

Division of Labor in Grandparent Couples

Gender and the Division of Labor in Older Couples: How European Grandparents Share Market Work and Childcare

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Grandmothers provide far more childcare than grandfathers do. The present study investigated whether, and to what extent, this gender gap was explained by grandparent couples' division of labor into market work and childcare. The analysis was based on panel data from two waves of the SHARE, comprising respondents from 10 European countries. Linear regression models yielded four main findings. First, the average trade-off between hours of market work and childcare within grandparent couples was one for six. Second, transitions to retirement narrowed the gender gap in grandparenting: if a single-earning grandfather retired, his share of a couple's total grandparenting hours increased by more than 50 percent. Third, controlling for couples' division of market work, the gender gap in grandparenting was smallest in the north and largest in the south of Europe, corresponding to a geographical gradient in the family-state division of caring responsibilities and the societal framing of gender roles. Fourth, in egalitarian and traditional countries, the effects of market work arrangements were relatively weak, suggesting the primacy of gender norms as a macro-level force governing the division of childcare in grandparent couples.

Introduction

There is abundant evidence that grandmothers provide far more childcare assistance than grandfathers do (Spitze and Ward 1998). But why is this so? In the present study, we contend that although this gender gap is well documented, it is not well understood.

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Understanding the gender gap in grandparenting¹ is not merely of academic interest. Grandparents remain an indispensable source of regular childcare assistance while older people's participation in the workforce continues to grow (Gendell 2008). As a result, the issue of balancing work and family—along with the associated gender inequalities—may increasingly resurface after the birth of grandchildren. In view of a substantial and persistent gender gap in grandparenting, these pressures can be expected to affect primarily grandmothers. As grandmothers' participation in the workforce increases, so may their experience of competing roles.

The literature has most commonly attributed the gender gap in grandparenting to differences in role expectations. Grandmothers as kinkeepers are seen to engage in childcare because the grandparent role “is essentially a maternal one” (Hagestad 1981, 33). In keeping with this view, earlier studies of grandparenting neglected grandfathers completely, focusing only on grandmothers as “obvious” providers of childcare. More recent studies have enriched the knowledge about grandparenting, emphasizing the salience of the grandfather role and recognizing grandfathers' contributions (Bates 2009; Mann 2007). Grandmothers' surplus in childcare assistance, however, remains taken for granted rather than theorized as an outcome in need of an explanation.

Instead, only vague reference to gender roles is provided to account for the gender gap in grandparenting. It has long been noted, however, that more precision is necessary. Spitze and Ward (1998), for example, called for greater “attention to the specific processes through which gender differences [among grandparents] may be produced or the conditions under which they might be expected to change” (113).

Concerning gender roles, there is a large literature investigating one of the key mechanisms that may generate these differences: *a couple's division of labor* into market and non-market work. This issue not only applies to parents but possibly extends to many grandparent couples: those who are still active in the labor market might trade off hours in paid employment against time spent looking after grandchildren as a type of domestic labor. Moreover, those who experience the transition to retirement offer a window into how previous arrangements of grandparenting may change or persist.

In view of this, the present study draws on theories of the division of labor in couples to shed new light on gender differences in grandparenting. Our prime interest is in the relationship between childcare and paid employment in grandparent couples. We address three questions. First, to what extent is grandmothers' greater involvement in childcare explained by their (lesser) involvement in paid employment? Second, how do transitions to retirement affect grandparent couples' division of childcare? Third, from a comparative vantage point, how do these relationships vary according to women's labor-force participation, the family-state division of caring responsibilities, and the societal framing of gender roles?

Economic theories of family labor (Becker 1991; England and Farkas 1986) stress the importance of specialization and time availability. Sociological perspectives (Coverman 1985; West and Zimmerman 1987), in contrast, emphasize

the enactment of gender beyond the rational allocation of tasks. These accounts lead to contrasting empirical expectations with regard to each of our research questions. Addressing these questions thus not only contributes to understanding gender differences in grandparenting but also provides a novel test of established theories, applied to the behavior of grandparent couples.

By introducing a couple perspective, we also attempt to advance grandparent research at a more general level. Previous studies were intrinsically based on an isolated view of the grandparent, separating the sexes analytically and discounting the empirical fact that most grandparents live in couples (Uhlenberg and Kirby 1998), taking joint responsibility for their grandchildren. Hence, a couple perspective is not only well suited to address the basic question of why grandmothers provide more childcare, but also recognizes that grandparenting is often an activity performed by the grandparent couple as a unit of interacting providers.

Theoretical Perspectives

In theories of couples' division of labor, the domain of non-market (or domestic) work is typically assumed to consist of *housework* tasks such as cleaning and cooking. Many studies have applied these models also to *parental childcare*, considering both activities as "equal inputs into the overall household economy ... [as] the questions of who washes dishes and who washes young children are typically assumed to result from similar causal forces" (Ishii-Kuntz and Coltrane 1992, 629). Applying these models to the division of *grandparental childcare*, however, requires further conceptual clarification.

First, grandparents most frequently act as secondary providers of childcare and do not typically assume the main responsibility for the economic maintenance of their grandchildren. Compared with the burden on parents, this ancillary role is usually far less time consuming. One implication is that grandparenting is more compatible with work schedules than parenting, suggesting a weaker trade-off against work hours. This point is important to consider in theoretical models focusing on time availability and the rational allocation of tasks.

Second, minding grandchildren often involves elements of leisure and is typically experienced as more enjoyable and meaningful than, for instance, housework. With regard to our research focus, it thus appears inadequate to consider exchange and dependency models that are based on the assumption that grandmothers or grandfathers intend to bargain out of childcare.

Third, with regard to gender-role theories of the division of household labor in couples, we note that strongly gendered tasks associated with minding very young children (e.g., changing diapers) are not commonly performed by grandparents. Compared with housework or parenting, the issue of gender display therefore appears to be generally less salient in grandparental childcare.

Availability, Choice, and the Gender Gap in Grandparenting

Economists have developed a variety of models on couples' division of market and domestic work (for an overview, see Coltrane [2000]). As noted, the

explanatory capacity of these models with regard to the behavior of grandparent couples is somewhat limited. Yet despite these limitations, they highlight important—and currently understudied—factors that might at least partially account for gender differences in grandchild care. In addition, the economic perspective provides a theoretical baseline against which to compare the main tenets of gender-role theories. For the purposes of this study, we focus on the general formulations of the time-availability hypothesis and the specialization-of-tasks hypothesis, both of which yield consistent predictions about (1) the trade-off between childcare and market work within a grandparent couple; (2) the effect of retirement on the division of childcare; and (3) cross-national variation of the gender gap in grandparenting.

According to the *time-availability hypothesis* (Blood and Wolfe 1960; England and Farkas 1986), household members allocate their time efficiently between non-market and market work. In this simple model, individuals with the fewest competing demands outside the home perform most domestic tasks. Applied to older couples and grandparenting, this hypothesis posits that grandmothers are more active in childcare because they face fewer demands on their time than grandfathers do.

The *specialization-of-tasks hypothesis* (Becker 1991) focuses on the way in which household members divide work to maximize the well-being of the common unit. If partners are differentially skilled, those with higher productivity in the home will specialize in domestic work, whereas those with higher earning capacities will devote more time to market work. According to this hypothesis, the gender gap in grandparenting emerges from a couple's joint efforts to maximize family utility—as a rational response to grandfathers' comparative advantage in wages and grandmothers' comparative advantage in childcare.

