

# Unpaid Care for Elderly Parents and Labor Supply Among Older Working-Age Men and Women Across Europe

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**Abstract**

With population aging, more adults across Europe face competing demands of working for pay and caring for elderly family members. Associated tradeoffs are expected to be negative, gendered and vary across contexts with different levels of gender equality, public support for eldercare, and work-family balance. Using SHARE data from 2004 to 2020, we investigated how unpaid caregiving to independently living parents relates to labor supply among mature working-age (50–64) men and women across Europe. We find limited tradeoffs between unpaid caregiving and labor supply, even where public support for eldercare is low.

Caregiving associates with men's and women's employment and full-time work in similar ways. Gender differences nevertheless exist in both paid work and caregiving across Europe, especially in Continental and Southern Europe. These differences are established before midlife and build up across the life course and should be addressed when designing policies for longer working lives in Europe.

*Keywords:* Unpaid caregiving, labor supply, gender, Europe, SHARE, work-family balance

## **Introduction**

Population aging affects most European countries today, pressurizing pensions, health, and Long-Term Care (LTC) systems, creating an imperative to increase the labor supply of working-age men and women. Simultaneously, policymakers emphasize independent living and in-home care over institutional care, which increases the demand for unpaid caregiving by family members. More adults, particularly women, therefore, face dual demands of working for pay and caring for elderly family members. This has raised concerns about unpaid caregiving crowding out paid work. Intensive caregivers have been shown to work fewer hours and to be less likely to be in the labor force than non-caregivers (Lilly, Laporte, and Coyte 2007; Van Houtven et al. 2019). Because expectations of greater mobilization of family caregivers contradict necessary increases in labor supply, it is vital to better understand how unpaid caregiving impacts men's and women's paid work across aging nations.

While demographic aging contexts are similar across Europe, there are important differences concerning the labor market and the organization of care (Bettio and Plantenga 2004; Simonazzi 2009; Saraceno and Keck 2010). Welfare states either mitigate the tradeoff between unpaid caregiving and paid work (i.e., that the two compete for caregivers' time) by providing formal eldercare or consolidate it by delegating the responsibility for organizing care to families. Therefore, unpaid caregiving impacts labor supply more in Southern and Eastern Europe than in the Nordics or Continental Europe (Kotsadam 2011; Crespo and Mira 2014; Kolodziej, Reichert, and Schmitz 2018). Yet, much detail remains to be studied when it comes to the association between unpaid caregiving and paid work.

Whether the association between unpaid caregiving and labor supply is causal or not is important from a policy perspective. A causal effect can be eased with increased investments in formal care and caregiver support, whereas such measures yield suboptimal results if individuals with weak labor market attachment self-select into caregiving. To get

around endogeneity as well as bias from unobserved characteristics, studies using European data have employed an instrumental variables (IV) approach (e.g., Bolin, Lindgren, and Lundborg 2008; Crespo and Mira 2014; Kolodziej, Reichert, and Schmitz 2018; Heger and Korfhage 2020). Yet, studies feature varying samples (e.g., regarding gender, age groups, definition of care recipients as well as of caregiver status) and the causal impact remains ambiguous for older, working-aged men and women across country contexts.

We examined the association between unpaid caregiving to independently living elderly parents and the labor supply of men and women of mature working ages (50–64) across Europe, focusing on this group because their labor supply is projected to increase in the coming years (European Commission 2021: 30-3) while they are also expected to provide unpaid care to their parents. We analyzed the tradeoffs among both men and women, exploring the extent to which caregiving intensity matters for their employment and full-time work across welfare state contexts. Our analytical approach involved Ordinary Least Squares (OLS) and IV regression on data from the Survey of Health, Retirement, and Ageing in Europe (SHARE) covering 18 countries between 2004 and 2020 until the start of the COVID-19 pandemic.

The present study contributes to the literature by updating the comparative evidence on the tradeoffs between unpaid caregiving to parents and paid work, focusing on a well-defined highly policy-relevant group of potential caregivers. We concentrated on unpaid caregiving to independently living parents to not confound this type of caregiving with coresidence. Living with elderly parents remains common only in parts of Europe with limited publicly organized eldercare, little support to caregivers, and strong gender norms, while caregiving to independently living parents is prevalent across Europe, not least in countries with otherwise comprehensive welfare state arrangements targeting both those who need care and those who provide it. Using two different labor supply outcomes provides a

more nuanced understanding of tradeoffs according to gender and welfare state context for this important group of workers. We address the endogeneity of caregiving and labor supply through employing an IV approach.

We find that among men and women aged 50 to 64, tradeoffs between labor supply and unpaid caregiving for independently living elderly parents are limited even in contexts where public support for eldercare is low. Nevertheless, we find important gender differences in both labor supply and caregiving that are in line with welfare state regimes incentivizing a stricter gender division of labor in Continental and Southern Europe compared to the Nordics and Eastern Europe. The implications from our findings are that a) gender differences are established before midlife, building up across the life course, and b) employees aged 50 and over add care responsibilities to their schedules, which may put them at risk of overload and stress, which is incompatible with longer working lives for all. Thus, gender differences in paid work and caregiving should be addressed earlier in life, while overload and caregiver stress should be addressed when designing policies for longer working lives. Adequate access to eldercare should be ensured to support the employment of mature working-age men and women with parents who need assistance and care.

### **Unpaid caregiving and labor supply**

This study considers caregiving to elderly parents as unpaid work, like housework and childcare, which competes for time (limited to 24 hours per day) with other activities. It is guided by economic time allocation theory, which posits that individuals with family responsibilities must trade off time in paid work, leisure, and unpaid care activities/housework (Becker 1965; Gronau 1977). Individuals allocate their time to advance their well-being (Becker 1981). The resulting time allocations depend on context, and changes with economic conditions and the life cycle (Ghez and Becker 1975). Theory predicts that individuals

allocate time in such a way that the incremental gain in well-being is equalized among competing uses of time. All else constant, an increase in the relative return to paid work induces a reallocation of time away from other uses of time toward paid work, and vice versa.

The impact of unpaid caregiving on paid work is, however, uncertain because it depends on whether the substitution effect or income effect dominates. Caregiving may reduce employment or work hours if workers substitute paid work with unpaid caregiving to the extent that the two are compatible (Heitmueller and Inglis 2007), however, labor supply may increase if caregivers need more income or employment offers respite from caregiving (Carmichael and Charles 1998, 2003). Differences in time allocations between men and women reflect individual, family, and contextual factors. Gendered impacts of caregiving responsibilities are predicted to be in line with economic theories of specialization and bargaining but there is also a strand of literature emphasizing that constrained choice, particularly salient in the case of unpaid care for parents or spouse, results in gendered impacts of caregiving (Folbre 2001).

In contrast to the rational choice perspective, feminist scholars have highlighted that the decision to provide care is constrained and determined by social norms. The decision is largely independent of the opportunity cost of time, and the demand for care creates its own supply (i.e., exogeneity). Folbre (1995) emphasized that caring for the elderly is intrinsically motivated, driven by altruism, reciprocity, and fulfillment of obligation or responsibility. Caregivers have limited bargaining power over how to spend their time and social norms often reinforce altruism towards family more strongly for women, who often assume more caregiving responsibilities than men (Badgett and Folbre 1999).

