

Grandchild care and welfare state arrangements in Europe

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Summary As a consequence of increased life expectancies and the overall improved health status of elderly people in industrialized countries, grandparents and grandchildren are now sharing a longer period of their lives together, from which they can both actively benefit. In addition, grandparents help their children by looking after their grandchildren and are consequently an important service provider in the domain of childcare, especially for mothers active in the labour market. The analyses, which are based on the Survey of Health, Aging and Retirement in Europe (Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Spain, Sweden and Switzerland), show significant country differences in the occurrence and intensity of grandchild care in Europe: whereas grandparents in southern Europe engage less often but more intensively in childcare, grandchild care is provided more often but much less intensively in northern Europe. Multilevel logistic regression models show that country-specific differences are associated with welfare state arrangements and, specifically, with public investments in childcare infrastructures. Public investments ‘crowd in’ grandparental willingness to engage in childcare but ‘crowd out’ the intensity of this intergenerational time transfer. Family and state thus complement one another, with grandparents taking over sporadic, less time-intensive care while public institutions provide regular, time-consuming childcare services.

Keywords childcare, Europe, grandparents, intergenerational solidarity, SHARE

In a rapidly ageing society, debates about the future of older people and the crisis of the welfare state indicate an ever-increasing need for research on intergenerational relations. A central concern is family assistance to the elderly and the individual and institutional factors that promote this form of support between generations (for example, Attias-Donfut, 2001; Blüher, 2003; Bonsang, 2007; Brandt et al., 2009). Time transfers from children to their older parents are thus of central concern, whereas support flowing from the older generation to the younger is most frequently analysed in terms

of reciprocity norms (Schwarz and Trommsdorff, 2005) and intergenerational financial transfers (for example, Kohli, 1999; Szydlik, 2008). However, as a result of demographic changes and increasing longevity, family members are now sharing a longer period of life together (Lauterbach, 2002). Increased healthy ageing thereby allows older and even very old people to actively engage in intergenerational relations and not only be recipients of help and care but also to function as important resources for their families (Hoff, 2007; Silverstein et al., 2003).

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Grandparenthood, in particular, has become a longer and actively lived phase in the life of many elderly people (Höpflinger et al., 2006); a trend that is only slowed down by the delayed birth of the first grandchild. The shared lifetime of grandparents and their grandchildren has not only increased but, due to a decreasing number of children per family, is also focused on fewer grandchildren. In these so-called 'beanpole families' (Bengtson et al., 1990: 264), horizontal family structures become less important and vertical relationships between family members are more intensively maintained (for example, between parents and children, and grandparents and grandchildren).

Grandparents are not only emotionally attached to their grandchildren, but also often occupy a central position in the support network of young parents. As a result of rising female employment rates, geographical mobility and more unstable relationships, many young parents face the challenges of organizing complex and multidimensional childcare arrangements (Lewis et al., 2008). The economic relevance of female employment rates and demographic change has moved childcare issues into the spotlight of attention at the macro-level of political decision-making (Wheelock and Jones, 2002: 442). Consequently, the European Council set out the so-called Barcelona objectives in March 2002. They call upon the European member states 'to provide childcare by 2010 to at least 90% of children between 3 years old and the mandatory school age and at least 33% of children under 3 years of age' (European Council, 2002: 12). This policy measure aims to enable or facilitate higher female participation in the labour market. At the same time, questions arise concerning the effects of public investments on intergenerational transfers: do a strong welfare state and public investments replace solidarity between generations or stimulate different forms of intergenerational support? Recent studies on the provision of grandchild care in Europe have indicated that substantial national differences in the level of caring grandparents persist (Hank and Buber, 2008). But what are the reasons behind these differences between European countries, and what roles do welfare state arrangements play?

The following analysis investigates the occurrence and intensity of grandchild care in Europe and examines the factors that influence a grandparent's decision to engage in this form of intergenerational

support. In addition, by using the Survey of Health, Ageing and Retirement in Europe (SHARE) – which covers 11 European countries (Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Spain, Sweden and Switzerland) – we will be able systematically to trace country-specific differences in national levels of public investment in childcare infrastructures and thus provide a valuable contribution to the discussion on the effects of the arrangements made by different welfare states on solidarity between family members.

Theoretical framework

The provision of grandchild care is examined here with reference to two theoretical perspectives. On the one hand, theoretical concepts of intergenerational solidarity help to identify the main factors and mechanisms influencing a grandparent's decision to engage in childcare. On the other hand, theories on welfare state arrangements and their impact on intergenerational family support provide an important framework for investigating and understanding the differences between countries.

Intergenerational solidarity

Bengtson and colleagues (for example, Bengtson and Roberts, 1991) have captured patterns of intergenerational family behaviour in their theoretical model of intergenerational solidarity. This model emphasizes the multidimensionality of relations between generations and highlights six different dimensions (association, affection, consensus, function, familism and opportunity structure) of parent-child interactions (Bengtson and Roberts, 1991: 857). As some of the proposed dimensions more exactly reflect potentials for solidarity instead of solidarity as such, three different forms of intergenerational solidarity can be investigated: functional, affective and associational solidarity. Functional solidarity involves providing support, and that is, simply said, the giving and receiving of money, time and space. The associational dimension refers to common activities. The affective dimension includes emotional attitudes, such as the emotional closeness of the relation.