The time-availability and specialization-of-tasks hypotheses are fundamentally gender neutral. With regard to grandparenting, this implies that there would be no reason to expect a gender gap if each spouse in a grandparent couple had equal time constraints, income capacity, and domestic productivity. Conversely, this gap would be most pronounced in highly specialized sole-breadwinner households, irrespective of whether the breadwinner was the grandfather or the grandmother. Empirically, this view implies first a relatively *strong association between each partner's share of childcare and market work within a grandparent couple (hypothesis 1a)*.

Second, the transition to *retirement would markedly reduce the gender gap in grandparenting (hypothesis 2a)*. This reduction would be proportional to the extent to which a grandparent couple's previous division of market work was gendered. Due to previous specialization, household productivity of former breadwinners, typically grandfathers, should be low compared to their homemaking counterparts. By relinquishing their worker role, however, grandfathers minimize demands on their time and greatly reduce the opportunity costs of childcare. Thus, even if grandmothers are more competent caregivers, economic accounts would expect a rise in grandfathers' relative contributions after retirement and, accordingly, a reduction of the gender gap in grandparenting.

Third, with regard to the comparative perspective featured in the present study, it is important to consider cross-national variation in characteristics that affect grandparents' rational division of labor. Obvious factors are (1) gender differences in market and domestic productivities; and (2) the surrounding work and family policies. In both respects, European countries are divided along geographical lines. Regarding labor-force participation rates, gender gaps widen markedly from the north to the south of Europe (Antecol 2000). With respect to work and family policies, a similar gradient concerns measures that influence the need for grandparental support, such as availability and affordability of public childcare, child benefits, and duration and compensation of parental leaves (Glaser et al. 2010; Saraceno 2011). In this regard, northern European welfare states are commonly termed "de-familialized" (Esping-Andersen 1999; Leitner 2003), as the caring function of the extended family is rendered less prominent due to high coverage of public alternatives. The opposite is true in the "familialistic" countries of southern Europe. These countries relegate caring responsibilities to families, who compensate for the lack of public support. Between these poles, welfare states such as Germany and France are characterized by the principle of "mixed familialism."

These considerations suggest that gender gaps in grandparenting are larger in the south than in the north of Europe. From the perspective of economic theories, this type of macro-level variation emerges from differences in individual productivities and institutional constraints, both of which are reflected by market work arrangements at the micro level of grandparent couples. Consequently, their *division of market work should explain a considerable share of cross-national variation in the gender gap in grandparenting (hypothesis 3a)*. Furthermore, as the issue of trading off time between market work and childcare arises particularly among grandparents who enter more demanding caregiver roles, and less so among those acting as occasional providers, the effects of changes in couples' market work arrangements—including transitions to retirement—can be expected to vary according to the family-state division of caring responsibilities: *more pronounced in familialistic countries of southern Europe, less pronounced in de-familialized countries of northern Europe (hypothesis 4a)*.

Socialization, Role Enactment, and the Gender Gap in Grandparenting

An influential critique of economic perspectives on the division of labor originates in the feminist contention that the allocation of market and non-market work "is about much more than time availability and rational choice" (Bianchi et al. 2000, 194). Again, we limit the discussion to general propositions associated with this view, which yield opposite empirical expectations about the relationship between grandparenting and market work, the effect of retirement, and cross-national variation in the gender gap in grandparenting.

The *socialization/ideology hypothesis* (e.g., Coverman 1985) posits that the division of labor emerges from gender-role attitudes or "ideologies" internalized through socialization. Women are socialized into kinkeeper roles and are thus

in charge of maintaining family relationships and performing various household tasks (Rosenthal 1985). Later formulations added the *doing gender hypothesis* (West and Zimmerman 1987), stressing the symbolic enactment of gender in marital households. According to this view, the performance of childcare tasks signifies appropriate behavior of women, producing and reinforcing gender inequality in the division of labor.

In contrast to gender-neutral economic perspectives, both hypotheses postulate that women will perform “feminine” tasks largely irrespective of their participation in the labor force. In other words, time constraints and opportunity costs in the labor market do not offset gender-role expectations in the home. With regard to grandparenting, grandmothers are thus expected to enact the caregiver role even if they are employed full-time and regardless of whether the resulting division of market work and childcare within the grandparent couple is economically efficient. Empirically, this view implies first a *weak association between the share of childcare and market work within a grandparent couple (hypothesis 1b)*. That is, the gender gap in grandparenting would remain largely unexplained by a grandparent couple’s division of market work. Second, because gender roles and their enactment are assumed to be fairly persistent across the life course, these theories give little reason to expect change in the traditional division of domestic work. Thus, the *gender gap in grandparenting should remain largely unaffected by transitions to retirement (hypothesis 2b)*.

Finally, sociological perspectives on the division of labor direct attention to cultural differences in socially constructed gender roles (Fuwa 2004; Presser 1994). For the present study, the critical aspect of cross-country variation in this regard was the European diversity in gender-role ideology. Understood as a macro-level force, this ideology is assumed to define gender-appropriate behavior in various spheres. Mason (1997, 158) used the term *societal gender system* for “socially constructed expectations for male and female behavior (...) prescrib[ing] a division of labor and responsibilities between women and men.” Research has shown that the European north-south gradient described above also applies to gender-role ideologies (Lück 2006). The most egalitarian countries are located in northern Europe (Borchorst and Siim 2008; Bernhardt, Noack, and Lyngstad 2008), whereas traditional beliefs about gender roles are most prevalent in the south (González, Jurado, and Naldini 2000; Surkyn and Lesthaeghe 2004).

In contrast to economic perspectives, however, these cross-national differences are not seen to emerge from couples’ rational division of market and domestic work. Instead, phenomena such as the gender gap in grandparenting are assumed to reflect cultural differences in the societal framing of gender roles. Consequently, *this gap should vary markedly across European countries even after a couple’s division of market work is controlled (hypothesis 3b)*. Furthermore, if gender-role ideology influences the division of labor as a macro-level force, the effects of couples’ market work arrangements on the gender gap in grandparenting can be expected to vary across countries, yet in a different way than implied by economic perspectives. Specifically, in countries

where cultural prescriptions regarding the performance of domestic tasks are pervasive, these norms should prevail over micro-level characteristics such as couples' division of market work. Importantly, this argument applies to both poles of gender ideology, egalitarianism and traditionalism (Diefenbach 2002; Fuwa 2004): in egalitarian countries of northern Europe, we should observe smaller gender gaps in grandparenting, and this normative pattern should be robust to changes in couples' market work arrangements. In traditional countries of southern Europe, we should observe larger gender gaps in grandparenting, and this normative pattern should be *equally robust* to changes in couples' market work arrangements. Taken together, these considerations suggest that *in countries in which societal gender norms strongly govern the division of domestic tasks, this macro-level force should largely offset effects of couples' market work arrangements on the gender gap in grandparenting (hypothesis 4b).*

Data and Method

Sample

Our empirical analysis was based on individual, household, and dyadic data from two waves (2004–2005 and 2006–2007) of the Survey of Health, Ageing, and Retirement in Europe (SHARE, release 2.5.0) (Börsch-Supan et al. 2005).² This multinational survey was carried out in a total of 14 European countries and Israel. Probability samples representative of the non-institutionalized population aged 50 and over were drawn in each country. Wave 1 (2004–2005) included data on 31,115 respondents in 21,319 households. The weighted average household response rate amounted to 62 percent. In wave 2 (2006–2007), additional countries and refreshment samples were included, increasing the sample size to 34,415 respondents in 23,565 households. For the purposes of this study, we focused only on respondents from countries that participated in both waves: Austria, Belgium, Denmark, France, Greece, Germany, Italy, the Netherlands, Spain, and Sweden.³

With regard to our research questions, the SHARE data offered three important analytical benefits. First, detailed information about hours spent working and hours spent looking after grandchildren in the absence of parents was collected separately from each member of a sample household, allowing us to calculate ratio measures of employment and childcare in grandparent couples. Second, this information was available across two panel waves, enabling us to study how transitions to retirement affected the division of childcare in grandparent couples. Third, the multinational design of the SHARE offered a comparative lens through which to view how these relationships varied across European countries that differ considerably with regard to gender norms and the associated work and family policies (Korpi 2000; Palme 2006).

