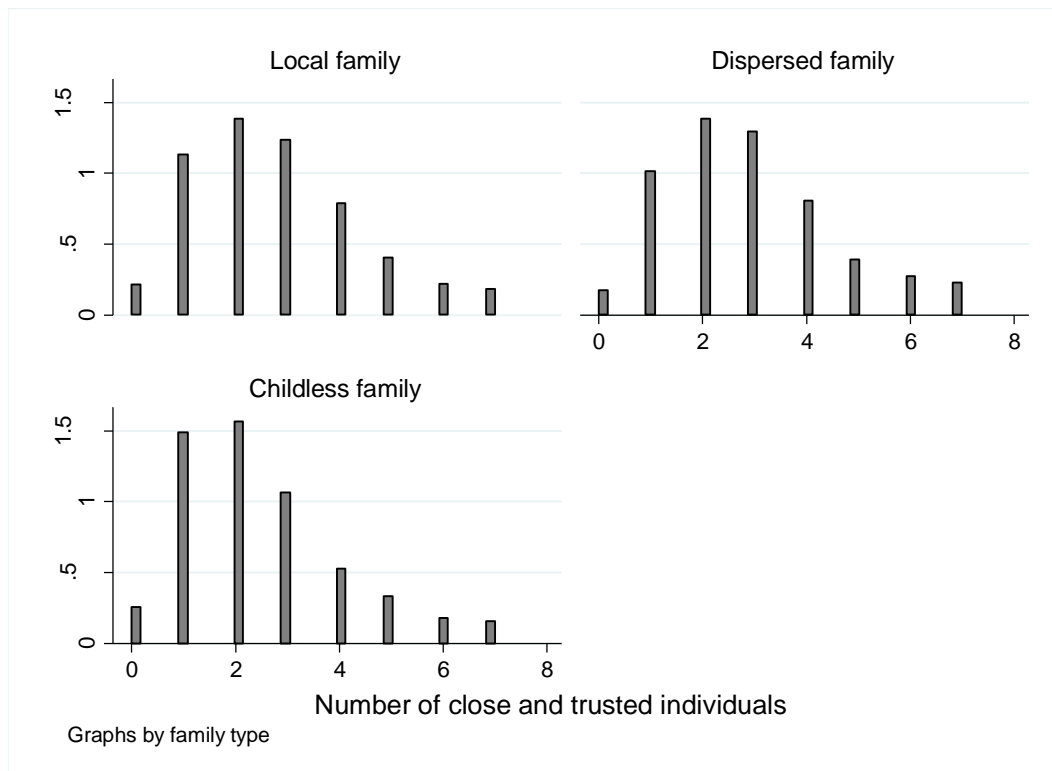
Appendix

Figure A1. Histogram of the number of individuals linked with internally-defined ties to mature individuals receiving informal support

Source: Authors' own tabulations based on SHARE wave 4, release 6.1.0.

Note: Kruskal-Wallis chi2: 58.510***, *** – p<0.01.

Table A1. The results of the multinomial logit estimation using 100, 500, and 25 km threshold in the definition of dispersed families

Received informal support	Only financial *versus* only non-financial			Financial and non-financial *versus* only non-financial		
	Distance threshold (in kilometres)					
Variables of interest	100	500	25	100	500	25
	Relative risk ratio					
Family type						
Dispersed	**1.40**	1.14	**1.65**	**1.22**	**1.21**	1.20
Childless	0.81	**0.78**	**0.79**	**0.73**	0.75	**0.70**
Externally-defined ties						
Genetic relatives	**0.80**	**0.79**	**0.79**	0.94	0.95	0.94
Partner	**0.22**	**0.22**	**0.22**	1.05	1.05	1.06
Other relatives	**0.62**	**0.62**	**0.61**	**2.56**	**2.56**	**2.55**
Unrelated	**0.13**	**0.13**	**0.13**	**1.38**	**1.39**	**1.39**
Internally-defined ties						
Present	**0.63**	**0.63**	**0.62**	**1.76**	**1.77**	**1.75**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N | Wald chi2	7340	7340	7340	1652.38	1650.17	1658.58

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.

Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), and country. Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. Bolded estimates are significant at least at the 10 per cent significance level. Wald chi2 statistics are significant at the one per cent level.

Table A2. The composition of the research sample by country and family type in percentages

Country	Family type			
	Local	Dispersed	Childless	Total
Austria	6.25	2.10	1.51	9.86
Belgium	6.74	1.22	1.69	9.65
Czech Republic	10.86	3.07	0.76	14.69
Denmark	2.63	1.64	0.65	4.92
Estonia	7.03	5.48	1.43	13.94
France	3.75	3.57	1.09	8.41
Germany	1.47	1.08	0.29	2.85
Hungary	3.19	1.16	0.49	4.84
Italy	3.58	1.02	0.87	5.47
Netherlands	2.44	1.09	0.58	4.11
Poland	1.62	0.80	0.18	2.60
Portugal	1.60	0.64	0.34	2.59
Slovenia	2.57	0.30	0.23	3.10
Spain	3.60	1.03	0.47	5.11
Sweden	1.49	1.30	0.33	3.12
Switzerland	2.72	1.15	0.86	4.73
Total	61.56	26.66	11.77	100

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.

