Who visits whom? The balance of intergenerational face-to-face contact
DRAFT

Ori Rubin[1], Clara H. Mulder[2]

[1,2] Population Research Centre, Faculty of Spatial Sciences, University of Groningen, The Netherlands

Email for correspondence: o.rubin@rug.nl

Keywords: Intergenerational contact; frequency of family visits; family network

Abstract

We address the question: how is the effort of maintaining face-to-face contact balanced between adult-children and their parents and, to what extent do contact opportunities and support needs influence this balance? Taking the intergenerational solidarity approach we hypothesise that the visiting and hosting balance is associated with two factors. First, support needs, which include instrumental, health related and age related support, and second, opportunities for contact in the family network. We use data on family networks from the Netherlands and linear regression analysis to investigate which side of the intergenerational dyad travels more for face-to-face contact. Results show that adult-children tend to visit their parents more than host them. We also find that adult-children who have siblings that live close to the parents visit relatively more. If adult-children have children of their own, parents tend to visit more. Support provision also leads to more visits. Being chronically ill or disabled leads to more hosting relative to visiting. No significant differences between males and females were found.

1. Introduction

In this paper we focus on a central part of intergenerational relationships, namely face-to-face (F2F) contact through in-home meetings. F2F contact between parents and adult-children is a frequently recurring event: in the data used for our study 56% of the respondents report meeting a mother or a father at least once a week. Of these, 65% reported visiting their parents at their home at least once a week. Hence in-home meetings, whether at the parental home or at the child's home constitute a substantial part of total intergenerational F2F contact. These meetings between parents and their adult-children are important for the maintenance of solidarity within the family (Bengtson & Roberts, 1991). During the visits emotional and instrumental support is exchanged, like help in childcare, or the help provided by adult-children to their ageing parents (Rossi & Rossi, 1990; Smith, 1998).

The frequency of F2F contact between adult-children and their parents is strongly dependent on the distance separating them – the longer the distance the lower the frequency they see each other (Dewit et al., 1988; Lawton et al., 1994; Grundy & Shelton, 2001; Fors & Lennartson, 2008). In order for adult-children and parents to maintain F2F contact an effort needs to be made to bridge this distance, even if it is quite short. Within the literature on intergenerational contact, overcoming the distance between adult-children and parents was mainly studied from the perspective of residential relocation, for instance when parents move closer to their adult-children. Support needs are considered as generators of relocation moves (e.g. Lawton et al., 1994; Michelin et al., 2008; Smits, 2010). Travelling for visits is another way of overcoming the distance. This form of facilitating F2F contact has received only limited attention, which is surprising given its prevalence. Research on travel behaviour for social purposes, while including them in the analysis, has not focused on family visits and their context (e.g. Schwanen et al., 2001; Dieleman et al., 2002; Van Acker et al., 2011).

This paper aims therefore to enrich our understanding of intergenerational contact by addressing the following research question: what is the balance of visiting and hosting between adult-children and their parents and, to what extent do contact opportunities and support needs influence this balance? For a single visit to take place, the effort required from both sides is inherently asymmetric: one side needs to be mobile and travel while the other needs to host. As visiting and hosting have diverging requirements it is possible that one side might visit more often than the other.

We use a sample of 1,419 individuals and their parents from the 2009 wave of the Mobility in Social Networks module of the Longitudinal Internet Studies for the Social sciences (LISS) panel, a dataset from the Netherlands. The module was designed for studying family visits. We define relative frequency as the ratio of the frequency in which adult-children visit their parents and the frequency in which they host them. We then apply a linear regression model to quantify the relationship between individual, dyadic and family characteristics and relative frequency. Our research is guided by the intergenerational solidarity model which was used earlier to research exchange and reciprocity in families (e.g. Silverstein & Bengtson, 1997; Klein Ikkink et al., 1999). Within this model we focus on the opportunity for contact and support exchange dimensions and link those to intergenerational contact.

2. Background

The intergenerational solidarity model is particularly useful in relating dimensions of family solidarity with patterns of contact within the family. The model specifies three main factors that drive intergenerational F2F contact across the family life course: opportunity structure, flows of instrumental support and norms (Bengtson & Roberts, 1991). The normative dimension relates to the concept of reciprocity, the mutual giving and taking within an

exchange relationship. Whether relationships are reciprocal depends on the type of exchange. For example, reciprocity in instrumental help may co-exist with non-reciprocal financial transfers (Grundy, 2005). If family visits are reciprocal without substantial time lags then we should see adult-children visit and host their parents in similar frequencies.

However, reciprocal exchange in the family could be spread over a long period of time. Therefore at a given moment an imbalance in support and contact might be observed (Silverstein et al., 2002; Henretta et al., 1997). Filial responsibility, the idea that parents expect children to make an effort in attending to their needs as a return on the parents' earlier investment in their children's upbringing (see Lee et al., 1994; Connidis, 2010), is a norm that could explain patterns of intergenerational contact in which adult-children visit their parents more than host. Other possible explanations also point to an imbalanced parent-child exchange. Parents might feel greater obligation towards their children. Parents tend to show more interest in their children's lives than vice versa (Rossi & Rossi, 1990; Lye, 1996). They might use visits as a way to engage actively in their children's life and therefore we would observe adult-children host more than visit. While we cannot test these explanations, we use descriptive statistics to provide evidence on the balance. Other types of exchange in the family are not constant over the life course (Komter & Schans, 2008). It is expected that the visiting and hosting balance might also differ across specific individual and family characteristics therefore these characteristics are discussed.