Our unit of analysis was the grandparent couple.⁴ The SHARE data allowed us to study grandparents together as couples because all household members who had grandchildren were asked separately about their provision of childcare

in the past year. For each wave, we selected an analytical sample of grandparent couples as follows. First, we constrained the sample to heterosexual couples who shared a household in which both partners completed the main questionnaire and one acted as the so-called family respondent⁵ ($N = 7,739$ couples in wave 1; 7,859 couples in wave 2). Second, to ensure that our analysis primarily captures childcare activities (instead of looking after older children and adolescents), we selected only those ($N = 4,171$ in wave 1; 4,272 in wave 2) who reported on at least one grandchild aged 12 or younger at the time of the interview of each wave. Third, because this study's outcome of interest, the gender gap in grandparenting, was predicated on at least some involvement in childcare, we limited the sample to couples in which one or both grandparents reported on looking after grandchildren in the past year.⁶

After all these restrictions, we observed 2,840 grandparent couples in wave 1 and 2,340 grandparent couples in wave 2. In a final step, we pooled these samples into a combined analytical sample of 5,180 couple observations comprising 4,093 distinct grandparent couples.⁷ All descriptive and cross-sectional (between-couple) analyses were based on this pooled sample. For the longitudinal analysis modeling change within couples, we used a subset of 1,087 couples that were observed in both waves, thus contributing 2,174 observations to the pooled sample.⁸

Dependent Variable: The Gender Gap in Grandparenting

Table 1 presents an overview of all the variables used in the analysis. The outcome measure was based on the following survey question: "During the [time since the last interview/last twelve months], have you regularly or occasionally looked after [your grandchild/your grandchildren] without the presence of the parents?" Positive responses were followed up by two questions on the amount of childcare provided:

- (1) On average, how often did you look after the child(ren) of [child name] in [the time since the last interview/the last twelve months]? Was it almost daily, almost every week, almost every month, or less often?
- (2) About how many hours did you look after the child(ren) of [child name] [on a typical day/in a typical week/in a typical month/in the last twelve months]?

From these data, we calculated a couple's average weekly amount of grandparenting (in hours), provided to all of their grandchildren aged 12 or younger over the past year, using a coding scheme that converted all responses into weekly values (Ghysels 2011). Reports on "daily" hours were multiplied by 5,⁹ reports on "monthly" hours were divided by 4, and reports on "less frequent" hours were divided by 52. Subsequently, we calculated a couple's total grandparenting hours, adding up the grandfather's (h_{gf}) and grandmother's (h_{gm}) weekly hours of caring for all of their grandchildren aged 12 or younger.¹⁰ In a final step, we defined the outcome variable as *grandfather's percentage share of this amount*: $GPS_{gf} = 100 \times (h_{gf} / (h_{gf} + h_{gm}))$. This ratio measure indicated the gender gap in

grandparenting, ranging between 0, if the grandmother was the single provider, and 100, if grandfather was the single provider.

Explanatory Variables: Division of Market Work and Transitions to Retirement

Our key explanatory variables were measures of each partner's involvement in paid employment (see table 1 for details). Grandparents who were employed or self-employed reported on the weekly hours they usually worked in this job. For each partner, the total amount of work hours was added up (w_{gf} , w_{gm}), including main jobs and, if applicable, secondary jobs. From this variable, we constructed a ratio measure analogous to the outcome variable, indicating the *grandmother's percentage share of a couple's total work hours*: $WS_{gm} = 100 \times (w_{gm} / (w_{gm} + w_{gf}))$. This ratio variable ranged between 0, if the grandfather was the single earner, and 100, if the grandmother was the single earner. Grandparent couples in which at least one partner reported on paid employment were defined as "working couples," whereas those who did not represented economically "inactive couples."¹¹ Obviously, the share of market work was defined only for working couples. In the multivariate models, this variable was thus defaulted to 0 for both partners if a couple was inactive.¹² Inactive couples were identified by a binary variable. In the pooled sample, the majority of couples (64 percent) were economically inactive. In 92.8 percent of these couples, the grandfather was retired. In most working couples (63.9 percent), the grandfather was employed full-time; about 24 percent of working couples were dual full-time earners.

For the longitudinal analysis, we captured changes in a grandparent couple's amount and division of childcare, as well as changes in the share of market work, by panel information on these variables. To investigate transitions to retirement, we used panel data on each grandparent's current job situation (retired, employed or self-employed, unemployed, homemaker). From the subset of grandparent couples observed in both waves ($n = 1,087$), approximately one in five ($n = 201$) changed their job status. For the longitudinal models, the most interesting group of couples were those who worked at wave 1 ($n = 428$). Approximately a quarter of these couples ($n = 117$) changed their status to inactive at wave 2.

Comparative Analyses

We used two analytical approaches for the comparative analyses. First, we employed an effect-coding approach to test hypotheses 3a and 3b about cross-country variation in the gender gap in grandparenting. This technique enabled us to introduce every country separately into the multivariate models, thus allowing for country-specific idiosyncrasies in the cultural and institutional context of grandparenting. Compared to dummy coding, effect coding facilitated the interpretation of differences between the 10 countries included in our sample, as country coefficients were independent of which

Table 1. Variables and Descriptive Statistics

Variables	Wave 1		Wave 2		Range	Description
	M	SD	M	SD		
<i>Grandparenting</i>						
Total grandparenting hours	18.82	24.14	19.69	24.31	.02–120	Total hours per week of looking after grandchildren in the absence of parents; summed over all of the couple's selected grandchildren (top-coded to 120)
GF's share	38.28	29.13	37.58	28.65	0–100	GF's share of a couple's total grandparenting hours (in %)
<i>Employment</i>						
Total work hours	55.49	28.16	54.03	26.28	0–224	Total amount of market work performed by the grandparent couple (in hours per week); for each spouse, job hours of primary and, if applicable, secondary job were added up; defined only for working couples
GM's share of market work	44.17	37.79	46.74	37.72	0–100	GM's share of a couple's total amount of market work (in %); defined only for working couples
Inactive/retired couple	.64		.65		0–1	1 = no partner was (self-)employed
<i>Controls</i>						
Mean age	62.67	6.94	63.41	6.90	42–88	Sum of both partners' age at the time of interview divided by 2; average age difference was 3 years
Years GF is older	3.37	3.45	3.57	3.58	0–32	Years GF is older; coded to 0 if GF is not older
Years GM is older	.38	1.36	.36	1.30	0–21	Years GM is older; coded to 0 if GM is not older
High education	.28		.30		0–1	1 = at least one partner has at least some postsecondary education (ISCED > 3)
Own child in household	.24		.25		0–1	1 = at least one of a couple's children lives in their household

Short distance	.55		.55	0-1	1 = couple resides 5 or less kilometers from closest-living grandchild	
Grandchild's age	3.43	3.14	3.47	3.21	0-12	Age of a couple's youngest grandchild
Grandchild non-biological	.06		.06	0-1	1 = youngest grandchild does not descend from grandfather	
Care provided to >1 child	.25		.27	0-1	1 = couple is looking after grandchildren of more than one child	
<i>Health limitations</i>						
					Being permanently sick, disabled, and/or reporting at least one ADL limitation	
None (ref.)	.84		.84	0-1	1 = neither partner reported limitations	
Only GF	.08		.08	0-1	1 = only GF reported limitations	
Only GM	.07		.07	0-1	1 = only GM reported limitations	
Both	.01		.02	0-1	1 = both partners reported limitations	
Wave 2	0		1	0-1	1 = observation is from wave 2	

Note: Data are from SHARE waves 1 and 2, Release 2.5.0.; unweighted. $N = 5,180$ grandparent couples comprising two respondents who are spouses or partners, live together, and have at least one grandchild aged 12 or younger ($n = 2,840$ at wave 1; $n = 2,340$ at wave 2). ISCED = International Standard Classification of Education. GM = grandmother, GF = grandfather, ADL = activities of daily living.