The diverse conditional factors for solidarity can be classified into four groups, namely opportunity, need, family and cultural-contextual structures

(Szydlik, 2000, 2008). Three levels of analysis are distinguished, namely individual, family and society. The relationship between individuals is embedded in a family and, beyond that, in a societal context. *Opportunity structures* reflect opportunities or resources for solidarity. They enable, promote, hinder or prevent social interaction. A grandparent who is still employed, for example, has less time to engage in childcare activities, whereas a good health status should enable older people to take care of their grandchildren. The presence of a partner can be an important resource for intergenerational solidarity; a partner can support and help to organize grandchild care. However, a partner could also hinder a grandmother or grandfather from taking care of their grandchildren because they may prefer to spend time with their partners instead of engaging in childcare. Similarly, education may serve as a resource which leads better-educated grandparents to be better integrated in the social family network and more often sought-after by the middle generation. On the other hand, better-educated older people may be more engaged in hobbies and other activities and therefore less available for grandchild care. *Need structures* indicate the need for solidarity. Such needs can be of a financial nature, can stem from health problems, can be emotional needs or practical needs of time-intensive support. For the provision of grandchild care, children without partners, for example, can be expected to need more help from grandparents than children living in a relationship. *Family structures*, in principle, include the whole history of socialization, earlier family events and the existence and number of family members. The presence of young children, for example, generally intensifies intergenerational time transfers from the older to the younger generation and strengthens family cohesion (cf. Marbach, 1994; Templeton and Bauereiss, 1994). *Cultural-contextual structures* represent societal conditions within which intergenerational relations develop. They include conditions given by the social, economic and tax system, the welfare state, the labour and housing market, as well as the specific rules and norms of certain institutions and groups. One of the most important features of cultural-contextual structures is the influence of political and economic regimes. In particular, different welfare states can have an impact on the occurrence and intensity of intergenerational solidarity.

The provision of grandchild care can be identified as a functional form of intergenerational solidarity and, more precisely, as an indirect time transfer between grandparents and grandchildren and a direct time transfer between grandparents and children (Hagestad, 2006: 325). In the relationship and transfer patterns between grandparents and grandchildren, the middle generation has an important 'bridge function', and plays a so-called 'gatekeeper role' (Knipscheer, 1988: 433; Robertson, 1975). Following their needs and personal preferences, parents influence if and how grandparents interact with their grandchildren (Whitbeck et al., 1993: 1026). This applies particularly to indirect time transfers, such as care provided when the grandchild is very young. In such cases, the parents' need structures play a substantial role and often serve as an important starting point for family negotiations on childcare arrangements. The outcome of the negotiations can have significant consequences. For example, if the grandparent is involved in childcare, he or she can build up close relationships with the grandchildren but may also face the risk of overburden. On the other hand, grandparents' involvement in childcare may help the middle generation to combine parenthood and employment.

Moreover, nowadays grandparenthood is subject to weaker social conventions and expectations (Silverstein et al., 2003: 78ff.) and is most frequently determined by family negotiations and individual circumstances. The need of the parents and the opportunities of the grandparents play an important role for the definition of the grandparental role. Thus in countries with low public family support, the needs of the middle generation are likely to be more pronounced and therefore grandparental help may be in higher demand. However, grandparents generally have strong feelings towards their grandchildren and enjoy spending time with them (Barranti, 1985: 344; Gattai and Musatti, 1999: 35; Szydlik, 2000: 191). Especially while the grandchild is very young, important basic bonds are established, and grandchild care often provides a good opportunity for grandparents to build an emotional relationship with their grandchildren.

Although the enjoyable part of being a grandparent is often associated with having no parental responsibility (Cherlin and Furstenberg, 1986: 56), grandchild care exhibits a strong functional character and is perceived as a serious and demanding job

by many grandparents. In particular, the provision of regular and time-consuming childcare is a challenging task and may therefore produce feelings of stress and being overburdened. Grandparents' opportunity structures enable them to cope with these challenges to a greater or lesser extent and play an important role in the grandparent's decision to engage in childcare provision.

Welfare state regimes and intergenerational support

The intergenerational solidarity model emphasizes cultural-contextual structures within which family relations and functional transfers are embedded (see above). The functional dimension of grandparenthood is especially vulnerable to social and economic conditions (Silverstein et al., 2003: 83) because, to a certain extent, the latter define the content of the grandchild care provided. The requirements for grandparental childcare may thus vary widely as a function of the public provision of childcare services. European grandparents thus face diverse institutional settings that influence the support patterns within families. But how and in which direction do investments in public service infrastructure affect intergenerational solidarity?