Opportunities for intergenerational contact

The opportunity structure corresponds to family size, composition and geographical distribution, and is an important factor in determining opportunities for intergenerational F2F contact (Bengtson & Roberts, 1991). Specifically the role of siblings as an alternative contact opportunity is central. In the absence of siblings adult-children see their parents more. The more siblings an adult-child has the less F2F or phone contact he or she has with their parents

(Spitze & Logan, 1991; Van Gaalen et al., 2008). Visiting is a time-intensive activity and following the resource dilution model, parents' per child investment of resources, like time, declines as the number of siblings increases (Downey, 2001; Silverstein & Giarrusso, 2010). If parents have more than one child they are likely to divide their travel time among more children. Therefore it is expected that adult-children with siblings visit their parents relatively more than host because parents are likely to dedicate less travel-time to a specific adult-child. However, an alternative hypothesis could be formulated the need to visit the parents diminishes if an adult-child has siblings because the obligation of spending time with parents could be shared among the siblings (Klein Ikkink et al., 1999).

If there are additional siblings, the frequency adult-children see their parents seems not to be associated with residential location of the siblings: adult-children see their parents as often whether or not there are siblings who live closer to the parents (Van Gaalen et al., 2008). This is not to say that the residential location of the siblings is not important. The location might not matter for total intergenerational F2F, but when considering the travel effort required we do expect the geographic distribution of the sibling network to influence the visiting-hosting balance. The distribution of the sibling network determines the way in which family visits could be efficiently organized. Specifically, if there are siblings who live close to the parents, joint family meetings at the parental home could be more easily organized than otherwise. Visiting the parents then becomes more attractive because the adult-child can see more family members while investing similar travel effort. Therefore, it is expected that adult-children who have a sibling living close to their parents will visit the parents relatively more often than host them. In the opposite case, where the siblings live close to the adult-child we expect that the adult-child will host more than visit, as it is more efficient for the parents to travel and see more than one child at once.

Support, health and mobility

Instrumental support, such as helping with chores, is often provided at the home of the recipient. Consequently instrumental support is likely to be closely related to visiting. It is expected that those providing support are the ones responsible for travelling and those receiving support are the ones hosting. It is worth noting the difference between this expected behaviour and findings with respect to residential relocation. In earlier research it was found that when instrumental support needs arise it is the person that is in need who tends to make the residential move, probably to decrease the burden on the provider (Rogerson et al., 1997; Smits, 2010).

An important aspect of intergenerational support is childcare support provided by parents to their adult-children if the latter have their own children (see Lye, 1996; Connidis, 2010). We expect that individuals with children will visit their parents relatively less than host them, due to the informal childcare grandparents provide, due to the substantial utility grandparents derive from contact with their grandchildren (Uhlenberg & Hammil, 1998) and due to the difficulty of travelling with children. We also expect to find this effect particularly if the grandchildren are very young – if the grandchildren are less than 12 years old, then the adult-child will travel relatively less.

By definition, visiting requires some physical ability to move. Therefore, it is likely that the health situation of the parents and the adult-children influences their ability to visit. In addition, having a disability may require additional in-home care provision. We do have data on the health status of the parents but unfortunately not of the adult-child. Thus, we expect that if (one of) the parents suffer from a long-term illness or disability then this will be associated with relatively more visits by the adult-child.

Another facilitator of mobility is the ownership of mobility resources. Cars offer their owners increased flexibility in activity scheduling and an opportunity to travel to more geographically disparate locations (Sheller & Urry, 2000; Dieleman et al., 2002; Bertolini & le Clercq, 2003;

Urry, 2007). It is expected that compared with car-less households, a parent or an adult-child who owns a car will travel relatively more than host. Access to other travel modes is dependent on the residential location of the individual. Living in an urban area is associated with access to various travel modes and to central transportation hubs such as railway stations or motorway junctions. Furthermore, there is evidence that living in core urban areas is associated with a higher level of out-of-home activities (Farber & Paez, 2009). We expect that the parent or adult-child who lives in a highly urbanized area will travel relatively more.

It can be expected that there would be gender differences in visiting and hosting. Women are regarded to take the kin keeping role and be responsible for more care giving (Rossi & Rossi, 1990; Spitze & Logan, 1990; Rogerson et al., 1997; Silverstein et al., 2006; Mulder & van der Meer, 2009; Silverstein & Giarrusso, 2010). Mothers and daughters tend to have more frequent contact among them across the life course, compared to fathers and sons (Rossi & Rossi, 1990; Lawton et al., 1994). Therefore we expect to find that females travel more: the first effect is that relative to sons, daughters visit their parents more than host. The second - that adult-children host their mothers more than their fathers, and visit them less.

In our analysis we accounted for additional factors that might be associated with the visiting balance: distance between adult-children and their parents; age of both parent and adult-child; adult-child's education, which reflects resources and earlier geographical mobility; employment situation, which reflects resources and time constraints; home-ownership which reflects income and the ability to host parents; routine of family visits and hosting, that reflects general tendency to engage in F2F contact with family members.