^a1 km \approx 0.621 miles

country was selected as a reference group. The effect-coding approach yielded estimates for all countries, each indicating deviation from the unweighted grand mean (i.e., the mean over country means) instead of deviation from a reference country.¹³

Second, we classified the countries into three groups to test hypotheses 4a and 4b about cross-country differences in the effects of our key explanatory variables: Nordic countries (Denmark, Sweden), continental countries (Austria, Belgium, France, Germany, the Netherlands), and southern countries (Greece, Italy, Spain). There were two reasons behind this approach. First, case numbers were too small to permit country-specific assessments of these effects, thus necessitating aggregation of subsamples into country groups. Second, the classification into Nordic, continental, and southern countries reflected the most important cross-national similarities and differences discussed in the background. For example, regarding public childcare, coverage rates are about 53 percent within the group of Nordic countries, 22 percent within the group of continental countries, and 12 percent among southern countries (Keck and Saraceno 2011).¹⁴ Concerning intergenerational living arrangements engendering or inhibiting family care, this gradient is reversed: only 2 percent of grandparent couples co-reside with at least one grandchild in Nordic countries, compared to 8 percent in continental countries and 19 percent in southern countries.¹⁵ Finally, with regard to labor-force participation, about 51 percent of grandmothers are employed in the Nordic countries, compared to 25 percent in continental countries and 13 percent in southern countries.¹⁶

Controls

In the multivariate analyses, we controlled for a number of characteristics that may be associated with the outcome measure, the gender gap in grandparenting, and the explanatory variables (Bates and Taylor 2013). One obvious factor was the age of the grandchild. Research has shown that grandmothers' surplus in childcare was even more pronounced with regard to minding younger grandchildren (Spitze and Ward 1998). Thus, a potential reduction of the gender gap over time (e.g., after retirement) might simply result from changes in the grandchild's developmental needs.

Other relevant aspects were grandparents' education and age. Previous research has shown that egalitarian attitudes about gender and sharing of domestic work were more prevalent among highly educated people who, in turn, were also more likely to be dual earners (Baxter, Hewitt, and Western 2005). To account for confounding effects of education, we used a binary variable indicating whether at least one partner had a level of education (ISCED)¹⁷ at level 4 or higher (see Hank and Jürges 2007). To capture age effects, we introduced the mean age of both partners as a control variable. Additionally, we tested whether the age difference between spouses mediated the effects of our main predictors. We included two variables to model age differences bi-directionally: one measure indicated the number of years the grandfather was older, the other the number of years the grandmother was older.¹⁸

A further concern was geographical distance: time constraints of those who worked may have been aggravated by distance as a barrier to provide childcare. Our control variable for distance was aggregated over all grandchildren, indicating whether the nearest grandchild resided within a radius of five kilometers from the grandparent couple's household. Additionally, we included a binary variable indicating whether the grandparent couple co-resided with at least one of their children.

As our analytical focus was on how grandparent couples divided childcare, rather than the amount of their investment, we added a control for the total hours of grandparenting provided by the couple (see [Craig and Mullan 2011](#)).¹⁹ Moreover, we included a binary variable coded 1 if more than one child had grandchildren (aged 12 or younger) to whom the grandparents provided care. As the provision of childcare may also be related to issues of kinship and biological relatedness, we used an indicator variable for whether the youngest grandchild's parent was a biological child of the grandfather. Moreover, health problems of one or both partners might have interfered with their ability to look after grandchildren. To control for grandparents' health, we used a set of dummy variables for whether only the grandfather, only the grandmother, both partners, or none of them reported to be permanently sick, disabled, and/or to have at least one limitation in activities of daily living. Finally, we included a dummy variable for wave 2 into the pooled models.

In the multivariate models, we centered all controls at their unweighted grand means (i.e., the mean of country means) to allow for a consistent interpretation of the constant. [Table 1](#) provides an overview of all control variables.

Statistical Models

We estimated two types of linear models,²⁰ cross-sectional pooled regression models and longitudinal fixed-effects regression models ([Allison 2009](#)). The cross-sectional regression models used the full sample of grandparent couples, yielding sufficient case numbers to investigate cross-country differences in high detail. The longitudinal models controlled for all time-constant unobserved heterogeneity between grandparent couples, allowing us to gain more insight into the causal effects of changes in market work on the division of grandparenting.

For the cross-sectional models, we pooled data from both waves, drawing on information from the total sample of grandparent couples. We applied linear regression with cluster-robust standard errors to account for the non-independence of observations within couples (5,180 couple observations nested in 4,093 couples).²¹ The analysis presented below included a total of three cross-sectional models, each predicting the grandfather's share of a couple's total amount of grandparenting by our key explanatory variables—a couple's activity status (working versus inactive) and, if applicable, division of market work indicated by the grandmother's share of a couple's total work hours. We first excluded these variables, estimating a baseline model as a comparative reference (model 1, [table 3](#)). In a second step, we added both variables to the equation (model 2, [table 3](#)). Finally, we estimated a model that included interaction terms with effect-coded indicators for Nordic

and southern countries (model 4, table 4) to assess cross-national variation in the effects of market work on the division of childcare.

For the fixed-effects regression model (model 3, table 3), we focused only on grandparent couples observed at both waves ($N = 1,087$). This model examined the effects of changes in the division of market work on change in the grandfather's share of childcare *within the same couples*. By subtracting the within-couple means over time from both sides of the equation ("within transformation"), the fixed-effects model related variation in the outcome only to variation in the explanatory variables. The key advantage of a fixed-effects approach was that all time-constant heterogeneity, even if unobserved, was canceled out of the equation and thus did not affect the estimates. By definition, only variables that varied within couples entered the fixed-effects model.

Results

Descriptive Results

The data shown in table 2 present a descriptive overview of the gender gap in grandparenting as well as gender differences in market work in the 10 European countries represented in our sample. Among working couples, grandfathers were the main providers of market work in all countries except Sweden and France. The average grandfather spent 31.5 hours per week in paid employment, compared to 23.4 hours among working grandmothers. Within working couples, grandfathers' average share of total hours spent in paid employment amounted to approximately 55 percent.²² Across countries, these work shares largely corresponded to a north-south gradient, averaging at around 50 percent in the north compared to almost 70 percent in the south of Europe.

The reverse pattern held for grandfathers' share of grandparenting among working couples: grandfathers provided less childcare than grandmothers in all countries, averaging at approximately 6.8 hours per week, compared to 10.6 hours among grandmothers. Again, grandfathers' shares of grandparenting revealed a north-south gradient across Europe: the highest shares were found in Denmark and Sweden, whereas those in Greece, Italy, and Spain were among the lowest. Note, however, that the gradient reversed when looking at the intensity of grandparenting. In southern Europe, grandparents invested considerably more time in childcare compared to their Nordic counterparts (see [Hank and Buber 2009](#)). Thus, despite their lower share within couples, grandfathers from southern European countries still spent more hours looking after grandchildren than their northern counterparts.