Studies suggest that unpaid caregiving is associated with reduced labor supply, especially among those who spend a substantial amount of time providing care (see Lilly, Laporte, and Coyte 2007; Bauer and Sousa-Poza 2015; Van Houtven et al. 2019 for reviews).

Carers face difficulties in combining caregiving and employment (Berecki-Gisolf et al. 2008; Carmichael et al. 2008). Carmichael and Charles (1998) found that caring for less than 20 hours per week impacts work hours negatively while caring for more than 20 hours per week impacts both employment and work hours. Associations are, however, dependent on study design and context, and empirical findings contrast each other. Negative consequences may appear already at 10 hours of caregiving per week (King and Pickard 2013). Parent care may be related to only small (Leigh 2010; Van Houtven, Coe, and Skira 2013) or no negative labor supply effects (Wolf and Soldo 1994). While some find that negative labor supply effects are larger for women than men (Ettner 1996; Schmid, Brandt, and Haberkern 2012; Van Houtven, Coe and Skira 2013; Luppi and Nazio 2019), others show that caregiving relates negatively to labor supply for both genders (Johnson and Lo Sasso 2000; Carmichael and Charles 2003). Differences in institutional context and welfare state support for eldercare imply that findings from specific contexts have limited generalizability.

Comparative research on unpaid parent care in Europe has also produced mixed results. Studies have examined the care-work tradeoff by pooling European countries (Bertogg, Nazio, and Strauss 2020; Heger and Korfhage 2020), but these findings cannot be generalized because associations are asymmetric across regions (Spiess and Scheider 2003; Viitanen 2010). Studies that cluster countries according to regions still differ in their conclusions. Some have found that the negative association between caregiving and labor supply is strongest in Southern or Eastern Europe and weakest in the North (Kotsadam 2011; Crespo and Mira 2014; Kolodziej, Reichert, and Schmitz 2018), while others (Bolin, Lindgren, and Lundborg 2008) found that the negative relationship was less pronounced in Southern Europe compared to Northern and Continental Europe, attributing this to greater acceptance of intergenerational responsibilities among employers.

Inconclusive findings may be attributed to methods used. Researchers have used instrumental variables to avoid endogeneity between caregiving and labor supply, but weak instruments (potentially attributable to individuals reacting differently to parental care needs depending on factors such as gender and formal care options) affect some results. Crespo and Mira (2014) studied women's caregiving to parents across a North-South divide. They found that poor parental health predicted time-intensive caregiving in Southern Europe only. Furthermore, studies often mix caregiving for independently living parents with coresidential caregiving, although this tends to be more intensive and impact labor supply more (Ettner 1995, 1996; Heitmueller 2007; Casado-Marín, García-Gómez, and López-Nicolás 2011).

Lastly, because men and women respond differently to parents' care needs, especially if they entail time-intensive caregiving, analyses of unpaid caregiving and labor supply must differentiate estimated effects by gender and welfare state context (though this is not always done).

### **Cross-national variation**

Policy context and welfare state arrangements can mediate the conflicts and tradeoffs related to decisions on unpaid caregiving and labor supply, not least from a gender perspective, by changing the economic incentives and costs related to care. There is a rich body of comparative work identifying and explaining variation in welfare state policies through the concept of regimes (Esping-Andersen 1990, 1999), gradually incorporating a gender dimension (Daly 2020). Though subject to debate, a welfare regime typology is a useful framework for exploring gendered relations across contexts. Regimes differ in whether the state or the family is considered responsible for welfare, including care for the elderly. Regimes also differ regarding commitment to gender equality. A familialistic approach towards care for dependents (i.e., care is viewed as a family responsibility while public



support, such as funding and provision, of care services, is low) tends to go hand in hand with gender inequality in paid and unpaid work, whereas defamilialized states alleviate individuals (notably women) of care responsibilities. There are many typologies and classifications in the literature, but most European countries cluster into four welfare state regimes, including the Nordic countries, Continental, Southern, and Eastern Europe (Daly 2020: 40-1).

In brief, the Nordic countries are the most defamilialized, having long been committed to minimize individuals' dependence on their families for support, including eldercare. They are the most committed to gender equality and were early adopters of gender-neutral policies and the dual-earner/carer model. Work-family conflicts are eased among those with care responsibilities through paid leave programs, income support, and subsidized care facilities that reduce individual hands-on care responsibilities (Bettio and Plantenga 2004; Brandt, Haberkern, and Szydlik 2009). Such policies can increase female employment but also increase men's involvement in unpaid activities.

Continental European countries are characterized by generous but non-universal benefits and services. France and Belgium are defamilialized in their organization of care, while others (Netherlands, Austria, Germany) are partially defamilialized, with some public support and an expectation that families organize care for children and the elderly themselves (Bettio and Plantenga 2004). Commitment towards male breadwinning/female caregiving results in a stricter gender division of labor with lower levels of female labor force participation and less involvement of men in unpaid work compared to the Nordics.

Southern European countries are the most familialistic in Western Europe, as the state delegates the responsibility for dependents on families via legal requirements. Policies are both restrictive and gendered and issues regarding gender equality do not rank high on the political agenda. The provision of benefits and services is basic and means-tested. Relying on

families to coordinate care incentivizes a gendered division of labor in the home and relatively low female labor force participation.

Countries in Eastern Europe are characterized by highly familialistic welfare states and limited access to formal care services for the elderly (Saraceno and Keck 2010). In the 1990s, they came out of a situation with universal provision of jobs, housing, and health and social services. Egalitarianism and gender equality had been strong, ideology-based features of society. Transitions to a market economy put the system under strain, dismantled the welfare state, and reduced many publicly provided services in favor of market alternatives (Heyns 2005). Many women, especially those with low-paying jobs, dropped out of the labor force due to lacking care arrangements and large cuts in public services and social benefits (Pollert 2003). Despite heavy caregiving responsibilities, a larger share of women is participating in the labor force compared to in Southern Europe.

### **Hypotheses**

In this study, we expected unpaid care for independently living parents to be associated with a tradeoff with paid work, particularly when care is time intensive. We expected tradeoffs to vary by welfare state regimes. Because the Nordic regime alleviates families of care responsibilities, we expected the tradeoff between caregiving and labor supply to be limited in the Nordic countries but important in Southern and Eastern Europe, where families are responsible for coordinating care. We expected Continental European countries to fall somewhere in between, as public provisions for the elderly in need of care are moderate. We expected said tradeoffs to be more salient among women than men because of differences in opportunity costs, household comparative advantages, and gendered norms around caregiving across Europe. We expected gender differences to be limited in the Nordic countries and large

in Continental and particularly Southern Europe with Eastern Europe falling between the Nordics and the rest.