3. Data and Methods

We used the first wave of the Mobility in Social Networks questionnaire from the Longitudinal Internet Studies for the Social sciences (LISS) panel administered by

CentERdata. The data were collected in the Netherlands in 2009 through an internet-based survey. Our analysis sample consisted of those respondents who stated that they are between 25 and 65 years old, are the head of household or the head's partner, have at least one parent alive, and do not live with any of their parents or siblings. Because detailed data were collected for a maximum of three siblings per respondent, we removed all respondents who reported having four or more siblings. The final sample consists of data on 1,419 adult-child-parent dyads.

Each respondent reported on their own residential location in 4-digit postal code and on the location of their parents and their siblings. We combined these data with the distance matrix from the National Accessibility Map[1] (*Nationale Bereikbaarheidskaart*) that enabled us to calculate road distance between every pair of postal codes.

Dependent variable: Relative Frequency

The dependent variable was *relative frequency* (RF), our measure of the visiting balance between parents and their adult-children. This variable was constructed by using the answers to two questions: "When you saw your parents in the past 12 months, how often did that occur at their home?" and "When you saw your parents in the past 12 months, how often did that occur at your home?". Answers to both questions were given on an ordinal 7-point scale of frequencies, which was then transformed into a continuous scale of number of annual meetings (values were taken from Van Gaalen et al., 2008): never (0), once (1), a few times (4), at least once a month (12), at least every week (52), several times a week (156), every day (300). Subsequently, visiting frequency (f_v) was divided by the hosting frequency (f_h) and then linearised by taking the natural log of the quotient to give the following statistic of RF[2]:

[1] These data were produced by Goudappel Coffeng- http://www.bereikbaarheidskaart.nl/

[2] To avoid problems related to zero frequencies, for respondents that reported "never" hosting and/or visiting we imputed a value 0.25 instead of the zero value. We tested the sensitivity of the results to this value and did not find differences in significance, size and sign of the reported effects.

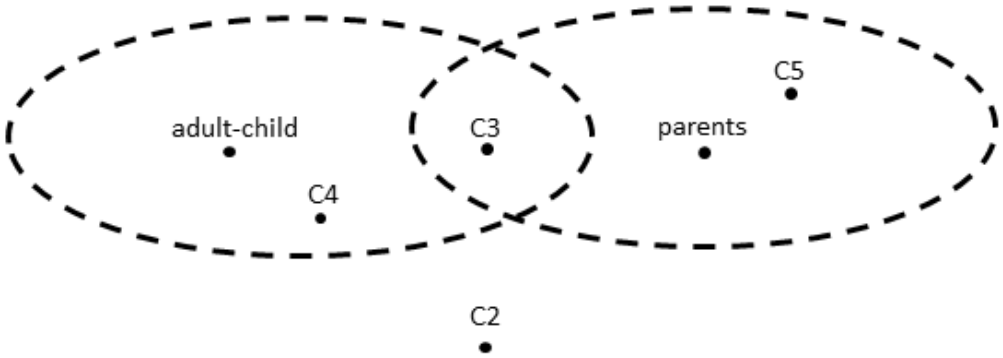
$$RF = \ln(\frac{f_v}{f_h})$$

The variable captures the direction and the size of the visiting asymmetry: respondents who visit much more often than host have a higher RF than respondents with a smaller imbalance. Respondents who host more than visit have a negative value of RF. The RF value of zero (the natural log of 1) is attached to respondents with symmetric visiting and hosting balance, i.e. equal visiting and hosting frequencies.

Independent variables

We distinguished between five cases whether the adult-child has siblings and where these siblings are located (see Figure 1): *Only child* (case 1, reference case), *dispersed family* where all siblings live farther than 5 kilometres of the parents and of the adult-child (case 2), *clustered family* where there is a sibling within 5 kilometres of the parents and of the adult-child (case 3), *clustered siblings* in which the sibling lives in proximity (5 kilometres or less) to the adult-child but not to the parents (case 4) and *clustered sibling-parents* in which the sibling lives in proximity to the parents but not to the adult-child (case 5). To test the sensitivity of our results to the specification of distance in these categories we also estimated the model using distances between 1 and 20 kilometres. In addition, we controlled separately for the road distance between adult-children and their parents in categories: living within same postal code (reference), 1-20km and more than 20km. The results were not sensitive to this specification.

Figure 1: The possible locations of a sibling



Notes:

case 1: Only child (reference case); case 2: dispersed family; case 3: clustered family; case 4: clustered siblings; case 5: clustered sibling-parents; Ellipses represent 5km road distance

Four cases of instrumental support exchange were included in the model: receiving support from parents; providing support to parents, both receiving and providing; neither receiving nor providing support (reference). Types of instrumental support which were included in this categorization are: household chores (cooking, cleaning, laundry and groceries) and odd jobs (for example, home repairs, transport of items or "giving a ride"). A person is said to be receiving or providing instrumental support if the adult-child indicated that it occurred several times in the three months preceding the survey[3]. An additional dummy variable indicated whether a parent is suffering from a long term illness or disability.

The need for childcare was measured by the adult-child's household composition. Household composition was measured in 5 categories: single (reference), (un)married couple, (un)married couple with children, single with children and other. An extra dummy variable indicated if there is a child under 12 years old in the household.

To account for mobility opportunities one dummy variable was included to represent car ownership by the adult-child (reference: no car), one for car ownership by the parents, one

[3] These data was taken from the LISS Family and Household module

dummy variable for adult-child living in an area with an address density of more than 1500 per square kilometre (reference: other areas) and a similar one for the parents.