Economic literature tends to answer this question by postulating that strong welfare state arrangements replace family services and thus 'crowd out' intergenerational solidarity (for example, Cox and Jakubson, 1995). This concept assumes that family support is only provided if the respective demand is not satisfied by public services or other resources (Künemund and Vogel, 2006). However, family bonds and solidarity patterns are not solely based upon functional necessities; there are also other determinants – such as reciprocity norms (Kohli et al., 2005) and 'exchange expectations' (Künemund and Rein, 1999) – which crucially affect intergenerational behaviour. The hypothesis of a crowding-in effect of public services on functional support between generations is diametrically opposed to the classic crowding-out concept. This hypothesis assumes that expansion of the welfare state stimulates intergenerational solidarity more than it displaces it (Daatland and Herlofson, 2003; Daatland and Löwenstein, 2005; Künemund and Rein, 1999). These two theoretical concepts can be reconciled by assuming that the functions provided by family and

state interact (Attias-Donfut and Wolff, 2000). This means that family members may concentrate on informal and less time-consuming support while the state provides more regular services. These patterns of mixed responsibility can be found empirically with regard to intergenerational solidarity between parents and their children in Europe (for example, Brandt et al., 2009; Motel-Klingebiel et al., 2005).

In this paper we investigate whether these findings also apply to functional support provided by grandparents, which, first, flows from the older to the younger generation and, second, reflects an indirect transfer to grandchildren and direct support given to children. Therefore we will link welfare state arrangements with levels of childcare provision by grandparents.

In Europe welfare policies concerning childcare are very heterogeneous. In this respect, the state can support families with the provision of public childcare facilities and/or of paid maternity and parental leave (Anttonen and Sipilä, 2005). In literature on welfare state arrangements from a gender perspective, public investments in childcare are in general classified as de-familialistic policies, which means that care services are shifted from family responsibility to the state. Parental leave policies, on the other hand, can be seen as supporting familialistic measures, by encouraging the mothers to stay at home and take care of their children (Leitner, 2003). Different care policies shape intergenerational obligations and also influence the kind of family support needed and induced (Sarenco and Keck, 2010). This complexity of intergenerational solidarity patterns can be disentangled by distinguishing between the occurrence and the intensity of grandchild care, thus facilitating a better understanding of the influences of public service supply.

Previous studies on grandparenthood

Previous research on grandparenthood concentrates on the relationship between grandparents and their grandchildren (for example, Clingempeel et al., 1992; Cronsoe and Elder, 2002; Höpflinger et al., 2006) or on the psychological consequences of becoming a grandparent and the 'style' of grandparenting (for example, Baydar and Brooks-Gunn, 1998; Cherlin and Furstenberg, 1985; Robertson,

1977; Troll, 1983). Many of these studies are of a qualitative nature and do not systematically identify factors influencing the childcare activities of grandparents. Some studies investigate the decision of parents to call on grandparental help (Guzman, 1998; Wheelock and Jones, 2002). Young mothers, in particular, often seem in favour of their parents assisting with the care of their grandchildren, which is frequently referred to as the 'best childcare' arrangement (Wheelock and Jones, 2002: 454). There is an overall benefit to society from grandparental childcare provision on account of the economical value of this form of time transfer (for example, Bass and Caro, 1996; Presser, 1989). Economic studies on informal and formal care arrangements generally pay less attention to the characteristics of the grandparents and, instead, focus on the cost of formal childcare arrangements and the wage effects on mothers' employment choices (for example, Blau, 1995; Johansen et al., 1996). In addition, Uttal (1999) found that socio-economic factors, such as the employment opportunities of kin, play a substantial role in their decision to provide childcare. Dimova and Wolff studied grandchild care transfers of immigrants in France and also showed that financial resources and educational status are important factors in the explanation of differences in the provision of grandparental childcare (Dimova and Wolff, 2008).

The willingness to engage in grandchild care may be strongly dependent on various grandparental characteristics, parental needs, family structures and contextual structures. Engagement in childcare gives grandparents an opportunity of keeping in touch with their children and grandchildren and strengthens the emotional relationships between them. This form of intergenerational help is mostly based upon a more or less voluntary decision and exhibits the willingness of grandparents, grandmothers in particular, to actively live grandparenthood (cf. Herlyn and Lehmann, 1998: 39). As in the case of support to parents, studies indicate that geographical distance and gender combination play substantial roles in the grandparents' decision to provide help with childcare (for example, Hagestad, 2006; Templeton and Bauereiss, 1994). Furthermore, grandmothers and their daughters have the strongest relationship in terms of helping with grandchild care (Eggebeen and Hogan, 1990: 221; Gattei and Mussati, 1999).

So far, only a few studies considered grandchild care as an important form of functional intergenerational support, let alone examined it from an international perspective, although there are substantial differences in the provision of grandchild care between European countries (Hank and Buber, 2009; Igel et al., 2009). Grandparents often engage in childcare because of emotional closeness to their grandchildren and children (Gattei und Musatti, 1999). However, referring to the 'mixed responsibility' hypothesis (Motel-Klingebiel et al., 2005), grandparents may refuse to commit themselves to providing regular and intensive childcare (cf. Brake, 2005: 225; Herlyn and Lehmann, 1998) and may prefer merely to 'complement' institutionally provided childcare. Through the availability of extended childcare infrastructures, grandparents are not forced to help their children with grandchild care on a regular, fixed-schedule basis, but they may still support their children as so-called 'being there' grandparents (Bengtson, 1985: 21). This style of grandparenthood does not interfere with the needs of the grandmother and grandfather and reduces the risk of an overburden.