Table A3. The relative risk ratio obtained in the multinomial logit estimation by country using 100 km threshold

	Austria	Belgium	Czech Rep.	Estonia	France	Germany	Hungary	Italy	Poland	Switzerland
	Only financial *versus* only non-financial									
Family type										
Dispersed	1.24	0.71	**1.68**	**1.69**	1.34	1.65	**3.62**	**0.30**	**3.76**	1.01
Childless	**0.40**	1.01	0.477	1.05	0.49	4.50	0.45	**0.31**	4.48	1.24
Externally-defined ties										
Genetic relatives	0.56	0.64	0.90	0.76	0.59	**6.63**	0.37	0.54	**0.17**	**0.38**
Partner	**0.42**	**0.05**	**0.35**	**0.49**	**0.04**	**0.00**	**0.07**	**0.16**	**0.00**	**0.11**
Other relatives	0.71	0.68	**0.32**	**0.45**	1.55	1.19	**0.26**	**0.17**	**0.14**	**2.57**
Unrelated	**0.22**	**0.04**	**0.13**	**0.21**	**0.06**	**0.03**	**0.08**	**0.07**	**0.05**	**0.07**
Internally-defined ties										
Present	1.17	**0.37**	**0.61**	0.80	0.61	0.85	**0.31**	**0.30**	0.59	**0.93**
	Financial and non-financial *versus* only non-financial									
Family type										
Dispersed	1.04	1.53	1.35	1.52	0.62	1.05	**2.65**	0.94	1.02	0.38
Childless	**0.43**	1.05	0.59	0.78	0.28	1.09	0.25	0.45	**0.00**	1.37
Externally-defined ties										
Genetic relatives	0.96	1.10	1.06	1.44	0.74	0.92	**0.25**	0.87	1.38	1.80
Partner	1.34	0.91	1.03	1.43	0.68	0.54	0.40	1.95	1.46	0.56
Other relatives	**2.51**	**2.59**	**2.93**	1.13	3.14	4.86	1.62	1.26	**6.41**	**17.22**
Unrelated	**2.59**	1.65	1.17	1.08	**5.05**	0.45	1.82	1.86	**0.10**	2.76
Internally-defined ties										
Present	**3.45**	**2.55**	1.33	1.20	1.97	3.47	1.08	2.07	2.49	**10.71**
N	719	763	1028	1135	600	212	384	413	186	322
Wald chi2	197.75	181.28	227.39	1716.80	167.38	2852.49	2369.74	139.82	2877.67	286.21

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.

Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, and place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area). Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. Bolded estimates are significant at least at the 10 per cent significance level. Wald chi2 statistics are significant at the one per cent level.

Table A4. The results of the multinomial logit estimation for populations aged 50+, 65+ and 80+

Received informal support	Only financial *versus* only non-financial			Financial and non-financial *versus* only non-financial		
	Population					
Variables of interest	50+	65+	80+	50+	65+	80+
	Relative risk ratio					
Family type						
Dispersed	**1.40**	**1.63**	**2.83**	**1.22**	**1.36**	**1.59**
Childless	0.81	0.90	0.98	**0.73**	0.48	0.49
Externally-defined ties						
Genetic relatives	**0.80**	0.80	0.84	0.94	0.87	0.71
Partner	**0.22**	**0.16**	**0.05**	1.05	0.94	0.70
Other relatives	**0.62**	**0.37**	0.60	**2.56**	**1.88**	1.39
Unrelated	**0.13**	**0.12**	**0.10**	1.38	1.47	1.34
Internally-defined ties						
Present	**0.63**	**0.64**	**0.35**	**1.76**	**2.26**	**4.98**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N | Wald chi2	7340	4490	1604	1652.38	823.22	282.21

Source: Authors' own analysis based on SHARE wave 4, release 6.1.0.

Note: Controls are (1) transformed with inverse hyperbolic sine function age, household size, number of close and trusted individuals, education years, numbers of ADL and IADL; (2) dummies for quartiles of equivalent monthly average household income *per capita*, gender, being in relationship, place of residence (large city, suburbs or outskirts of large city, large town, small town, rural area), and country. Mature adults in local families receiving support from individuals not bonded with internally-defined ties are the reference group. Bolded estimates are significant at least at the 10 per cent significance level. Wald chi2 statistics are significant at the one per cent level.