## **Data**

We used data from SHARE, which covers the population aged 50+ in Europe and Israel and allows comparisons across welfare state regimes through its cross-nationally ex-ante harmonized design (see Börsch-Supan et al. 2013 for details).<sup>1</sup> We used data from waves 1, 2, and 4-8 from 18 countries between 2004 and 2020.<sup>2</sup> The countries fall into four regimes: Nordic (Sweden, Denmark), Continental (Germany, Austria, Netherlands, France, Switzerland, Belgium, Luxembourg), Southern (Spain, Italy, Greece, Portugal), and Eastern (Poland, Czech Republic, Slovenia, Estonia, Croatia).

We restricted the sample to men and women aged 50 to 64 who had not yet retired (65 being a common statutory retirement age), were not permanently sick or disabled, self-employed, or in education.<sup>3</sup> Respondents with limitations in performing (instrumental) activities of daily living were excluded, as they are themselves dependent on the help from others. We also limited the analysis to those with at least one living parent and removed persons who cared primarily for someone other than a parent. Focusing on adult caregivers providing care to parents should reduce endogeneity, as parent care is more likely to be exogenous to one's labor market situation than care for relatives or friends. We focus on care for independently living parents (potentially supported by formal in-home care) and excluded those caring for a coresident parent, which is a rare arrangement particularly in the Nordic countries. Including within-household caregivers would have confounded the results and reduced the comparability of estimates across welfare state regimes. The full sample consisted of 17,940 observations (12,965 unique individuals). The sample used in the IV analysis was reduced to 13,769 observations (10,730 individuals).

We included two labor market outcomes in our analysis. First, we considered employment status to capture labor supply at the extensive margin (dummy that equals 1 if the respondent is employed and 0 for unemployed or homemakers). Then, we considered work hours to capture labor supply at the intensive margin (dummy variable that equals 1 if the respondent works full-time and 0 if part-time), conditional on positive work hours. We distinguished between full-time and part-time using the definition of the Organization for Economic Co-operation and Development (OECD) for full-time as working at least 30 hours per week. The variable was based on usual weekly work hours regardless of contractual hours excluding breaks but including overtime.

The main explanatory variable indicates whether the respondent had provided any regular help or care outside their household during the past 12 months (dummy variable that equals 1 if any care and 0 if no care). To distinguish between caregiving intensity, we constructed a categorical variable grouping non-caregivers, low-intensity caregivers (providing care or help weekly or less often), and high-intensity caregivers (providing daily/almost daily care or help). To generate IV estimates comparable with previous studies, we also defined a binary variable distinguishing high-intensity caregiving from other states (i.e., no, or low-intensity care).

Independent variables used in the analysis include the respondent's age (50-54, 55-59, 60-64) because labor supply decreases at advanced ages while caregiving responsibilities increase. Health was captured by a measure of self-rated health, ranging from 'poor' to 'excellent'. We also explored whether the respondent suffered from any chronic physical conditions, such as cardio- or cerebrovascular conditions, diabetes, cancer, or neurological disorders as these measures may influence both the individual's labor supply and ability to provide care. We controlled for family status in terms of respondent being partnered (married or cohabiting) or having a child under 15 in the household because this may structure

women's labor supply, primarily in contexts with more traditional gender norms and divisions of labor. Educational attainment is captured by the ISCED-97 categories low (0-2), medium (3-4), and higher (5-6) under the assumption that those with higher education have higher opportunity costs of time, which should reduce their willingness to cut back paid work. Furthermore, jobs requiring higher education involve more flexibility, such as opportunities for remote working, which makes paid work and caregiving more compatible. Finally, dummies for survey year and country were used to control for general, time-variant factors and country-specific but time-invariant factors, such as the economic and policy situation.

In the IV analysis, we used information on parent health (poor health or not), whether one of the parents was deceased, or parent lived within 25 kilometers of the respondent because parental poor health and solo independent living increase the need for help and care while the opportunity cost of help and caregiving increases with distance. We also used information on the number of respondent's siblings (alive) as they can share caregiving duties.

For sensitivity analysis, we controlled for equivalized gross household income to test for the possibility that tradeoffs were related to economic resources. Income can be used to purchase goods and services, i.e., market-based care, which reduces caregiving demands. Income is indeed endogenous to decisions regarding labor supply and caregiving but if the association between caregiving and labor supply is absorbed by income, this indicates that the tradeoff between caregiving and paid work is explained by access to economic resources.

Weighted means of all variables used in the analysis are presented by gender and caregiver status in Appendix (Tables A1-2). Low-intensity caregivers are on average more educated than non-caregivers (except in the Nordic countries), suggesting positive selection. In contrast, and consistent with theoretical expectations, women providing high-

intensity caregiving in Southern Europe have lower educational attainment. They, as well as women providing high-intensity caregiving in Continental Europe, are also more likely to have a chronic health condition.

### **Empirical strategy**

To understand how unpaid caregiving to independently living parents relates to labor supply among mature working-age men and women across Europe, we estimated associations between caregiving intensity and employment or full-time work. First, we used OLS regressions (linear probability models, as outcomes are binary) stratified by gender and welfare state regime adjusting for respondent's age, health, education, family status, survey year, and country.

$$Labor\ Supply_i = \alpha_0 + \beta_1 Caregiving_i + \beta_2 Age_i + \beta_3 Health_i + \beta_4 Education_i + \beta_5 Partnership_i + \beta_6 Child_i + \beta_7 Year_t + \beta_8 Country_i + \varepsilon_i \quad (1)$$

Then, to evaluate if the associations differed by gender, we estimated models including interactions between caregiving intensity and gender.

$$Labor\ Supply_i = \alpha_0 + \beta_1 Caregiving_i + \beta_2 Gender_i + \beta_3 Caregiving_i * Gender_i + \beta_4 Age_i + \beta_5 Health_i + \beta_6 Education_i + \beta_7 Partnership_i + \beta_8 Child_i + \beta_9 Year_t + \beta_{10} Country_i + \varepsilon_i \quad (2)$$

The IV method has been used to remove bias from reverse causality (i.e., that change in paid work induces a change in caregiving) or from unobservable factors, such as underlying preferences regarding work and family, that jointly determine individual labor supply and caregiving. In Two-Stage Least Squares (2SLS) regression, the first step is to regress the endogenous explanatory variable on a set of instruments. This creates fitted values of the

regressor ‘purged’ of simultaneity bias. In the second stage, the outcome variable is regressed on the fitted values obtained from the first step, which produces consistent and unbiased estimates of the causal effect of interest.<sup>4</sup> We tested this approach in line with previous research (e.g., Bolin, Lindgren, and Lundborg 2008; Van Houtven, Coe, and Skira 2013; Crespo and Mira 2014; Kolodziej, Reichert, and Schmitz 2018; Heger and Korfhage 2020).

## **Results**

Descriptive results (Table 1) show that unpaid caregiving to independently living parents among men and women aged 50-64 is more common where the state has the primary responsibility for securing individuals’ welfare, and actually less common where the state provides less formal support to those who need care. The largest share providing any care is found in the Nordic countries, followed by Continental Europe, Eastern and Southern European countries. Most caregiving, and nearly all of it in the Nordic countries, is of low intensity. The share providing high-intensity care is highest in Eastern and Southern Europe, which reflects that a higher care load falls on family members in these contexts.