Additional Control variables: Age of the adult-child was included using four categories: 25-34 (reference), 35-44, 45-54, 55-65. The age of the (youngest) parent was also included using four categories: younger than 65 (reference), 65-74, 75-84, 85 and older. Level of education, was measured in three levels: low (completed primary school or intermediate secondary school, reference), medium (completed higher secondary education or intermediate vocational education) and high (completed high vocational education or university). Work status was coded using a dummy variable for having a job (either as employee or as a self-employed) or not (reference: no job). A dummy represented living in an owner-occupied home (reference: other situation). Finally, routine was measured using two variables: the first is the median frequency of hosting other family network members by the adult-child – the median answer for the annual number of visits made by parents in-law, (up to three) children of the adult-child and two friends or relatives with whom the adult-child has regular contact. The second variable is the median frequency of visiting these network members.

Models

We conducted a multivariate analysis using OLS regressions with RF as the dependent variable, as defined above. We estimated the regression for the whole sample and also separately for males and females, in order to identify gender-specific associations.

In our analysis we chose to use the perspective of the child in the intergenerational dyad. We have done so because our dataset included important variables on the parent-child relationship from this perspective only. Earlier research has found that there might be systematic differences between the way parents and children assess their support exchange. Individuals tend to overestimate the help they are providing, while they down-play the help being

received (Klein Ikkink et al., 1999; Mandemakers & Dykstra, 2008; Kim et al., 2011). This might be a source for bias in our results. To check the possibility for such a bias we performed an additional analysis by using a sample of parents with out-of-home living adult-children, who reported on their contact patterns with their children (N=918) age 25-65, and a limited number of variables that were available. The reader should note that this is a separate sample – we could not match the parents in the main sample to the parents in this analysis.

4. Results

Descriptive statistics

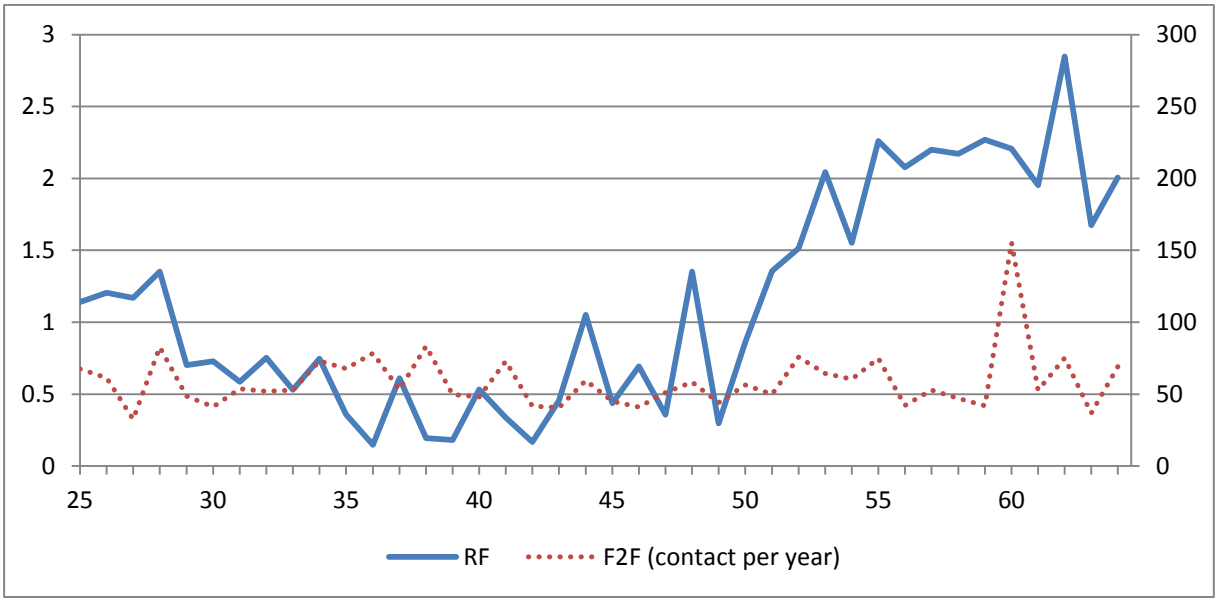
Descriptive statistics are presented in Tables 1. The main result from Table 1 is that in our sample adult-children tend to visit their parents more than host them: 47.1% adult-children report visiting their parents more frequently than hosting them (see first row). Only 15.1% report the opposite, and 37.1% visit and host in equal frequency. The mean value of RF is 0.9 (Table 1). These results suggest that on average adult-children travel more. In our sample that uses the parents' perspective the distribution of RF is similar: 42.5% of the sample reports that the adult-child visits more frequently than hosts and only 12.6% report the opposite.

==TABLE 1 HERE===

The mean value of RF by respondents' age is plotted in Figure 2 . As a reference we also added the mean value of total F2F contact frequency. Several results are highlighted: mean RF is always positive, therefore indicating that the general result of more visiting by adult-children holds on average for all age groups. While F2F frequency fluctuates mainly between 50 and 80 times per year (with overall mean of 56.8 – just over once a week of F2F contact), the mean RF decreases between the ages 25 and 40 and then increases. This suggests that while overall F2F contact stays the same, the balance of visiting and hosting changes between different age groups. For the age-group 25 and 40 adult-children RF is lower than for other

groups: compared to older individuals, these adult-children host relatively more, while older age groups visit relatively more. As the data available is cross-sectional, we are not able to distinguish between age and cohort effects. The implications of this are discussed in the concluding section.