Among working couples, grandfathers' average share of childcare provision amounted to 35.8 percent, reflecting a sizable gender gap in grandparenting. Among inactive couples, this gap was also present, albeit less pronounced, with an overall grandfather share of 39.2 percent. A further difference between inactive and working couples concerned the intensity of grandparenting: with an average weekly provision of 20.9 hours, inactive couples' investment exceeded that of working couples (17.3 hours) by more than 20 percent.

Table 2. Market Work and Grandparenting in 10 European Countries

Country	N	Working couples (<i>n</i> = 1,866)						Inactive/retired couples (<i>n</i> = 3,314)						
		Market work			Grandparenting			Market work			Grandparenting			
		Hours per week	GM	GF	Share (%)	GF	GM	Hours per week	GF	GM	Share (%)	GF	GM	Share (%)
Sweden	643	27.29	32.31	42.70	4.32	5.45	41.19	48.37	4.89	5.69	39.41			
Denmark	556	33.76	27.99	52.59	4.47	5.93	41.00	49.28	5.50	5.71	43.10			
Netherlands	673	30.43	15.54	60.89	4.05	8.04	30.63	65.97	6.25	7.97	42.51			
Belgium	806	33.40	18.45	61.34	10.21	14.68	35.76	64.76	11.00	12.21	45.16			
Germany	476	32.31	25.45	50.67	6.80	8.29	35.30	60.92	7.19	9.41	37.47			
France	604	28.57	26.99	45.59	8.77	12.70	36.46	62.58	9.10	12.71	39.03			
Austria	227	37.76	22.41	58.67	6.78	12.08	30.67	71.81	9.03	12.57	36.62			
Italy	469	31.53	14.68	66.40	5.41	13.08	24.28	81.24	10.27	17.70	30.81			
Spain	305	33.99	11.42	72.95	5.64	16.06	30.48	81.97	10.00	13.57	35.08			
Greece	421	34.49	16.88	69.46	13.47	24.91	31.82	71.50	15.54	21.76	37.34			
Total	5,180	31.46	23.38	54.68	6.76	10.56	35.80	63.98	8.94	11.92	39.18			

Note: Data are from SHARE waves 1 and 2, Release 2.5.0; unweighted. *N* = 5,180 grandparent couples comprising two respondents who are spouses or partners, live together, and have at least one grandchild aged 12 or younger (*n* = 2,840 at wave 1; *n* = 2,340 at wave 2). GM = grandmother, GF = grandfather.

Taken together, the descriptive results from table 2 seemingly support gender-neutral accounts, suggesting first that paid employment and grandparenting were traded off within working couples, second that the gender gap in grandparenting declined after retirement, and third that international variation in this gender gap appeared to correspond largely to cross-country differences in the gendered division of market work.

Figure 1 further illustrates these associations, plotting selected findings from table 2. In the left panel for working couples, the bars indicate grandmothers' and grandfathers' average hours of grandparenting. The lines in the left panel show grandmothers' average share of grandparenting and grandfathers' average share of market work, respectively. In seven of the 10 countries under study, these shares did not differ by more than five percentage points, suggesting a positive relationship according to which a higher share of grandmothers' market work was accompanied by a higher share of grandfathers' grandparenting. Consistent with this pattern, the level of the solid line is lower in the right panel for inactive couples, illustrating how the gender gap in grandparenting declined, at least to some extent, in the absence of market work.

Multivariate Results

Tables 3 and 4 present the results of the multivariate analysis. Model 1 (table 3) estimated the grandfather's share of grandparenting irrespective of a couple's activity status and division of market work. According to our specification, the constant indicated the grandfather's share of grandparenting averaged over the

Figure 1. Total hours and share of grandparenting and market work

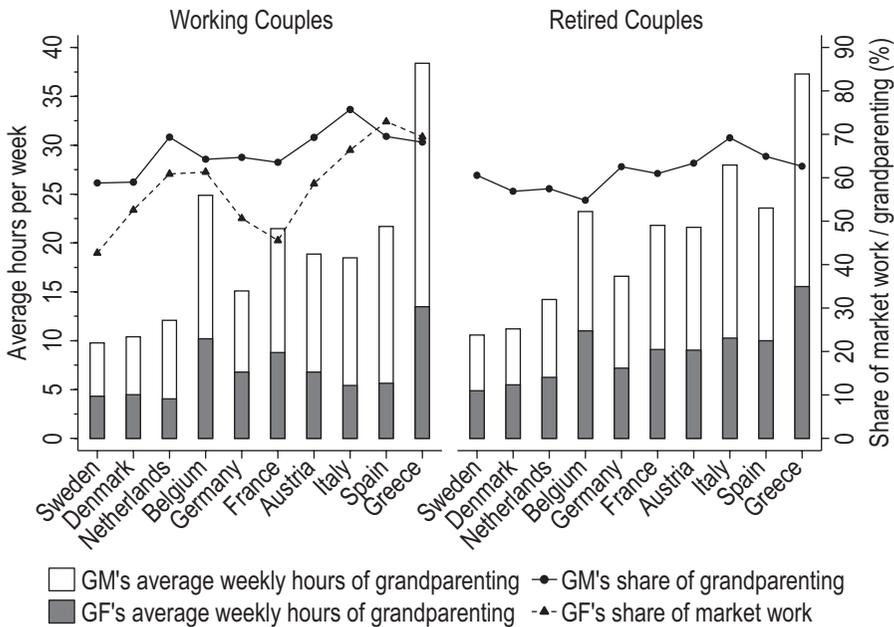


Table 3. Pooled and Fixed-Effects Regression Models for Grandfathers' Share of Grandparenting

	Pooled couple regression ^a			Within-couple regression ^b		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant (GF's share)	37.193 (.453)***	27.928 (1.253)***	26.9833 (3.127)***			
Employment						
GM's share of market work ^c		.158 (.019)***	.166 (.050)***			
Inactive/retired couple		10.433 (1.440)***	13.707 (3.852)***			
Country (effect-coded) ^d						
Sweden	3.444 (1.298)**	3.021 (1.316)*				
Denmark	5.711 (1.235)***	5.724 (1.240)***				
Netherlands	1.896 (1.118) +	2.054 (1.101) +				
Belgium	3.378 (.924)***	3.415 (.910)***				
Germany	-.644 (1.352)	-.966 (1.332)				
France	.528 (1.176)	-.126 (1.163)				
Austria	-2.491 (1.852)	-2.828 (1.825)				
Italy	-6.805 (1.396)***	-6.698 (1.390)***				
Spain	-2.718 (1.829)	-2.279 (1.813)				
Greece	-2.300 (1.591)	-1.317 (1.596)				
Controls (all centered)						
Mean age	.192 (.067)**	.022 (.082)				
Years GF is older	-.367 (.133)**	-.547 (.135)***				
Years GM is older	-.149 (.338)	.070 (.333)				
High education	3.606 (.960)***	3.863 (.955)***				

(Continued)

Table 3. continued

	Pooled couple regression ^a		
	Model 1	Model 2	Model 3
Own child in household	-2.938 (1.071)**	-2.606 (1.060)*	-2.104 (3.408)
Care provided to >1 child	-.203 (.955)	-.351 (.952)	.907 (2.377)
Caring hours per week	.163 (.015)***	.157 (.015)***	.164 (.042)***
Short distance	-1.515 (.871) +	-1.604 (.865) +	-2.303 (3.020)
Grandchild's age	.572 (.140)***	.523 (.140)***	.239 (.405)
Grandchild non-biological	-6.050 (1.935)**	-6.342 (1.931)**	
Health limitations (ref.: none)			
Only GF	-2.545 (1.536) +	-3.981 (1.531)**	-5.271 (3.604)
Only GM	5.952 (1.699)***	6.537 (1.694)***	2.850 (3.927)
Both	1.412 (3.288)	1.094 (3.253)	-9.052 (6.679)
Wave 2	-.687 (.765)	-.738 (.760)	-1.452 (1.118)
Observations	5,180	5,180	2,174
Clusters (couples)	4,093	4,093	1,087
R ²	.052	.068	.034
df	23	25	1,097

Note: Data are from SHARE waves 1 and 2, Release 2.5.0. Linear regression coefficients are shown. Standard errors in parentheses. All predictor variables centered at the unweighted grand mean except grandmothers' share of market work and the indicator variable for inactive/retired couples. See table 1 for details on the variables. GF = grandfather, GM = grandmother.