Complementary patterns between the family and the state indicate that more grandparents get involved in childcare in those countries with higher levels of childcare infrastructure while the intensity of the help provided tends to be lower. Cultural-contextual structures should thus be important factors in grandparental time transfers, and it is expected that expenditure on childcare infrastructures should have a positive effect on the occurrence of grandchild care but a negative effect on its intensity.

Data and methods

The SHARE data

The SHARE project collected data from about 28,517 people older than 50 years. It offers the unique opportunity to compare intergenerational solidarity flows from grandparents in 11 European countries.¹ As a three-generation perspective is essential for an accurate study of the occurrence and intensity of grandchild care, grandparent-child dyads have been constructed for the following analyses. The structure of the data thus provides information about a grandparent's time transfers to an individual child and his/her youngest grandchild, which facilitates efficient

operationalization of opportunity, need, family and cultural-contextual structures. The sample is based upon all grandparent-child dyads in which the youngest grandchild is aged 5 years or younger and the grandparent and child live in separate, private households.

The corresponding SHARE-question regarding childcare activities, which was asked of every grandparent individually, reads as follows:

During the last twelve months, have you regularly or occasionally looked after your grandchild/your grandchildren without the presence of the parents?

In addition, the intensity of the childcare provided by each grandparent is surveyed by the following question:

On average, how often did you look after the child(ren) of child X in the last twelve months? Was it ... 1. Almost daily, 2. Almost every week, 3. Almost every month 4. Less often?

The grandparent's opportunity structures are operationalized by the factors self-perceived health status, education, household livelihood and presence of a partner. Each of these variables measures different grandparental resources or constraints as well as the opportunity cost of the provision of childcare. The need structure of the family consists of the age of the youngest grandchild and the employment status of the child (in combination with the grandparent's employment status; the SHARE data do not allow integrating the exact working hours of the grandparents and parents of the grandchildren). Family structures are operationalized through the factors of distance between residences, gender combination and number of grandchildren. Three macro indicators are used to capture the cultural-contextual structure. Expenditure on family services as percentage of the gross domestic product (GDP) includes all public spending on family benefits in cash, services and tax measures (Organisation for Economic Co-operation and Development, 2007). Total public expenditure on childcare and early education services as a percentage of the GDP includes all public financial support for families with children

participating in formal day-care services and pre-school institutions, and public expenditures on maternity and parental leave as a percentage of the GDP (Organisation for Economic Co-operation and Development, 2007).

Multilevel models and macro indicators

The employed data set is hierarchically structured, with dyads (first level) nested into persons (second level), which are, in turn, nested into different households (third level), and finally the households are located in different countries (fourth level). This means, for example, if the respondent has three children with two of them having children of their own, two dyads will appear in the dataset. The (grand)parent-child dyads consequently consist of the relation between every respondent and a particular child. To take these four levels into account, logistic multilevel models are estimated. Formally speaking, a four level random intercept model with a dichotomous dependent variable (y) can be written as (Guo and Zhao, 2000: 446ff.):

$$\log \frac{p_{ijkl}}{1 - p_{ijkl}} = \beta_0 + \beta_1 x_{ijkl} + u_{0jk} + v_{0kl} + w_{0l} \quad (1)$$

The parameters u_{0jk} , v_{0kl} and w_{0l} display the residues, which are independent of each other. The subscript i stands for the first level, j for the second level, k for the third level, l for the fourth level, β_0 for the constant, and p_{ijkl} defines the probability of the dependent variable being 1:

$$p_{ijkl} = \text{pr}(y_{ijkl} = 1) \quad (2)$$

The interpretation of the coefficient of equation (1) would be that a one unit change of x_{ijkl} changes the logit by β_1 . Another way of reading the results can be achieved by taking the exponential of β_1 . A one unit change of x_{ijkl} is then interpreted as a change in the odds by a factor of $\exp(\beta_1)$. An odds ratio lower than 1 indicates a negative effect whereas a value greater than 1 indicates a positive effect. If $\exp(\beta_1)$ equals 1, no influence of x_{ijkl} is expected (Long and Freese, 2006: 177ff.).

For a correct interpretation of odds ratios, it is important to note that their values can range from 0

to ∞ . This means that a positive odds ratio and a negative one indicating the same strength are not symmetrically distant from 1 (the null value). For example, the reciprocal negative value of a positive odds ratio of 4.0 would be 0.25 (Monahan et al., 2007: 94).