Women are more likely to provide unpaid care irrespective of context. Among those who provide care, women are more likely to be high-intensity caregivers than men in Continental and Southern Europe, consistent with the welfare state regime framework, which predicts a gendered division of labor in these countries. When caregivers, women and men are equally likely to provide high-intensity care in Eastern Europe, reflecting a stronger labor market position for women here compared to in Southern and Continental Europe. In the Nordics, men are slightly more likely to provide high-intensity care, though this may be due to small numbers of such caregivers.

TABLE 1

When it comes to employment and full-time work, we note differences across gender and welfare state regimes (Table 2). Most men in mid-life are employed, though there are level differences across Europe with higher levels of employment in the Nordic and Continental countries than in Eastern and Southern Europe. Full-time work is nevertheless the norm among employed men across Europe. Men are more likely to be employed and to work full time than women. Gender differences in employment and full-time work are smaller in the Nordic and Eastern European countries than in Continental and Southern Europe. Caregiving responsibility structures women's lives and paid work more than men's, especially in Continental and Southern Europe, and when it comes to full-time work.

For women, there is a general (negative) association between unpaid caregiving to independently living parents and labor supply with high-intensity caregiving being associated with lower employment and full-time work. For men, there are no general patterns, and the way that caregiving intensity is associated with labor supply is less clear, which calls for a closer examination of these correlations.

## TABLE 2

Results from OLS models that net out confounders which may work differently for men and women across Europe show limited negative associations between unpaid caregiving and labor supply (Table 3). For men in the Nordic countries, low-intensity caregiving is associated with reduced employment compared to no caregiving ( $\beta=-0.03$ ,  $p<0.05$ ) while high-intensity caregiving is associated with increased employment ( $\beta=0.04$ ,  $p<0.01$ ). Thus, the pattern established from bivariate associations in Table 2 is confirmed even when controlling for individual and household factors. There is a negative association between high-intensity caregiving and employment for men in Continental and Southern Europe, though only significant in the former ( $\beta=-0.08$ ,  $p<0.05$ ). Otherwise, coefficients for



men are insignificant in both a statistical and economic sense. For women, the only significant associations are those between high-intensity caregiving and labor supply in Continental Europe (employment:  $\beta=-0.08$ ,  $p<0.01$  and full-time work:  $\beta=-0.11$ ,  $p<0.01$ ). The estimates for Continental Europe are robust to adding household income controls (Table A3), which suggests that the association is not driven by unequal access to economic resources. Results without country-fixed effects are like the main results (Table A4), and the latter are thus not driven by between-country variation.

### TABLE 3

Because we believe that relationships between unpaid caregiving and labor supply may look different according to gender in different contexts, we estimated models in which we controlled for confounders and interacted caregiving intensity (low or high) with gender. By doing so, we investigated conditional effects that may be important from a gender perspective. The coefficients in Table 4 show the impact of one variable when the other variable being part of the interaction is zero. The base effect of caregiving intensity indicates the association for men (reference category for gender). The coefficient for ‘woman’ shows the difference in labor supply between women and men who do not provide unpaid care. The interaction shows the additional caregiving effect, if any, for women. To get the net effect of caregiving for women, the base and the interaction effects must be added.

Estimates shown in Table 4 confirm that the associations between caregiving and employment for men are concentrated to the Nordic and Continental contexts. Overall, negative associations between unpaid caregiving and labor supply are limited for men. The interaction effects indicate the extent to which the associations between unpaid caregiving and labor supply outcomes differ between men and women. Few of the interactions are statistically significant, which means that caregiving intensity affects men and women

similarly. Exceptions are low-intensity caregiving and employment in the Nordic and Continental European countries where the associations for women are positive and net out the negative impacts for men. Net effects indicate that women who provide low-intensity caregiving to independently living parents are somewhat more likely to be employed than women who do not provide care (Nordic:  $\beta=-0.03+0.04$  and Continental:  $\beta=-0.01+0.03$ ). Other net effects confirm the associations between caregiving and labor supply for women from Table 3, such as the significant association between high-intensity caregiving and employment in Continental Europe ( $\beta=-0.10+0.02$ ), but most coefficients and net effects are unimportant in a statistical or economic sense.

#### TABLE 4

Does this mean that gender is unimportant for the association between caregiving intensity and labor supply? The answer is no. Though unpaid caregiving of varying intensity is associated similarly with both men's and women's labor supply, there are important underlying patterns at play. There are important baseline differences in both employment and full-time work between men and women who are non-caregivers across Europe. These differences have built up during the life course and are likely associated with tradeoffs related to unpaid work (Pailhé, Solaz, and Stanfors 2021) including caregiving responsibilities for children rather than for parents. Gender differences in these respects are smaller in Nordic and Eastern Europe than in Continental and Southern Europe.

If we are interested in how the labor supply of women who provide care to parents compares to that of men who are caregivers, we need to add the coefficients for 'Woman' and the interaction term and multiply with 1. Results from this exercise clearly show that unpaid caregiving to independently living parents is associated with men's and women's labor supply in different ways across Europe and adds to gender differences in

employment and full-time work. We illustrate this in Figure 1 by showing predictive margins of caregiving intensity interacted with gender on employment and full-time work by country cluster (obtained through postestimation of the same model as in Table 4). The graphs visualize (i) baseline gender differences in labor supply across Europe that are much larger in Continental and Southern Europe than in Nordic and Eastern Europe; (ii) tradeoffs between unpaid caregiving and paid work differing across Europe being more limited and similar for men and women in Nordic and Eastern Europe compared to Continental and Southern Europe where there are important gender differences in employment and full-time work.

### FIGURE 1

Because the OLS estimates are potentially subject to endogeneity, which means they may overestimate the impact of caregiving on labor supply, we resort to the same IV approach as others before us (see above). The first step in estimating a more causal caregiver effect is then to determine whether family variables (i.e., parent health, distance to parent, other parent alive or not, siblings) predict high-intensity caregiving. Results from first stage regressions by gender and country cluster are presented in Appendix (Table A5). Coefficients have the expected signs, which suggests they are capturing care needs, but F-statistics are well below the rule-of-thumb value of 10. The first stage between the proposed, and often-used, instruments and high-intensity caregiving is therefore too weak for performing credible 2SLS regressions.

In addition to testing the first stage, we estimated OLS models with the family variables as controls. Conceptually, this is like estimating the reduced-form equation, whereby caregiving itself is not included but proposed instruments are. If a causal effect from caregiving exists and can be estimated using the IV method, the instruments should influence labor supply in the reduced form regression. If not, there either is no causal effect, which

implies that the negative association can be attributed to endogeneity or unobserved factors, or the instruments fail to capture the effect. The family variables explain close to nothing of the negative associations between high-intensity caregiving and labor supply (Table A6). Thus, the lower labor supply among caregivers should either be attributed to factors other than caregiving or better instruments are required to capture a causal caregiving effect.