^aRegression on pooled couple data with cluster-robust standard errors.

^bFixed-effects regression estimating within-effects for couples observed across two waves.

^cOnly defined for working couples (set to 0 for inactive/retired couples).

^dTests are for deviation from the unweighted grand mean.

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

grand means of all countries and remaining controls. Under these conditions, representing the “average couple” in Europe, grandfathers provided approximately 37.2 percent of the total grandparenting hours.

In model 2, we introduced our key explanatory variables. This changed the interpretation of the constant because we did not center these variables. Consequently, the constant of model 2 indicated the grandfather’s share of grandparenting if he was the single earner (i.e., the grandmother’s share of market work equaled 0) of a working couple (i.e., the indicator variable for inactive couples equaled 0). Under these conditions, representing male-breadwinner couples, the grandfather’s share of grandparenting dropped to 27.9 percent.

The measure of the grandmother’s share of market work provided an estimate of a grandparent couple’s trade-off between grandparenting and paid employment. This estimate was positive and highly significant, indicating that the division of market work represents an important explanatory factor of gender differences in grandparenting. Compared to the macro-level findings of the descriptive analysis, however, this association was relatively weak at the micro level of grandparent couples. For each percentage point of increase in the grandmother’s share of market work, the grandfather’s share of grandparenting increased by only 0.16 percentage points. Compared to male-breadwinner couples, the grandfather’s estimated share of grandparenting increased by 7.9 (0.158×50) percentage points, to 35.8 percent ($27.9 + 7.9$), if the couple’s division of market work was equal. If the grandmother was the single earner, this share further increased to an estimated maximum of 43.7 percent, all else being equal. That is, even if grandmothers performed all the market work, they remained primary providers of grandchild care. Overall, these results, indicating a rather modest trade-off between market work and grandparenting, were consistent with hypothesis 1b, supporting gender-role theories of the division of labor.

The indicator variable for whether a grandparent couple was inactive pointed to a smaller gender gap in grandparenting after retirement. Compared to male-breadwinner couples, the grandfather’s share of grandparenting increased by more than 10 percentage points if a couple was inactive. In these couples, grandfathers’ contributions accounted for approximately 38.4 percent of the total hours of grandparenting. Note, however, that model 2 provided only cross-sectional estimates relying on between-couple differences. As a result, the coefficients of both key explanatory variables might be biased if important unobserved factors such as attitudes toward childcare and market work were not controlled. In this respect, the fixed-effects regression (model 3) provided more reliable estimates of their effects, netting out all time-constant heterogeneity between couples. This model predicted *change* in grandfathers’ share of grandparenting, within couples across waves, dropping time-constant variables from the equation (i.e., fixing couple effects).

The effects of change in a couple’s division of market work and in a couple’s activity status, presented in model 3, supported the preceding findings but revealed somewhat larger effects of the key explanatory variables. As indicated by the constant, grandfathers who were single earners provided a mere quarter

(about 27 percent) of a couple's total hours of grandparenting. This share increased, on average, by 0.17 percentage points with every percentage-point increase in the grandmother's share of market work.²³ If a male breadwinner retired between waves 1 and 2, his share of grandparenting changed quite substantially, rising by 13.7 percentage points from 27 to 40.7 percent—an increase of more than 50 percent. Compared to the between-couple estimate, which might have been affected by cohort effects (i.e., more traditional gender attitudes among already retired couples), this effect was clearly more pronounced and thus more consistent with hypothesis 2a. Further analyses on each partner's amount of grandparenting hours (not shown) revealed that this rising share resulted from an increase of grandfathers' total hours, rather than a decrease of grandmothers' hours.

To evaluate our hypotheses about cross-country differences, we return to the pooled regression models. Considering hypotheses 3a and 3b about cross-country variation in the gender gap in grandparenting, figure 2 compares each country coefficient conditional on the covariates of model 1 (diamonds) and model 2 (circles). Overall, the results support the descriptive evidence, suggesting that the gender gap in grandparenting varied according to the societal framing of gender roles. Again, the main pattern of findings revealed a geographical gradient across Europe. In Denmark, for example, the grandfather's share of grandparenting was estimated at 5.7 percentage points above the grand mean, whereas the corresponding estimate in Italy was estimated at 6.7 percentage points below

Figure 2. Country effect plots conditional on covariates

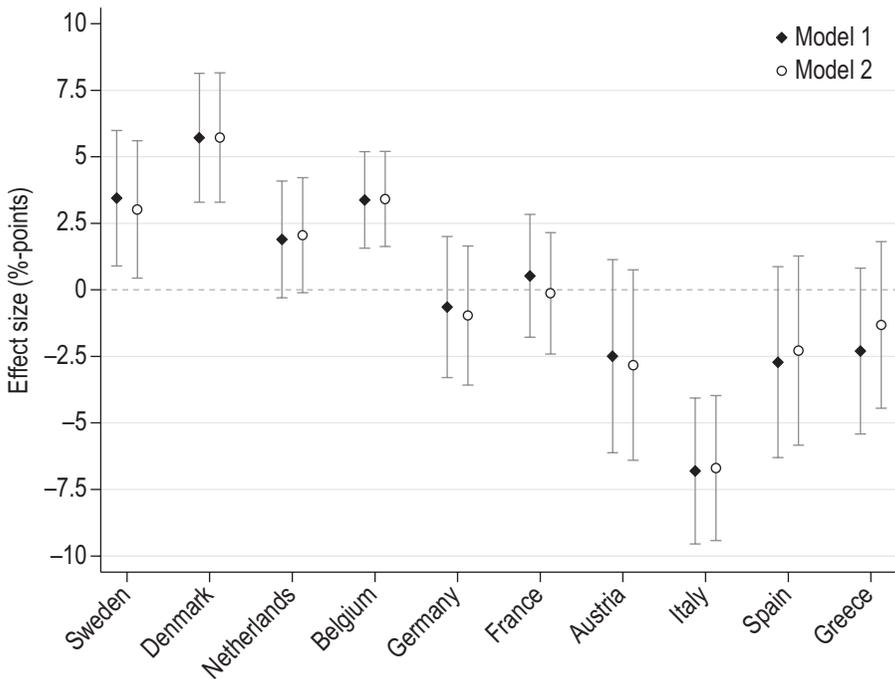


Table 4. Results from Pooled Regression Including Interactions with Country Groups (model 4)