The combined multilevel model (1) can also be described by the following level-specific equations:

$$\beta_{0jkl} = \beta_{0kl} + u_{0jkl} \quad (3)$$

$$\beta_{0kl} = \beta_{0l} + v_{0kl} \quad (4)$$

$$\beta_{0l} = \beta_0 + w_{0l} \quad (5)$$

Equations (3), (4) and (5) decompose the intercept coefficient into four independent components with the related residues. Equation (3) thereby captures the person level, (4) the household level and (5) the unexplained differences on the country level. This so-called random intercept method enables obtaining correct standard errors and unbiased coefficients (Guo and Zhao, 2000: 444ff.). In a first step, a so-called ‘empty model’ is estimated, which splits the total variation of the outcome variable between the different levels and enables intra-class correlation (ICC) on the country level. The ICC is obtained by dividing the variation at the country level by the total variance and thus indicates the percentage of the total variation for the country level (Rabe-Hesketh and Skrondal, 2005: 224). In a second step, the individual and family structure indicators are introduced into the model, and finally the macro indicator is included. This allows changes in the variation on the country level to be observed: will the introduction of the macro indicator reduce the variation on the country level, which would underline its explanatory power?

Sometimes, expressed concern about the practice of multilevel modelling is related to relatively small numbers of observations per group. However, recent literature on multilevel modelling has provided evidence that small numbers of observations do not undermine the reliability of the estimated coefficients. On the contrary, controlling for the hierarchical structure of the data is strongly recommended in order to avoid biased estimates and standard errors irrespective of the number of observations per group (Clarke, 2008; Gelman, 2006).

An accurate operationalization of the cultural-contextual structure is of great importance to the

correct specification of multilevel models. The macro indicator used should therefore be shared by all individuals living in the same context (Teachman and Crowder, 2002). The contexts alluded to here are the different welfare states. We use two indicators to measure cultural-contextual conditions for the provision of grandchild care. The total public expenditure in family benefits (in cash, services and taxes) indicates how much support parents generally receive from the state to foster children, while public investments in childcare infrastructures allow the structural context to be modelled more specifically by measuring childcare opportunities outside the family.

In the following, we will, first, empirically investigate the occurrence and intensity of grandchild care in Europe. The macro indicator is then linked to the country-specific levels of grandchild care to test the direction of the interrelation between public investments and grandparental intergenerational time transfers. Finally, by using logistic regression models and setting up random intercept models, it will be possible to control for individual and family structures and explore the explicit effects of cultural-contextual structures on intergenerational solidarity.

Empirical findings

Occurrence and intensity of grandchild care in Europe

Overall, grandchild care is a manifest form of intergenerational solidarity in Europe. On the whole, help with grandchild care is provided in over 50 percent of all grandparent-child dyads, ranging from 37 to 59 percent for the various countries. Yet substantial differences are found between countries (Figure 1). In the northern and central European countries – such as Sweden, Denmark, France and the Netherlands – more grandparents help than in the southern countries, such as Italy and Spain.

However, the intensity levels (Figure 2) present an opposite picture. In the southern countries, grandparents help much more intensively than in the northern and central European countries. This is a first indication that the occurrence and intensity of intergenerational help follow opposite north-south gradients. Nevertheless, on grounds of macrocorrelation one

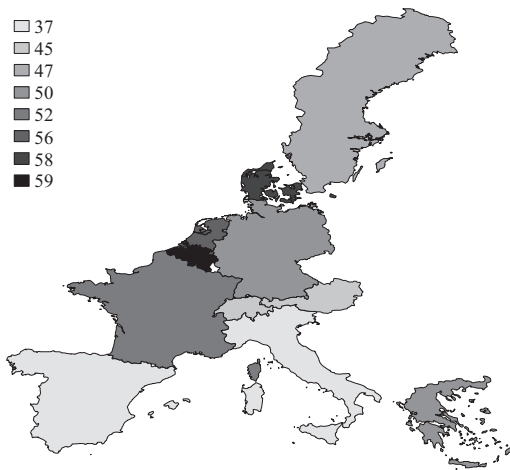


Figure 1 Occurrence of grandchild care in Europe
Source: SHARE 2004 release 2, weighted, own calculations. Percentage of grandparent–child relations in which grandchild care is provided, $n = 18,274$.

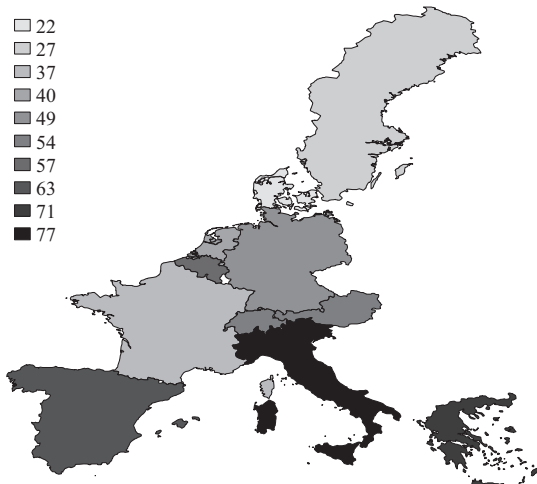


Figure 2 Intensity of the grandchild care provided
Source: SHARE 2004 release 2, weighted, own calculations, percentage of grandparent–child relations in which child care is provided at least once a week, $n = 10,552$.

cannot rule out the possibility that these differences are more due to individual and family characteristics than to country-specific features.