Figure 2: Relative Frequency and F2F contact frequency - mean RF (left axis) and annual F2F contact frequency in number of days (right axis) for every age



Multivariate regression

Results of the OLS regression models are presented in Table 2: Column 1 presents the results for the full sample, while columns 2 and 3 for males and females respectively.

First we turn to the dyadic and network level variables. We found that if the adult-child provided a parent with frequent instrumental support then that was positively associated with RF (the adult-child visits more). This association was symmetrical to the case in which the parents provided frequent support to the adult-child. As expected, there was no significant difference between the case in which the adult-child and the parents provided each other with mutual instrumental support and if there was no exchange of instrumental support. Results

from the male-only sample suggest that support exchange does not influence the visiting balance of sons. Similar results appear if a parent has illness or disability: adult-children visit relatively more, but the association is insignificant for males.

For the full sample, we found that having a sibling (cases 2-5) as an alternative intergenerational contact was positively associated with RF compared with being an only-child (reference), i.e. adult-children with siblings visit relatively more than host. The only exception was the case of clustered siblings (case 4), in which the sibling lives farther than five kilometres from the parents but within five kilometres from the adult-child.

The effect of having a sibling differs according to the residential location of the sibling. If a sibling lives within five kilometres of the parents (case 3 and 5) the adult-child visits his/her parents relatively more compared to all other cases. There were no significant differences in the size of effect on RF between the dispersed family case (case 2) and the clustered siblings case (case 4), where a sibling lives within five kilometres of the adult-child but not of the parent. To test for the robustness of these results we estimated alternative models in which the distance between the family members was set for values between one and 20 kilometres. The effects in the alternative models were similar for distances up to 15 kilometres. At 20 kilometres the effect of case 5 was insignificant. These results are available upon request from the authors. The effect of having siblings and their geographic distribution was stronger for females and mostly insignificant for males. Additionally, all else equals, RF is not associated with the distance between adult-children and their parents.

Childcare needs were strongly associated with more hosting by the adult-child compared with visiting. If adult-children have a partner and children of their own and if the child in their household is younger than 12 years old then they host the (grand)parents more.

Car ownership of parents was significantly and negatively associated with RF: the adult-

children host their parents more than visit. However the same effect was not detected for if the adult-child was a car owner. The residential location of the adult-children and the parents also had an insignificant effect on RF.

Keeping all other variables constant, unexpectedly no significant effect of gender was found. Neither the gender of the adult-child is associated with RF, nor the gender of the parent if the father or mother live on their own.

The age of the adult-child and that of the parent were non-linearly associated with RF. For the adult-child we found that relative to the age group 25-34, the oldest group (55 to 65) was not significantly different, while the age group between 35 and 54 was negatively associated with RF. For the age of parents we found that the two oldest groups (parents aged 75 and older) were associated with more hosting than travelling (by the parent), suggesting that at these ages support needs and mobility limitations increase, and this leads to more travelling by the adult-children. The male-only model showed a different effect of parents' age – in this model only having parents age 85 or older was associated with RF.

Education, homeownership and employment status were not significantly associated with RF. Routine patterns of visiting and hosting were strongly associated with RF: adult-children who tend to visit other family members, also visit their parents more.

==TABLE 3 HERE==

In the regression analysis which uses the parents' perspective, we found that if the adult-child has at least one sibling he or she visits more, as we found in the adult-children's sample. However we did not find a significant association with the location of the sibling. Furthermore we found that if the parent does not have a partner, he or she travels more than hosts, while in the adult-children's sample this association was not found. The effects of age and health are similar to the ones reported earlier. To conclude, we did not find significant

evidence for a bias in the adult-children response. Because of lack of data on support, health status and household composition when taking the parents' perspective, the results of the two samples can only be compared to a limited extent.

5. Conclusion and discussion

In this study our research question contained two parts: first, what is the balance of visiting and hosting between adult-children and their parents? We found that children visit their parents substantially more than host them – 48% of our sample follow this pattern, while only 15% the opposing. This indicates that children engage in investing in travel effort more than parents do, and on average this holds across all age groups. These results were in line with the expectations of the filial responsibility theory, that adult-children make an effort in attending to their parents' needs. In the background section we noted that the literature describes parents as having greater interest in their children lives than vice versa (e.g. Rossi & Rossi, 1990). From our analysis it seems that this does not lead to increased physical mobility by parents. The second part of our research question was to what extent do contact opportunities and support needs influence relative frequency of visiting and hosting among parents and their adult-children? We found that like other resource flows (Steelman et al., 2002), also the investment of travel effort per child declines if another child is available. Furthermore, we also found an indication that the visiting balance is not related to the distance between and the concentration of network members in general, but to the concentration specifically around the parental home, which acts as the focal point for family visits. Instrumental support provision, as expected, plays a substantial role in determining relative travel frequencies. Research on residential relocations showed that support needs are a major driving force for relocation closer to kin. Those in need of support, for example aging parents are more likely to relocate close to their children (Smits, 2010). However, our findings show that given the distance between adult-children and their parents, F2F contact is realized through the travelling of

those providing support, rather than the recipients of support. The results presented here therefore complement earlier research on the impact support needs have on intergenerational contact. Additional evidence on the central role of support was found in the coefficients of the variables that are indirectly related to instrumental support provision such as the health situation of the parents. The results also provide an indication for the effort (grand) parents put into the relationship with their grandchildren by travelling to visit them: we found that the need for childcare and the need of grandparents to be in touch with their grandchildren seem to be a "pull" factor for parents to visit more their adult-children. The adult-child's gender played a smaller role than expected: it does not seem to be associated with the visiting balance. Some associations were different for males and females, especially those relating to support, suggesting that support flows impact females more in their hosting and visiting behaviour. Finally, having access to mobility resources had only limited association with the visiting balance. Car ownership seems to have the biggest impact.