Finally, we tested the robustness of our results further (available per request). For example, we tried alternative instruments, but none were stronger at the first stage. We also analyzed different samples (i.e., including the retired like some have done before) but the results were stable. Removing country-fixed effects did not change the estimates. None of the robustness checks altered the conclusions drawn in any meaningful way.

### **Concluding discussion**

Our study revisits the tradeoff between unpaid caregiving and labor supply among mature working-age men and women from a country-comparative perspective, evaluating the evidence of a negative (causal) effect in different contexts. We focused on caregiving to elderly parents who live in a different household than the caregiver, a common arrangement across Europe, and examined the care-work tradeoff by care intensity. In contrast to our expectations, we found no evidence of that caregivers cut back paid work in response to their duties even when caregiving is time-intensive (daily or almost daily). We also examined how providing care weekly or less often relates to labor supply and found that the two are compatible for men and women across Europe.

Our expectation was that tradeoffs would be stronger in Southern and Eastern Europe compared to Continental and, particularly the Nordic countries, which are characterized by more extensive public provisions for the elderly. We found a negative association between unpaid caregiving and labor supply in Continental Europe only. High-

intensity caregiving was associated with an 8 percent reduction in the likelihood of employment among men and women, and an 11 percent reduction in the likelihood of full-time work among women – important differences given that the data represent the population. This indicates that those with daily care duties reduce their labor supply to accommodate eldercare. However, commonly used instruments aiming to capture exogenous variation in caregiving explained a negligible part of the labor supply difference between high-intensity caregivers and others in OLS regressions. This suggests that most of the difference in labor supply can be attributed to factors other than caregiving, or that the proposed instruments fail to capture exogenous variation in caregiving. Our interpretation is that while high-intensity caregivers in Continental Europe tend to have a lower labor supply, caregiving to elderly parents is not the underlying cause.

Our findings are in line with research suggesting that negative labor supply effects from caregiving are small in Anglo-Saxon contexts (Wolf and Soldo 1994; Leigh 2010; Van Houtven, Coe, and Skira 2013). The results are also in line with what Bertogg, Nazio and Strauss (2020) found, using individual fixed effects on European data.<sup>5</sup> Furthermore, data from the European Union Labor Force Survey (Eurostat 2019) show that 4.2 percent of respondents had interrupted work or reduced working time throughout their employment history to care for ill, elderly, or disabled relatives. That most do not cut back paid work means that they tend to add eldercare to their schedules rather than substitute paid work. Although caregiving may not pose a direct threat to labor supply, this can create other challenges such as increased coordination and time management problems and reduced leisure and time for recovery among carers.

We expected care-work tradeoffs to be stronger for women than for men, but the evidence contradicted this. In Continental Europe, the negative association between high-intensity caregiving and employment applies to both men and women. Instead of showing

direct labor supply effects, especially for women, in contexts with limited support for elderly in need of care, results suggest that gender differences in labor supply are established at earlier life course stages. This is evident from the baseline gender differences, particularly large in Continental and Southern Europe compared to more limited differences in Nordics and Eastern Europe. Nevertheless, we found important cross-national variation in how common, how intensive, and how gendered caregiving is. Our descriptive findings showed that caregiving is more intensive in Southern and Eastern Europe where support for care is less generous. In addition, gender differences in caregiving were stronger in Southern and Continental Europe, in line with a stricter gender division of labor. This means that welfare state context matters for the care-work tradeoff in a manner that is consistent with expectations derived from welfare state literature, even though caregiving may not lead to direct substitution among those aged 50 to 64. These results are important for policymakers to consider.

Future research could examine how decisions about paid work and caregiving for older people are made in different life stages. Mature employees may be highly attached to the labor market, with those prone to dropping out or reducing work hours doing so already before reaching age 50. Studies on European data that include younger caregivers (Kotsadam 2011; Kolodziej, Reichert, and Schmitz 2018) have found evidence consistent with the hypothesis that the care-work tradeoff is more salient in welfare state regimes where support for the elderly in need of care is low. If mature workers are positively selected and particularly attached to the labor market, focusing on a broader age range may prove fruitful for country-comparative research that attempts to identify the impact of care policies on caregiver labor supply.

It may be the case that our estimates capture caregiving that is of too low intensity to have economically important effects (we chose to exclude coresidential caregivers

from the analysis, although results remain robust even when including them). A limitation is that we did not account for caregiving tasks, which matters for care-work conflict because some tasks are more time-bound than others (Van Houtven, Coe, and Skira 2013). Of relevance for the IV approach is that instruments for care need may fail due to ignoring care tasks (Heitmueller 2007; Hassink and Van den Berg 2011). Future studies should strive towards using measures that capture the nuances of the caregiving situation, such as tasks and the location of caregiving, in as much detail as possible.

The absence of labor supply effects suggests that mature caregivers tend to juggle the demands of paid work and unpaid caregiving. An increasingly important strategy allowing this especially in Southern and to some extent Continental Europe is the use of market-based care services (Da Roit and Weicht 2013). In Spain, rising women's labor force participation has been accompanied by both an increase in externalizing care via the market and by seeking help within the family (Carrasco and Domínguez 2011). In turn, Lyberaki (2011) argues that in Greece, an influx of migrant women has introduced a new component in the family-state-market nexus of welfare provision and that the model whereby eldercare is provided exclusively by the family has been replaced by a "migrant-in-the-family" model. Future country-comparative research should therefore evaluate the impact of migrants on women's labor supply in countries where such arrangements have become common.

To conclude, this study contributes to the country-comparative literature on the tradeoff between paid work and unpaid caregiving in Europe in the context of longer working lives and increasing emphasis on in-home care for the elderly. We focused on mature working-age men and women (50–64) who were potential caregivers to independently living parents, as this group is highly policy relevant from the perspective of extending working lives but may have to cut back paid work in response to caregiving. We adopted the starting point that national policies around eldercare and support to caregivers either alleviate or

consolidate the tradeoff between caring and working especially for women. Therefore, our analysis examined caregiver outcomes among men and women across 18 countries grouped into four welfare state regimes.

The policy-relevant question in empirical research on the tradeoff between paid work and unpaid caregiving is whether caregivers' labor supply is lower than that of non-caregivers because of having had weaker labor market ties in the first place, or because they have reduced paid work in response to the demands of caregiving. Overall, the body of existing literature suggests that caregivers experience negative labor market outcomes due to their care responsibilities, although most studies use data from outside Europe – Anglo-Saxon countries, in particular – and often focus on caregivers whose duties are very intensive (e.g., caring for a person within the household). A few studies have employed an IV approach to isolate a causal effect of caregiving on labor supply using data on Europe, but estimates tend to be imprecise and instruments weak especially when data are stratified by region and/or gender. This has meant that the understanding of the extent to which caregiving causally impacts labor supply across European regions has remained unclear.