Table 1 Country differences after controlling for individual and family factors

	<i>Occurrence</i>	<i>Intensity</i>
Sweden	1.07	0.54***
Denmark	1.60***	0.40***
The Netherlands	1.42***	0.66***
Belgium	1.46***	1.49***
France	1.43***	0.81*
Reference: Germany		
Austria	0.71***	1.19
Switzerland	0.77**	1.53**
Spain	0.70***	1.11
Italy	0.57***	2.62***
Greece	1.00	1.81***
<i>n</i> dyads	16,120	8,314
Pseudo r^2	0.12	0.19

Source: SHARE 2004, release 2, own calculations, logistic regressions with robust standard errors, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

In order to assess whether these differences between countries persist after controlling for individual and family characteristics, a binary logistic regression model was calculated. Table 1 shows the coefficients of the dummy country variables. The same north–south patterns show in Figures 1 and 2. Whereas more grandparents look after their grandchildren in northern Europe, the intensity of the care provided is much lower than in the south. An Italian grandparent, for example, is much more likely to provide childcare at least once a week than a Swedish grandparent. The country differences remain stable if one controls for individual and family characteristics.

To provide a first insight into the effects of different levels of public expenditure, the macro indicators are plotted against the different levels of occurrence and intensity of grandchild care (Figure 3).

Higher public investment in family services, childcare infrastructures and expenditures on maternity and parental leave seem to crowd in the occurrence of grandchild care and crowd out the intensity of the care provided. However, the correlations between the occurrence of grandchild care and public expenditures are not significant and rather weak. Concerning the intensity of the care provided, the relation between public investments and grandchild care supports the crowding-in thesis: the more states invest the lower the intensity

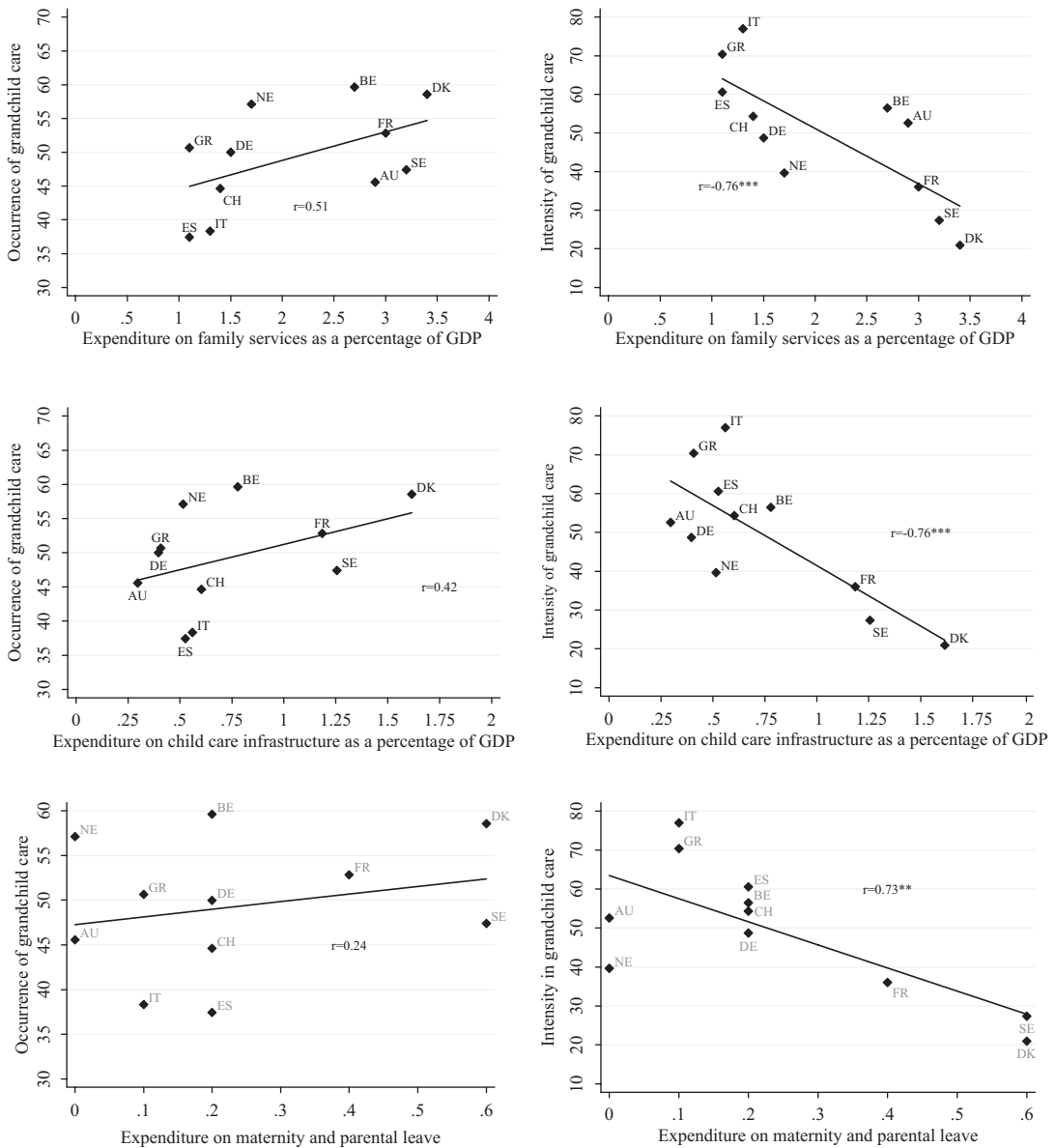


Figure 3 Grandchild care and public expenditure

Source: OECD, SHARE 2004, release 2, weighted, own calculations, **p < 0.05, ***p < 0.01, n = 11.