Our analysis had two contributions. First, unlike earlier studies on frequency of contact who left this implicit, we explicitly broke down face-to-face contact into the components of visiting and hosting. Second, we demonstrated that because face-to-face contact necessitates travelling, who visits whom depends on how parents and adult-children balance their own ability and needs to travel with the ability and needs of the other. We highlighted that the resulting division of travel effort is associated with contact opportunities and support needs.

The main limitation of the study is the cross sectional nature of the data used. We attribute variations in behaviour at different ages to the needs that may accompany these ages. However, a possible driver of these variations could be a generational shift in attitudes towards family contact. In the past researchers claimed that filial responsibility is in decline but a longitudinal study of these norms did not find that later generations have lower commitment to providing within-family support (Gans & Silverstein, 2006). In our analysis

we do find that individuals age between 35 and 55 to travel less than other (in particular older) generations, but with the data at hand we cannot disentangle potential generational shifts in attitudes from life course effects. Other potential differences between generations are cohort differences in mobility behaviour. For example, it is known that in older generations females were less likely to hold a driving license (Laapotti & Keskinen, 2004). Such differences might also contribute to the balance of visits to tend towards more visits by adult-children (i.e. the younger generation). Future research might improve on these shortcomings by considering how intergenerational differences in attitudes and in mobility behaviour play a role in F2F contact within the family.

References

Bertolini, L., & le Clercq, F. (2003). Urban development without more mobility by car? Lessons from Amsterdam, a multimodal urban region. *Environment and Planning A, 35*(4), 575-590.

Bengtson, V. L., & Roberts, R. E. L. (1991). Intergenerational Solidarity in Aging Families: An Example of Formal Theory Construction. *Journal of Marriage and the Family, 53*, pp. 856-870.

Connidis, I. A. (2010). *Family ties and aging* Pine Forge Press.

Dewit, D. J., Wister, A. V., & Burch, T. K. (1988). Physical Distance and Social Contact between Elders and their Adult Children. *Research on Aging, 10*(1), 56-80.

Dieleman, F. M., Dijst, M., & Burghouwt, G. (2002). Urban Form and Travel Behaviour: Micro-level Household Attributes and Residential Context. *Urban Studies, 39*(3), 507-527.

Downey, D. B. (2001). Number of siblings and intellectual development: The resource dilution explanation. *American Psychologist, 56*(6-7), 497.

Farber, S., & Páez, A. (2009). My car, my friends, and me: a preliminary analysis of automobility and social activity participation. *Journal of Transport Geography*, *17*(3), 216-225.

Fors, S., & Lennartsson, C. (2008). Social mobility, geographical proximity and intergenerational family contact in Sweden. *Aging and Society*, *28*(2), 253-270.

Gans, D., & Silverstein, M. (2006). Norms of filial responsibility for aging parents across time and generations. *Journal of Marriage and Family*, *68*(4), 961-976.

Grundy, E. (2005). Reciprocity in relationships: socio-economic and health influences on intergenerational exchanges between Third Age parents and their adult children in Great Britain. *The British journal of sociology*, *56*(2), 233-255.

Grundy, E., & Shelton, N. (2001). Contact between adult children and their parents in Great Britain 1986-99. *Environment and Planning A*, *33*(4), 685-698.

Henretta, J. C., Hill, M. S., Li, W., Soldo, B. J., & Wolf, D. A. (1997). Selection of children to provide care: The effect of earlier parental transfers. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *52*, 110-119.

Klein Ikkink, K., Van Tilburg, T., & Knipscheer, K. C. (1999). Perceived instrumental support exchanges in relationships between elderly parents and their adult children: Normative and structural explanations. *Journal of Marriage and the Family*, *61*, 831-844.

Kim, K., Zarit, S. H., Eggebeen, D. J., Birditt, K. S., & Fingerman, K. L. (2011). Discrepancies in Reports of Support Exchanges Between Aging Parents and Their Middle-Aged Children. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *66*(5), 527-537.

Knijn, T. C., & Liefbroer, A. C. (2006). More kin than kind: instrumental support in families. In Family Solidarity in the Netherlands. Dykstra, P. A., Kalmijn, M., Knijn, T., Komter, A., Liefbroer, A., Mulder, C. H. (eds). Dutch University Press: Amsterdam; 89–106.

Komter, A. E., & Schans, D. (2008). Reciprocity Revisited: Give and Take in Dutch and Immigrant Families. *Journal of Comparative Family Studies*, *39*(2), 279-298.

Laapotti, S., & Keskinen, E. (2004). Has the difference in accident patterns between male and female drivers changed between 1984 and 2000? *Accident Analysis & Prevention*, *36*(4), 577-584.

Lawton, L., Silverstein, M., & Bengtson, V. (1994). Affection, social contact, and geographic distance between adult children and their parents. *Journal of Marriage and the Family, 56,* 57-68.