	Constant (grand mean)		Coefficients			
			GM's share of market work		Inactive/retired couple	
(1) Nordic	36.337	(2.439)***	.106	(.039)**	4.104	(2.792)
δ : (1)–(2)	10.470	(2.773)***	–.086	(.045) +	–9.871	(3.052)***
(2) Continental	25.867	(1.531)***	.192	(.024)****	13.975	(1.713)***
δ : (3)–(2)	.455	(2.928)	–.091	(.055) +	–6.039	(3.134) +
(3) Southern	26.322	(2.622)***	.101	(.050)*	7.936	(2.830)**

Note: Data are from SHARE waves 1 and 2, Release 2.5.0. The table shows estimated group-specific constants and coefficients for share of market work and inactive/retired couples with cluster robust standard errors in parentheses. Estimates obtained by adding interactions with country groups to the equation of model 2. Control variables are not displayed. Estimated difference δ between Nordic and continental and southern and continental with standard errors in parentheses. Country groups: Nordic (Denmark, Sweden), continental (Austria, Belgium, France, Germany, the Netherlands), southern (Greece, Italy, Spain). $N = 5,180$; $R^2 = .07$; $df = 29$. GF = grandfather, GM = grandmother. See table 1 for details on the variables. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

the European average. The comparison between diamonds and circles in figure 2 shows that although some of these differences were partly explained by the measures of a couple's division of labor and activity status introduced in model 2, the main pattern across Nordic, continental, and southern countries remained in place. These findings support hypothesis 3b, suggesting that the magnitude of the gender gap in grandparenting corresponded to the cultural framing of gender roles, net of a couple's actual division of market work.

Finally, the results presented in table 4 provide insight into cross-national differences regarding the effects of couples' division of market work on gender differences in grandparenting (hypotheses 4a and 4b). The table summarizes the key findings from model 4, which added interaction terms of the two main explanatory variables and country groups to the equation of model 2. As indicated by the interactions, the effects of both variables were less pronounced among couples located in the egalitarian north as well as the traditional south of Europe, compared to their continental counterparts. This pattern of findings is consistent with a gender ideology perspective (hypothesis 4b), suggesting that in countries in which gender norms are most influential in governing the division domestic tasks, couples' market work arrangements mattered less for their division of childcare.

Discussion

This study aimed to advance the understanding of gender differences in grandparenting: why do grandmothers provide far more childcare than grandfathers do? Given the pervasiveness of this gender gap, the literature was surprisingly

mute with regard to the mechanisms that may produce it. Our purpose was to examine one of these mechanisms: a grandparent couple's division of labor into market work and childcare.

We outlined two broad theoretical perspectives on the gender gap in grandparenting. Gender-neutral accounts emphasized availability and choice in a grandparent couple's rational allocation of tasks, hence expecting a strong trade-off between grandparenting and market work, a decline in the gender gap after retirement, little cross-country variation net of a couple's division of market work, and a north-south gradient with regard to the effects of market work arrangements. Gender-role theories, in contrast, were consistent with a weak trade-off, persistence after retirement, marked cross-country variation net of a couple's division of market work, and weak effects of market work arrangements in countries where gender norms are traditional (i.e., southern Europe) or egalitarian (i.e., northern Europe).

The results did not yield unequivocal support in favor of one perspective. On the one hand, the majority of findings were consistent with gender-role theories. Both cross-sectional and longitudinal models suggested that although childcare was exchanged against market work within grandparent couples, the trade-off was relatively weak (hypothesis 1b). Overall, grandmothers and grandfathers traded off their share in both domains roughly on a one-for-six basis. In working couples, grandfathers' estimated share of the total hours of grandparenting varied between 28 percent in male-breadwinner households and 44 percent if the grandmother was the single earner. Hence, grandmothers remained primary providers of childcare even if they concurrently acted as sole breadwinners. Gender-role theories of the division of labor were further corroborated by the cross-national evidence (hypotheses 3b, 4b). The gender gap in grandparenting was most pronounced in traditional countries of southern Europe and least pronounced in the egalitarian north. This variation appeared to be associated with the societal framing of gender roles, as couples' division of market work explained only a minor fraction of cross-country differences in the magnitude of the gender gap.

On the other hand, our findings showed that the factors stipulated by economic models were far from irrelevant in the analysis of gender differences in grandparenting. Most notably, fixed-effects regression estimates indicated that grandfathers who were sole breadwinners increased their share of a couple's total hours of childcare by more than 50 percent after relinquishing their worker role (hypothesis 2a). The magnitude of this change is particularly noteworthy when considering the limited applicability of economic models to the behavior of grandparent couples. That is, although these couples face fewer responsibilities for the maintenance of the (extended) family, fewer constraints on their time, and less competition between involvement in employment and family spheres, the indicators for their division of market work featured prominently as explanatory factors for gender differences in grandparenting.

Considering the narrowing gender gap after retirement, however, it is important to note the limitations of our data, especially regarding the outcome measure of looking after grandchildren in the absence of parents. This measure

precluded disaggregated assessments of the type of childcare that grandmothers and grandfathers provided, potentially masking important gender differences in specific tasks. Research on parenting, for instance, has shown that men frequently engaged in leisure activities with the child, rather than performing routine tasks (Craig and Mullan 2011). As leisure-like elements seem particularly relevant to activities performed by grandparents, a narrowing gender gap after retirement might at least partly result from grandfathers more frequently participating in recreational activities with their grandchildren.

We also note that our outcome measure, relying on each partner's separate reports of looking after grandchildren in the absence of parents, did not provide information about whether grandmothers and grandfathers cared solo or whether they acted together. Again, research on parenting has highlighted notable gender differences in this respect. A large proportion of fathers' care was co-provided with their spouses, whereas the reverse was true for mothers (Craig 2006). Grandparent research has also suggested that grandfathers' contributions may be contingent on grandmothers' provision of childcare (Dench and Ogg 2002; Hank and Buber 2009). Obviously, the context and experiences of grandparenting—both for the older and younger generation—are profoundly different, depending on whether grandparents act together or care solo. Grandparenting, for instance, may constitute a particularly pleasant experience for grandfathers, who engage mainly in recreational activities while their co-providing spouses shoulder tasks that are more demanding.

Furthermore, as we placed our research focus on the trade-off between grandparenting and market work, we employed relative measures of each partner's involvement in both activities. This analytical approach, concentrating on shares instead of amounts, allowed us to test hypotheses on the gender gap in grandparenting but relegated a number of important aspects to future investigation. Our models, for example, did not identify parallel increases or decreases in both partners' amounts of grandparenting and/or work hours, although it might be worthwhile to study the sources of such simultaneous shifts. Furthermore, an increase of the grandmother's share of market work could result from an increase in her work hours, a decrease in her partner's work hours, or both. More differentiated assessments would allow for assessing the effects of changes in the participation of older people in the workforce, and the associated gender differences, in detail.

These limitations point to the substantial gaps in knowledge about grandparenting and the potential of future research that replaces the isolated view endorsed by previous studies of grandparents with a couple perspective. How often, and under what conditions, do grandparents act together or solo as providers of childcare? How are grandparenting tasks allocated and specific competencies combined? What are the effects of solo grandparenting compared to joint provision on outcomes such as stress and the well-being of the elderly, as well as the later quality of multigenerational bonds? In addressing these questions, research on grandparenting would provide a more nuanced, and more realistic, picture of a phenomenon that is so frequently situated within a couple context.

As shown by this investigation, the gender gap in grandparenting was sizable even if both partners worked full-time. In view of the projected increase in the proportion of dual full-time earners among older couples (Gendell 2008) and the continuing demand for grandparents as providers of regular childcare (Wheelock and Jones 2002), this finding suggests growing pressures on grandmothers. In this regard, it is important to note that policies promoting public childcare and family-friendly workplaces have the potential to encourage women's labor-force participation in *both generations*. Implementing grandparent leaves, in contrast, may exacerbate gender specialization by providing incentives for grandmothers, rather than grandfathers, to leave the workforce.