of grandparent involvement in the provision of childcare. Nevertheless, it is important to control for individual and family structures and for the

hierarchical structure of the data. In the next step, we will therefore estimate logistic multilevel regression models.

Influences on grandchild care in Europe

The previous analyses have shown that grandchild care is an important form of time transfer from the older to the younger generation and that its occurrence and intensity differ strongly from country to country. Public expenditure seems to have a positive effect on the occurrence and a negative effect on the intensity of childcare provision. In order to ensure that these correlations are not due to composition effects, such as female employment rates in a specific country or the general health of the elderly population, we estimate logistic multilevel models that include opportunity, need and family structures as well as indicators for public expenditure on families and childcare infrastructures.

The opportunities of a grandparent play a major role in his/her decision to engage in childcare (Table 2). Healthier and younger grandparents are more likely to look after their grandchildren and provide more intensive services. In addition, highly educated grandparents are generally more strongly integrated into familial networks and exchange structures due to their social and cultural capital (Eggebeen and Hogan, 1990). They are therefore more likely to provide childcare and to be asked by the parents to look after their children. If grandparents have adequate financial resources, this tends to increase their provision of childcare but reduce its intensity. Caring for children involves expenditure on items such as meals and transportation, so grandparents may require a certain level of financial resources in order to be able to do so. On the other hand, poorer grandparental households do not dispose of an important 'exit'-possibility: they cannot offer financial transfers to help with the organization of care. Moreover, less prosperous grandparents might offer to look after grandchildren for payment (Presser, 1989). Grandparental resources thus have a positive effect on the likelihood of a grandparent providing childcare. The presence of a partner is an important resource for grandparents; it not only encourages the elderly to take care of grandchildren but also to do this more intensively.

A combined job variable facilitates inquiry into how the employment status of the parent and grandparent influences the grandparent's provision of childcare. If the parent is employed and the grandparent is not, childcare is most likely to occur and is

provided with the greatest intensity. All other combinations of employment status among the two generations lead to weaker grandparental childcare activities, either because of lesser need on part of the parent or lesser opportunity on part of the grandparent. A closer look at the coefficients reveals that employment of the grandparent plays a more important role in regard to care intensity than the employment status of the child. These results suggest that grandchild care as a form of intergenerational time transfer can be defined as generally less intensive help between the generations. This form of intergenerational solidarity – in contrast to physical care to elderly persons – is more dependent on the opportunity structure of the help provider and less on the need structure of the help recipient (see also Brandt et al., 2009).

The age of the youngest grandchild is another important factor in the need structure. Grandparents seem mainly to take care of children aged 4 to 6 years old while the most intensive care is provided to the youngest grandchildren (up to 3 years old). This indicates that fewer parents leave their very small children with the grandparents, but, if they choose to take advantage of grandparental help, more intensive care services are demanded.

With regard to family structures, as expected, the further apart the generations live, the less probable the occurrence of time transfers and the lower the intensity of these transfers. The gender combination variable supports the hypothesis that intergenerational time transfers generally flow between female family members. The strongest help dyad is the grandmother–daughter constellation whereas the grandfather–son dyad has the lowest occurrence and intensity of childcare provision. Women are much more strongly socialized towards family life and function as so-called 'kin keeper' (Spitze and Ward, 1998). This also means that the mother is generally responsible for the organization of childcare arrangements (Wheelock and Jones, 2002), which leads to a higher probability of the maternal grandmother or grandfather helping with childcare. From an evolutionary biological perspective, the strong link between daughters and grandmothers is explained by the so-called grandmother hypothesis (Hawkes and Blurton Jones, 2005; Volland and Beise, 2002): Grandmothers are generally too old to pass on their genes through reproduction and focus instead on the survival of their offspring. In addition, evolutionary