Lee, G. R., Netzer, J. K., & Coward, R. T. (1994). Filial responsibility expectations and patterns of intergenerational assistance. *Journal of Marriage and the Family, 56*, 559-565.

Lye, D. N. (1996). Adult child–parent relationships. *Annual Review of Sociology, 22*, 79-102.

Mandemakers, J. J., & Dykstra, P. A. (2008). Discrepancies in Parent's and Adult Child's Reports of Support and Contact. *Journal of Marriage and Family, 70*(2), 495-506.

Michielin, F., Mulder, C. H., & Zorlu, A. (2008). Distance to parents and geographical mobility. *Population, Space and Place, 14*(4), 327-345.

Mulder, C. H., & van der Meer, M. J. (2009). Geographical distances and support from family members. *Population, Space and Place, 15*(4), 381-399.

Rogerson, P. A., Burr, J. A., & Lin, G. (1997). Changes in geographic proximity between parents and their adult children. *International Journal of Population Geography, 3*(2), 121-136.

Rossi, A. S., & Rossi, P. H. (1990). *Of human bonding: Parent-child relations across the life course* New York: Aldine de Gruyter.

Schwanen, T., Dieleman, F. M., & Dijst, M. (2001). Travel behaviour in Dutch monocentric and policentric urban systems. *Journal of Transport Geography*, *9*(3), 173-186.

Sheller, M., & Urry, J. (2000). The city and the car. *International Journal of Urban and Regional Research*, *24*(4), 737-757.

Silverstein, M., & Bengtson, V. L. (1997). Intergenerational Solidarity and the Structure of Adult Child-Parent Relationships in American Families. *American journal of Sociology*, *103*(2), 429-60.

Silverstein, M., Conroy, S. J., Wang, H., Giarrusso, R., & Bengtson, V. L. (2002). Reciprocity in Parent–Child Relations Over the Adult Life Course. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *57*(1), S3-S13.

Silverstein, M., Gans, D., & Yang, F. M. (2006). Intergenerational Support to Aging Parents The Role of Norms and Needs. *Journal of Family Issues*, *27*(8), 1068-1084.

Silverstein, M., & Giarrusso, R. (2010). Aging and Family Life: A Decade Review. *Journal of Marriage and Family*, *72*(5), 1039-1058.

Smits, A. (2010). Moving close to parents and adult children in the Netherlands: The influence of support needs. *Demographic Research*, *22*(31), 985-1014.

Smith, G. C. (1998). Residential separation and patterns of interaction between elderly parents and their adult children. *Progress in Human Geography*, *22*(3), 368-384.

Spitze, G., & Logan, J. R. (1990). Sons, Daughters, and Intergenerational Social Support. *Journal of Marriage and the Family*, *52*, 420-430.

Spitze, G., & Logan, J. R. (1991). Sibling Structure and Intergenerational Relations. *Journal of Marriage and the Family*, *53*, 871-884.

Uhlenberg, P., & Hammill, B. G. (1998). Frequency of grandparent contact with grandchild sets: Six factors that make a difference. *The Gerontologist*, *38*(3), 276-285.

Urry, J. (2007). *Mobilities*. Cambridge: Polity Press.

Van Acker, V., Mokhtarian, P., & Witlox, F. (2011). Going soft: On how subjective variables explain modal choices for leisure travel. *European Journal of Transport and Infrastructure Research*, *11*(2), 115-146.

Van Gaalen, R. I., Dykstra, P. A., & Flap, H. (2008). Intergenerational contact beyond the dyad: the role of the sibling network. *European Journal of Ageing*, *5*(1), 19-29.

Table 1: Descriptive statistics

Variables	% or mean	RF<0	RF=0	RF>0
RF	0.86	15.1	37.1	47.9
Adult-child's characteristics				
Age				
— 25-34 (ref)	0.24	11.4	37.7	50.9
— 35-44	0.36	20.2	44.4	35.3
— 45-54	0.3	15.6	34.1	50.0
— 55-64	0.11	4.4	20.5	75.2
Female	0.59	15.6	35.3	49.2
Male	0.41	14.4	39.6	46.0
Household situation				
— single (ref)	0.18	8.2	27.0	64.8
— has partner	0.27	7.7	38.9	53.4
— has partner and children	0.49	20.4	40.2	39.5
— single with children	0.05	27.1	32.9	40.0
— other	0.01	25.0	37.5	37.5
A child under 12 in the household	0.36	22.8	45.8	31.4
No	0.64	10.8	32.2	57.0
Education				
— low (ref)	0.22	15.9	32.7	51.4

— medium	0.39	15.4	37.3	47.2
— high	0.39	14.3	39.3	46.4
Home owner	0.79	15.6	38.6	45.8
No	0.21	13.1	31.3	55.7
Employed	0.81	15.6	37.4	47.0
No	0.19	12.7	35.6	51.7
Car owner	0.74	15.6	36.3	48.2
No	0.26	13.7	39.3	47.0
Lives in urban area	0.46	13.1	37.8	49.2
No	0.54	16.8	36.5	46.7
Parent's characteristics				
Age				
— younger than 65 (ref)	0.29	14.9	41.2	43.9
— 65-74	0.31	21.0	42.4	36.7
— 75-84	0.28	12.2	34.9	52.9
— 85 and older	0.12	7.1	18.3	74.6
Household				
— parents live together (ref)	0.52	14.8	39.9	45.3
— father lives alone	0.14	16.0	42.3	41.8
— mother lives alone	0.34	15.1	30.5	54.4
Car owner	0.72	17.4	41.5	41.1
No	0.28	9.3	25.8	65.0
Lives in urban area	0.22	15.8	30.4	53.8
No	0.78	14.9	39.0	46.2