In view of these connections, we conclude by highlighting three perspectives for future research. First, our study directs attention to the employment-family nexus in later life. This topic remains understudied, particularly when considering its increasing demographic importance. Second, longitudinal research on grandparenting entails numerous analytical benefits. Although this has been recognized in recent studies (e.g., Luo et al. 2012), knowledge about continuity and change in grandparenting remains limited. Third, grandparenting is often performed by a grandparent couple as a unit of interacting providers. Investigating grandparenting in the way it is commonly practiced in families thus requires complementing the isolated view of the grandparent with a couple perspective. A comprehensive view including grandparent couples as well as single, remarried, divorced, and widowed grandparents could provide additional insight into gender differences in grandparenting.

Notes

1. Throughout this paper, we use the terms *grandparenting*, *childcare*, *childcare assistance*, and *looking after grandchildren* as synonyms.
2. This paper used data from SHARE release 2.5.0, as of May 24, 2011. The SHARE data collection has been funded primarily by the European Commission through the 5th framework programme (project QLK6-CT-2001-00360 in the thematic programme Quality of Life), through the 6th framework programme (projects SHARE-I3, RII-CT- 2006-062193, COMPARE, CIT5-CT-2005-028857, and SHARELIFE, CIT4-CT-2006-028812), and through the 7th framework programme (SHARE-PREP, 211909, and SHARE-LEAP, 227822). Additional funding from the US National Institute on Aging (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, Y1-AG-4553-01, and OGHA 04-064, IAG BSR06-11, R21 AG025169) as well as from various national sources is gratefully acknowledged (see www.share-project.org for a full list of funding institutions).
3. Due to low case numbers and response rates, we excluded Switzerland from the analysis.
4. The SHARE collected detailed proxy information on up to four of the respondent's children. We temporarily expanded the data set to dyads between grandparent couples and up to four of their children to compute a compound measure of childcare provided to all grandchildren. In our empirical models, we did not draw on dyadic data because these could obscure the gender gap in grandparenting. For example, if the grandmother invested 10 hours to look after the child of the couple's daughter while the grandfather invested 10 hours to look after the child of the couple's

son, a composite measure aggregated over the couple was required to identify the absence of a gender gap. The drawback of using the grandparent couple as a unit of analysis was that we were unable to introduce covariates at the child level, such as age, gender, education, and marital status of the child. To test the robustness of our multivariate findings, we reran all analyses on an expanded data set of dyads between grandparent couples and up to four of their children. Regarding the gender gap, all findings were robust and all controls at child level inconsequential. The only exceptions were geographical distance and biological kinship. Therefore, we introduced into the equations an aggregated measure of geographical distance to the most proximate grandchild as well as a measure for whether the youngest grandchild descended from the grandfather (see below).

5. The family respondent in a household is selected by design and reports on family issues such as characteristics of children and grandchildren.
6. We dropped all couples (12.4 percent of all grandparent couples) in which at least one partner did not respond to the initial question regarding looking after grandchildren.
7. Because of these restrictions, only a small fraction of the original SHARE samples was included in our analytic sample. There is no consensus on how to deal with sampling weights in such cases (Solon, Haider, and Wooldridge 2013). For the analyses presented in this study, we did not use weights. Additional analysis showed that all main results were robust to using calibrated household weights.
8. The sample attrition was substantial, amounting to 61.7 percent between waves 1 and 2. Note, however, that in the countries under study, the baseline attrition of couples between waves 1 and 2 already amounted to 40.3 percent. The higher attrition in our analysis results from the sample design, as we additionally dropped couples in which (1) the youngest grandchildren exceeded the age of 12 at the second wave; and (2) 0 hours of grandchild care were reported at the second wave. Additional analyses showed that the attrition was not selective with regard to the dependent variable or socio-demographic variables.
9. Using this multiplier, we assumed that “daily” childcare in the absence of parents did not include weekends. In additional analyses, we considered all days of a week, multiplying “daily” hours by 7. This alternative specification did not alter any of the coefficients and standard errors reported in the multivariate models.
10. In 7.6 percent of couple-child dyads, information on weekly hours was missing because one or both partners provided insufficient information. Ignoring those cases would not only reduce case numbers but also underestimate couples’ output of care hours. Therefore, we imputed missing values in care hours by a linear regression model predicting log-hours by a set of respondent, partner, couple, and child variables ($R^2 = .37$). Results were also robust to several alternative model specifications.
11. We used a strict definition of inactive couples, covering only those in which both partners reported 0 hours of paid work. We conducted sensitivity analyses (not shown) using less strict definitions of inactive couples allowing, for example, a total amount of 10 work hours. All results reported in the multivariate analysis were robust.
12. Defaulting the value of the grandmother’s job share in inactive couples to a different value (e.g., 50 percent) would only change the interpretation of the reference category for the coefficient of retirement/inactivity status of the couple.
13. We centered at the unweighted grand mean instead of the overall sample mean because country samples were unbalanced. Austria was the reference group in the estimation. The country coefficient for Austria was calculated subsequently as the

sum of the remaining country coefficients multiplied by -1 (for a similar approach, see Hank and Buber 2009).

14. Coverage rates refer to the number of places in public or publicly subsidized child-care facilities divided by the number of children aged 0–2 years; calculations from the Database on Intergenerational Policy Indicators (multilinks, version 2.1). See Keck and Saraceno (2011).
15. Based on own calculations using SHARE wave 1 samples of all grandparent couples. Co-residence is defined as sharing a household or living in the same building.
16. Based on own calculations using SHARE wave 1 samples of grandmothers aged 50–65 who live in couples.
17. In the SHARE data, educational levels of respondents were coded according to the International Standard Classification of Education from 1997 (ISCED-97; see SHARE release guide 2.5).
18. If one variable had a positive value, the other one was set to 0. For same-aged couples, both variables were set to 0.
19. This variable was top-coded to a maximum of 120 hours per week.
20. Linear models are easy to interpret but allow the outcome variable to take predicted values below 0 percent and above 100 percent. Fractional logit models (Papke and Wooldridge 1996) would remedy this problem by restricting the outcome variable to values between 0 and 1. To test the robustness of our linear specification, we reran all models using a logit transformation of the outcome variable (divided by 100, with 0s set to 0.0001 and 1s set to .9999). These fractional logit models yielded very similar results.
21. This approach considers non-independence only at the couple level, disregarding non-independence of observations at the country level. However, all findings were robust to using a multilevel specification that modeled the variance at both levels.
22. Note that average work hours were averaged over all grandfathers and grandmothers, respectively. The average work share, in contrast, represented the average of all shares within couples. It follows that the average share did not equal the share of

the averages: $n^{-1} \sum_i^n \frac{h_{gf}^i}{h_{gf}^i + h_{gm}^i} \neq \frac{n^{-1} \sum_i^n h_{gf}^i}{n^{-1} \sum_i^n h_{gf}^i + n^{-1} \sum_i^n h_{gm}^i}$. Thus, the average work

share within couples could not be calculated from the average work hours of grandmothers and grandfathers. The same applies to average hours and average share of grandparenting. This point further underlines the importance of a couple-based approach to investigate the gender gap in grandparenting.

23. We conducted sensitivity analyses to test whether this relationship varied according to different employment configurations and total work hours, particularly between part-time and full-time working couples. The results did not indicate any differences. Therefore, we present the most parsimonious specification, estimating a joint model for full-time and part-time working couples and measuring change in market work by a linear ratio variable.

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