Counter to theoretical expectations, we found that, in most cases, caregivers' labor supply was like that of non-caregivers. We did not find evidence of the care-work tradeoff being more salient in welfare state regimes where the objective care load of families tends to be higher compared to regimes where the state takes greater responsibility for eldercare. This implies that among mature workers (aged 50 to 64) who care for a parent living in a different household, decisions regarding labor supply are determined mostly by factors other than caregiving, such as the level of labor market attachment before taking on care duties or financial considerations.

An implication from the findings is that gender differences in labor supply are established before midlife and build up across the life course. The expectation in much of



previous research has been that mature caregivers must be causally impacted by an exogenous shock of having to take on parent care, and that these direct impacts hinder women from full labor market participation, particularly in welfare state contexts where the careload of families is high. Yet, our findings demonstrate that, across Europe, baseline gender differences among those aged 50- 64 are much more important than marginal differences between caregivers and non-caregivers. In other words, gender differences are established earlier, and the care-work tradeoff is embedded in the design of welfare states. Consequently, in order to increase the labor supply of those over 50 in the long term, requires that policymakers address what contributes to gender differences earlier in the life course (primarily related to childbearing and related family responsibilities that consolidate a traditional gender division of labor in many contexts). Nevertheless, public provisions for adequate access to eldercare for all is also required to match the care needs of the elderly and free up time for their adult children who provide unpaid care.

Another implication is that mature workers in Europe add care duties for independently living parents to their daily schedules. Tasks can consist of hands-on care but also care management, such as coordinating the efforts of different service providers. Although they can often be fitted around work time, adding these additional activities to an already full schedule is not unproblematic. If caregivers do not cut back on paid work, they may be cutting back on leisure (Stanfors, Jacobs, and Neilson 2019) and other obligations to ensure that care needs are met. The notion that caregiving crowds out leisure rather than paid work has not been the focus of the caregiving literature but deserves considerably more attention. Most importantly, reducing leisure to accommodate caregiving may have important implications for health and well-being through stress, overload, and changes in health behaviors. These indirect implications are relevant for longer working lives. Sustaining a productive workforce is of key importance as European nations keep aging, and enabling a

successful combination of paid work and caregiving has to be a central consideration in policymaking.

## Notes

<sup>1</sup> DOIs: [10.6103/SHARE.w1.800](https://doi.org/10.6103/SHARE.w1.800), [10.6103/SHARE.w2.800](https://doi.org/10.6103/SHARE.w2.800), [10.6103/SHARE.w4.800](https://doi.org/10.6103/SHARE.w4.800), [10.6103/SHARE.w5.800](https://doi.org/10.6103/SHARE.w5.800), [10.6103/SHARE.w6.800](https://doi.org/10.6103/SHARE.w6.800), [10.6103/SHARE.w7.800](https://doi.org/10.6103/SHARE.w7.800), [10.6103/SHARE.w8.800](https://doi.org/10.6103/SHARE.w8.800). The SHARE data collection has been funded by the European Commission, DG RTD through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782, SHARE-COVID19: GA N°101015924) and by DG Employment, Social Affairs & Inclusion through VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332, and VS 2020/0313. Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01\_AG09740-13S2, P01\_AG005842, P01\_AG08291, P30\_AG12815, R21\_AG025169, Y1-AG-4553-01, IAG\_BSR06-11, OGHA\_04-064, HHSN271201300071C, RAG052527A) and from various national funding sources is gratefully acknowledged (see [www.share-project.org](http://www.share-project.org)).

<sup>2</sup> We exclude observations for reasons of comparability. We do not use wave 3, which does not include relevant variables or observations collected after the start of the COVID-19 pandemic in 2020.

<sup>3</sup> While some studies include the retired, we consider this a confounder because the tradeoffs in focus of this study are different from the retirement decision which is primarily determined by eligibility.

<sup>4</sup> The validity of the 2SLS estimate hinges on four assumptions: a strong first stage, independence, exclusion restriction, and monotonicity. We tested the strength of the first stage by running an OLS regression with high-intensity caregiving as the outcome and the family variables as independent variables and assessed the results using the rule that the value for the F-statistic should exceed 10.

<sup>5</sup> Adding individual-fixed effects to our OLS model (results available per request) does not alter our main results.

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Table 1. Weighted proportions (%) of men and women (50-64 years) providing unpaid care to independently living parent(s) in Europe 2004-2020, by country cluster, gender, and caregiving intensity. Significant gender differences indicated with stars.

	Nordic		Continental		South		East	
	Men	Women	Men	Women	Men	Women	Men	Women
Share providing any care	53	64***	35	44***	18	32***	21	33***
of which								
Low-intensity	93	97*	92	85***	82	62***	80	77
High-intensity	7	3*	8	15***	18	38***	20	23
N	1,135	1,642	3,429	5,053	1,530	2,491	1,044	1,616

Notes: Country clusters are represented by the following countries: Sweden, Denmark (Nordic); Germany, Austria, Netherlands, France, Switzerland, Belgium, Luxembourg (Continental); Spain, Italy, Portugal, Greece (South); Poland, Czech Republic, Slovenia, Estonia, and Croatia (East). Weighted using calibrated individual cross-sectional weights.

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

Source: Survey of Health, Ageing and Retirement in Europe (SHARE) (<http://www.share-project.org/home0.html>), waves 1-2 and 4-8 (excluding observations collected after the start of the COVID-19 pandemic).

Table 2. Weighted proportions (%) of men and women (50-64 years) according to employment and full-time work in Europe 2004-2020, by gender, country cluster, and caregiving intensity. Significant gender differences indicated with stars.

Employment					
	No care	Any care	Low-intensity caregiving	High-intensity caregiving	N
Men					
Nordic	99	95	94	100	1,135
Continental	90	90	90	83	3,429
South	81	86	90	71	1,530
East	84	93	95	85	1,044
Women					
Nordic	92***	95	95	86**	1,642
Continental	76***	79***	82***	65**	5,053
South	49***	53***	55***	49	2,491
East	67***	84**	90	65	1,616
Full-time work					
	No care	Any care	Low-intensity caregiving	High-intensity caregiving	N
Men					
Nordic	97	96	97	91	1,087
Continental	96	94	94	89	3,131
South	91	91	90	95	1,306
East	97	99	98	100	911
Women					
Nordic	85***	88***	88***	78	1,547
Continental	67***	65***	66***	54***	3,731
South	75***	66***	73***	52***	1,146
East	92*	87**	85*	92	1,337

Notes: Full-time work defined as working at least 30 hours per week. Weighted using calibrated individual cross-sectional weights.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.

Table 3. OLS estimates of unpaid caregiving to independently living parents and labor supply in Europe 2004-2020 by gender and country cluster.