A parent has illness/disability	0.53	13.0	33.9	53.1
No	0.47	17.4	40.6	42.0
Dyadic (adult child-parent) and network characteristics				
Instrumental support exchange				
— no support exchange (ref)	0.63	13.3	44.7	42.0
— adult-child receives	0.07	25.5	29.8	44.7
— adult-child provides	0.08	35.3	30.3	34.5
— adult-child receives and provides	0.21	9.2	19.3	71.5
Distance				
— same postal code (ref)	0.18	21.0	33.2	45.9
— 1-20km	0.46	16.1	33.1	50.9
— more than 20km	0.37	11.0	43.9	45.1
Sibling network				
— adult-child is only child (case 1; ref)	0.11	22.9	37.9	39.2
— dispersed family (case 2)	0.37	15.9	39.7	44.3
— clustered family (case 3)	0.25	14.8	30.7	54.6
— clustered siblings (case 4)	0.05	14.1	50.7	35.2
— clustered sibling-parents (case 5)	0.23	10.6	36.3	53.1
Median hosting frequency of other relatives	3.44			
Median visiting frequency of other relatives	3.50			

Table 2: Results for OLS regressions; dependent variable: RF

Variables	(1) All	(2) Males	(3) Females
N	1,419	583	836
R^2	0.282	0.306	0.309
Adult-child's characteristics			
Age (ref=25-34)			
— 35-44	-0.453 (0.148)***	-0.377(0.236)	-0.491(0.192)**
— 45-54	-0.752 (0.206)***	-0.729(0.308)**	-0.733(0.279)***
— 55-64	-0.258 (0.269)	-0.078(0.396)	-0.333(0.375)
Female	-0.000 (0.095)		
Household situation (ref=single)			
— has partner	-0.606 (0.141)***	-0.775(0.210)***	-0.392(0.194)**
— has partner and children	-0.507 (0.152)***	-0.421(0.224)*	-0.455(0.210)***
— single with children	-0.441 (0.241)*	0.870(0.580)	-0.435(0.285)
— other	-0.791 (0.600)	-0.791(0.639)	-0.715(1.719)
A child under 12 in the household	-0.420 (0.129)***	-0.533(0.198)***	-0.300(0.174)*
Education (ref=low)			
— medium	-0.169 (0.122)	-0.426(0.194)**	-0.033(0.159)
— high	-0.054 (0.128)	-0.247(0.198)	0.068(0.172)
Home owner	-0.086 (0.122)	-0.306(0.190)	0.001(0.161)
Employed	-0.151 (0.121)	-0.601(0.252)**	-0.011(0.142)

Car owner	0.154 (0.105)	0.273(0.171)	0.118(0.136)
Lives in urban area	0.070 (0.099)	0.102(0.151)	0.042(0.132)
Parent's characteristics			
Age (ref=younger than 65)			
— 65-74	0.051 (0.141)	0.174(0.216)	-0.011(0.187)
— 75-84	0.375 (0.189)**	0.131(0.279)	0.510(0.258)**
— 85 and older	0.908 (0.254)***	0.739(0.374)**	0.983(0.352)***
Household (ref=parents live together)			
— father lives alone	-0.166 (0.149)	-0.402(0.227)*	-0.015(0.199)
— mother lives alone	-0.213 (0.133)	-0.165(0.203)	-0.272(0.176)
Car owner	-0.843 (0.131)***	-1.035(0.202)***	-0.699(0.175)***
Lives in urban area	-0.090 (0.137)	-0.096(0.204)	-0.081(0.185)
A parent has illness/disability	0.279 (0.092)***	0.196(0.143)	0.301(0.122)**
Dyadic (adult child-parent) and network characteristics			
Instrumental support exchange (ref=no support exchange)			
— adult-child receives	-0.518 (0.168)***	-0.096(0.290)	-0.630(0.210)***
— adult-child provides	0.635 (0.122)***	0.182(0.193)	0.924(0.159)***
— adult-child receives and provides	-0.286 (0.184)	-0.500(0.285)*	-0.099(0.241)
Distance (ref=same postal code)			
— 1-20km	0.093 (0.131)	0.274(0.207)	-0.002(0.169)
— more than 20km	0.016 (0.154)	0.213(0.239)	-0.098(0.202)

Sibling network (ref=adult-child is only child)			
— dispersed family (case 2)	0.434 (0.154)***	0.112(0.225)	0.671(0.213)***
— clustered family (case 3)	0.674 (0.167)***	0.537(0.251)**	0.755(0.228)***
— clustered siblings (case 4)	0.115 (0.241)	-0.064(0.334)	0.217(0.348)
— clustered sibling-parents (case 5)	0.612 (0.168)***	0.355(0.244)	0.745(0.233)***
Median hosting frequency of other relatives	-0.477 (0.053)***	-0.443(0.083)***	-0.484(0.069)***
Median visiting frequency of other relatives	0.516 (0.056)***	0.405(0.089)***	0.589(0.071)***
Constant	1.581 (0.378)***	2.843(0.574)***	0.719(0.504)

* < .01 ; ** < 0.05 ; *** < 0.01