Table 2 Logistic multilevel models: probability and intensity of grandchild care

	<i>Probability</i>	<i>Intensity</i>
Opportunity and need structures		
Self-perceived health	1.15***	1.04
Age	0.97***	0.99
Medium education (reference: low)	1.11***	0.93
High education	1.45***	0.94
Household makes ends meet	1.10***	0.87***
Partner (reference: without partner)	1.40***	1.36***
Employment (reference: grandparent: no; child: yes)		
Grandparent: no; child: no	0.68***	0.72***
Grandparent: yes; child: no	0.55***	0.42***
Grandparent: yes; child: yes	0.75***	0.64***
Age of the youngest grandchild (reference: 0 to 3 years)		
4 to 6 years old	1.13*	0.85***
6 to 12 years old	0.70***	0.61***
Family structures		
Geographical distance (reference: same building or household)		
Up to 5 km	0.66***	0.42***
Between 5 and 100 km	0.39***	0.16***
More than 100 km	0.14***	0.02***
Gender combination (reference: daughter–mother)		
Father–daughter	0.63***	0.77***
Mother–son	0.55***	0.60***
Father–son	0.37***	0.54***
Number of grandchildren	0.60***	0.81***
Cultural–contextual structures		
Public expenditure on families	1.23***	0.68***
Public expenditure on child care infrastructures	1.60***	0.40***
Public expenditure on maternity and parental leave	2.01*	0.18***
Model characteristics		
Intra-class correlation (ICC) countries (null model)	0.06	0.05
Variance level 4 without macro indicator	0.095	0.291
Variance level 4 with macro indicator (expenditure on families)	0.064	0.133
Variance level 4 with macro indicator (expenditure on child care infrastructures)	0.060	0.110
Variance level 4 with macro indicator (expenditure on maternity and parental leave)	0.076	0.128
n dyads	16,120	8,314

Source: SHARE 2004 release 2, own calculations, multi-logistic regressions with robust standard errors, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Intensity of grandchild care is a dummy variable with the value 1 if the grandparent provides grandchild care at least ‘almost every week’.

biology assumes, that because grandmothers from the patrilineal line cannot be sure that the grandchildren carry their genes, the matrilineal relationship is crucial and the grandmother–daughter relationship especially strong (Bishop et al., 2009). Concerning the number of children, grandparents

with fewer sons and daughters and thus with fewer potential recipients of time transfers are more likely to provide care and engage more intensively in childcare activities.

Public expenditure on family services, childcare infrastructures and maternity and parental leave

have a significant positive effect on the occurrence of grandchild care and negatively affect the intensity of childcare provided. This means that more grandparents are willing to support their children sporadically with childcare, if the state provides considerable childcare infrastructures and, at the same time, allows parents to take care of their small children through generous parental leave policies. On the other hand, in countries where the state provides only weak public support, fewer grandparents are engaged in childcare. If a grandparent does provide care, however, he or she is more likely to look extensively after the grandchildren, due to a lack of state-provided services and support in terms of parental leaves. These results are consistent with the empirical findings outlined earlier and underline the importance of welfare state arrangements in the analyses of intergenerational time transfers between grandparents and (grand-)children.²

Multilevel modelling makes it possible to determine how total variation is distributed between the four different levels and to calculate the ICC for the two models. In the occurrence model, 6 percent of the total variation of the output variable is attributable to the country level, and the ICC amounts to 5 percent in the intensity model. Introducing the macro indicators into the models considerably reduces the variation on the country level. Thus expenditure on family and childcare infrastructures captures a high proportion of the country-specific variation.

Conclusion

Grandparents' opportunities, the child's needs and family structures influence the time transfers between grandparent and (grand-)children. Grandparental resources are important for the provision of care activities and stimulate the grandparent's involvement in grandchild care. The child's employment and the age of the grandchild are important factors affecting needs and exert a strong influence not only on the occurrence but also the intensity of grandchild care. The gender constellation is also of great importance with childcare support most likely to occur between female family members.

Multilevel models also enable explicit modelling of cultural-contextual structures and the investigation of their effects on grandparental intergenerational solidarity. Public expenditures for families and on childcare infrastructures 'crowd in' the

occurrence of grandchild care and 'crowd out' its intensity. These findings support the complementary thesis (Attias-Donfut and Wolff, 2000), which postulates that intergenerational solidarity is stimulated if the state supports families and takes over time-consuming regular care and help activities. The mixed responsibility concept, which has been developed to explain time transfers between adult children and their parents (for example, Brandt et al., 2009; Motel-Klingebiel et al., 2005), thus also applies to the grandparent (grand-)child relationship. Strong welfare state arrangements motivate family members to take on their part of the responsibility and to provide important intergenerational time transfers. Grandparents with an active lifestyle and still in employment are consequently not constrained by extensive childcare and more willing to engage in providing it. As a result, grandparents tend to take over sporadic tasks whereas public institutions provide regular, time-consuming childcare. This reduces the risk of overburdening the grandparent and enables the parent of the grandchildren to decide how intensively his or her own parent(s) should be involved in childcare and child raising.

Hence, the demand for childcare can best be met by an efficient, functionally orientated co-operation between formal organizations and family members. Furthermore, the involvement of grandparents in childcare tasks establishes an important basis for further intergenerational transfers between grandparents and grandchildren and allows for a moderate and balanced involvement of the elderly in childcare. Last but not least, the efficient combination of formal and informal childcare arrangements should make it easier for young working mothers to organize childcare and to reconcile work and family responsibilities.

Notes

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- Expenditures on family allowances are not tested in this paper since empirical findings have shown that they are not relevant for grandchild care (Igel, 2011).

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