	Employment				Full-time work			
Men	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	-0.027** (0.012)	0.007 (0.010)	0.032 (0.024)	0.007 (0.026)	0.013 (0.012)	-0.003 (0.011)	0.008 (0.026)	0.003 (0.013)
High-intensity caregiving	0.038*** (0.014)	-0.081** (0.040)	-0.078 (0.055)	-0.006 (0.047)	0.002 (0.047)	-0.033 (0.032)	0.024 (0.047)	0.005 (0.036)
Constant	1.02	0.92	0.98	0.76	0.97	0.99	0.91	0.98
R <sup>2</sup>	0.08	0.07	0.10	0.11	0.03	0.03	0.10	0.04
N	1,135	3,429	1,530	1,044	1,087	3,131	1,306	911
Women								
No care (ref.)								
Low-intensity caregiving	0.003 (0.012)	0.008 (0.014)	0.028 (0.026)	0.011 (0.019)	0.019 (0.020)	-0.028 (0.018)	-0.017 (0.033)	0.015 (0.013)
High-intensity caregiving	-0.032 (0.048)	-0.076*** (0.028)	-0.031 (0.035)	-0.007 (0.034)	-0.083 (0.082)	-0.109*** (0.036)	-0.040 (0.053)	0.007 (0.023)
Constant	0.92	0.75	0.64	0.65	0.75	0.65	0.85	0.87
R <sup>2</sup>	0.04	0.15	0.21	0.23	0.07	0.10	0.08	0.03
N	1,642	5,053	2,491	1,616	1,547	3,731	1,146	1,337

Notes: Models control for respondent's age, self-rated health, chronic health condition, education, family status (partnered and child under 15 in household), survey year and country. Standard errors clustered at individual level in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.

Table 4. OLS estimates of gender differences (interactions) in unpaid caregiving to independently living parents and labor supply in Europe 2004-2020 by country cluster.

	Employment				Full-time work			
	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	-0.034*** (0.012)	-0.014 (0.011)	-0.000 (0.026)	-0.018 (0.026)	0.008 (0.013)	-0.018 (0.011)	0.003 (0.026)	-0.002 (0.013)
High-intensity caregiving	0.036*** (0.012)	-0.104*** (0.040)	-0.098 (0.061)	-0.034 (0.046)	0.009 (0.045)	-0.045 (0.034)	0.022 (0.045)	-0.006 (0.036)
Man (ref.)								
Woman	-0.042*** (0.012)	-0.182*** (0.012)	-0.375*** (0.017)	-0.070*** (0.018)	-0.122*** (0.019)	-0.335*** (0.014)	-0.138*** (0.019)	-0.035*** (0.012)
No care*Man (ref.)								
Low-intensity caregiving *Woman	0.044** (0.017)	0.029* (0.017)	0.047 (0.036)	0.047 (0.032)	0.015 (0.023)	-0.004 (0.021)	-0.018 (0.041)	0.018 (0.018)
High-intensity caregiving *Woman	-0.066 (0.050)	0.019 (0.048)	0.066 (0.070)	0.037 (0.058)	-0.097 (0.091)	-0.070 (0.049)	-0.067 (0.068)	0.018 (0.042)
Constant	0.99	0.93	1.01	0.74	0.91	0.98	0.94	0.94
R <sup>2</sup>	0.04	0.14	0.27	0.17	0.07	0.19	0.10	0.02
N	2,777	8,482	4,021	2,660	2,634	6,862	2,452	2,248

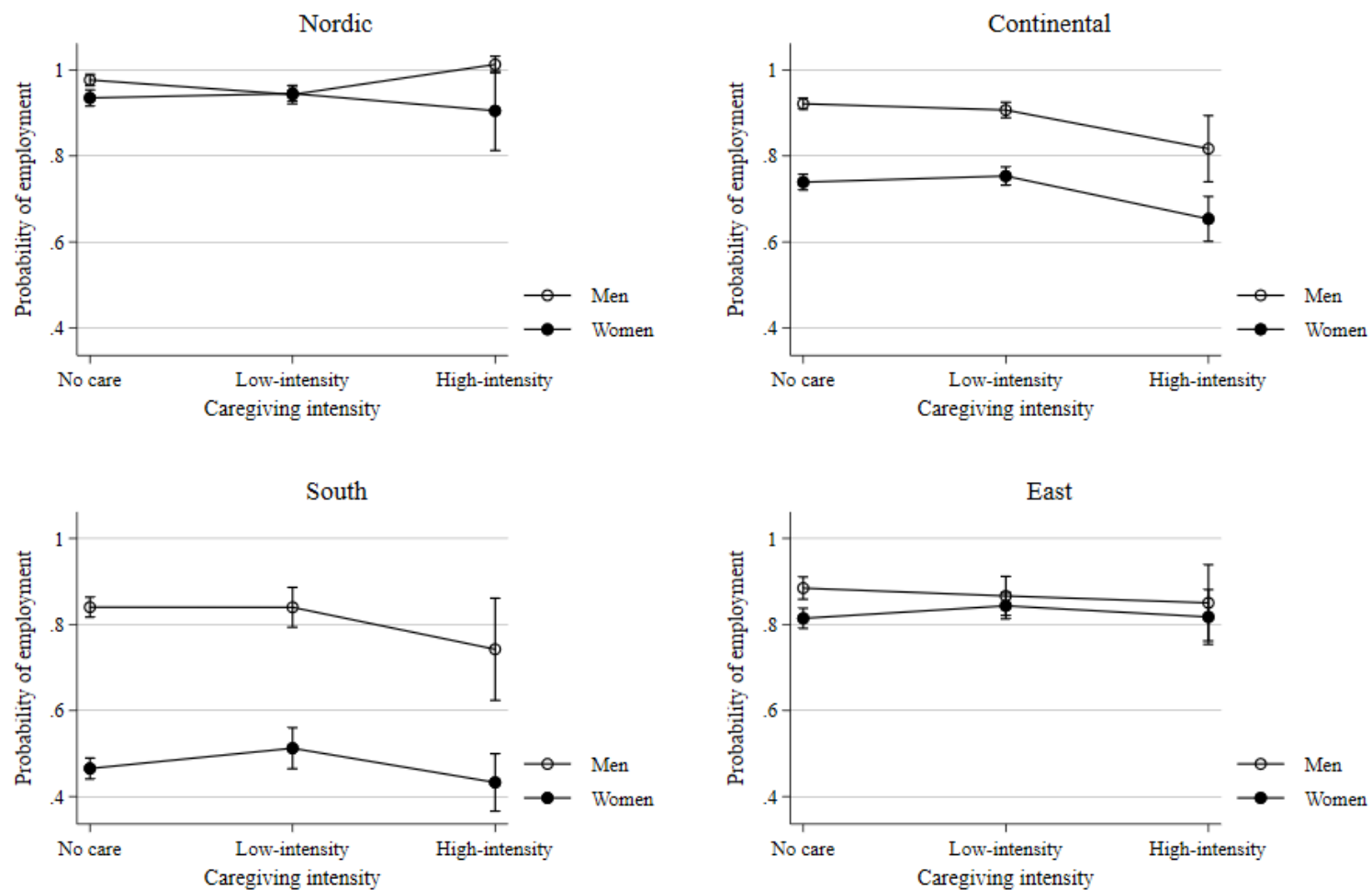
Notes: See Table 3.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

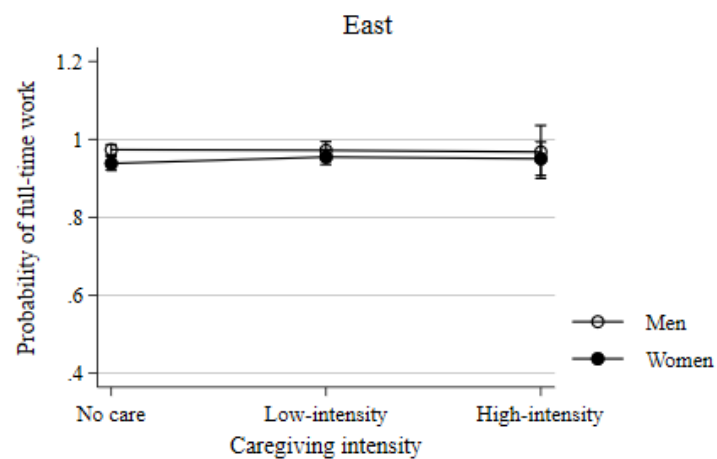
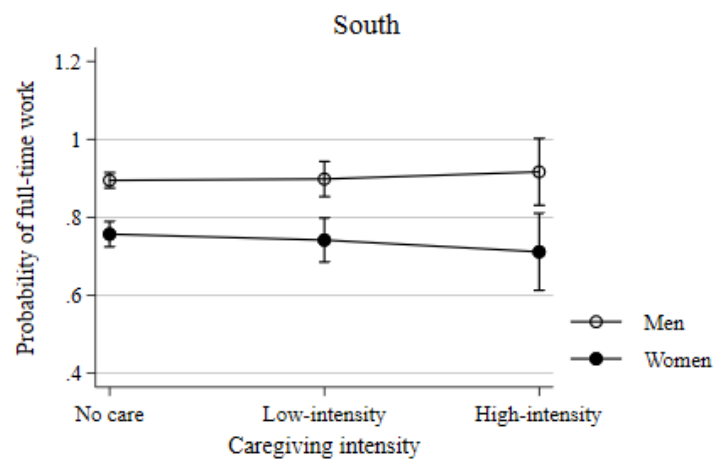
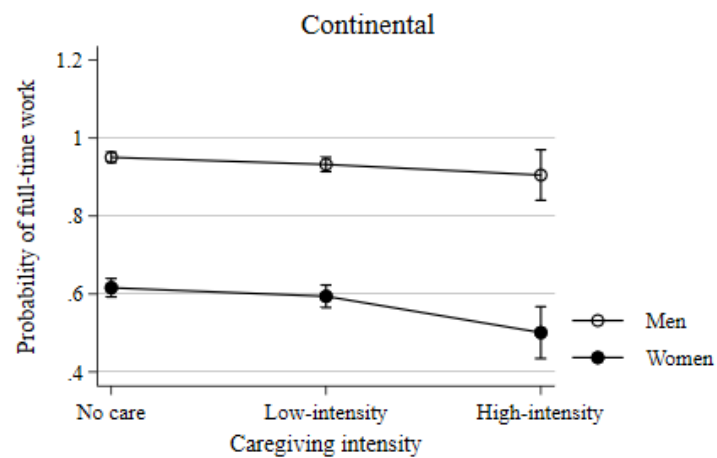
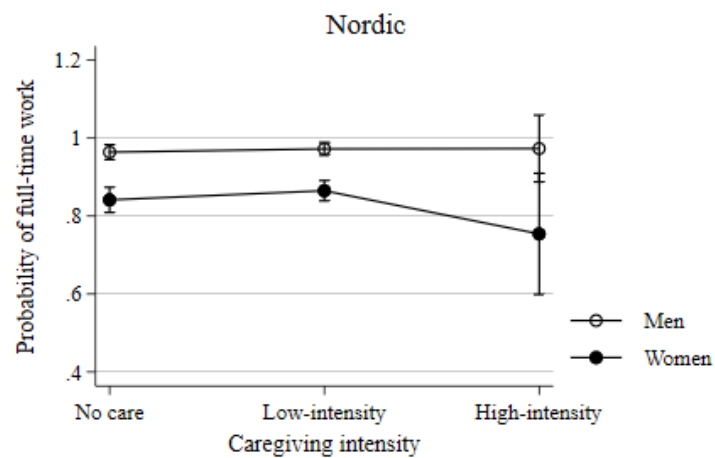
Source: see Table 1.

Figure 1. Predictive margins of caregiving intensity interacted with gender on (A) employment and (B) full-time work by country cluster (95% confidence intervals).

A) Employment



B) Full-time work



Notes: See Table 3.

Source: see Table 1.

## APPENDIX

Table A1. Sample characteristics: Weighted means and proportions (%) for respondents by country cluster, gender, and caregiving intensity among men.

Men	Non-caregivers				Low-intensity caregivers				High-intensity caregivers			
	Nordic	Continental	South	East	Nordic	Continental	South	East	Nordic	Continental	South	East
Age												
50-54	40	49	45	43	29	45	45	51	31	47	65	40
55-59	42	41	44	43	52	43	49	37	59	46	20	23
60-64	18	10	12	13	19	12	6	12	10	6	15	38
Self-rated health												
Poor	1	2	2	5	0	2	3	4	0	5	0	3
Fair	7	15	12	14	5	10	15	7	3	21	21	17
Good	21	46	45	47	29	42	49	55	35	53	43	30
Very good	39	26	30	29	28	33	22	24	20	11	15	26
Excellent	32	12	11	5	38	13	11	9	42	11	21	23
Physical health												
No health condition	48	46	51	45	53	44	37	37	72	37	47	46
One (+) health condition <sup>a</sup>	52	54	49	55	47	56	63	63	28	63	53	54
Education												
Low	44	16	51	14	14	7	35	10	15	7	42	12
Medium	39	50	33	71	48	48	41	56	44	77	43	65
Higher	18	33	16	16	38	44	24	33	42	17	14	23
Household characteristics												
No partner	5	5	4	6	21	23	16	17	25	17	26	10
Partnered	95	95	96	94	79	77	84	83	75	83	74	90
No child under 15	87	87	87	92	85	91	85	94	84	85	82	99
Child under15	13	13	13	8	15	9	15	6	16	15	18	1
Household income												
Quintile 1	15	15	25	14	11	10	11	11	36	15	26	7
Quintile 2	18	17	18	14	17	12	13	7	4	12	28	3



Quintile 3	22	20	14	19	22	23	11	20	14	28	12	12
Quintile 4	22	23	19	18	24	22	33	25	37	22	12	46
Quintile 5	24	25	24	35	27	32	33	37	9	22	22	33
Family characteristics												
Parent not in poor health	79	79	85	75	68	75	72	69	43	76	46	82
Parent in poor health	21	21	15	25	32	25	28	31	57	34	54	18
Parent more than 25km away	50	45	25	26	34	32	30	12	3	8	7	1
Parent lives within 25km	50	55	75	74	66	68	70	88	97	92	93	99
Both parents alive	30	36	29	20	26	23	40	49	18	19	44	2
One parent deceased	70	64	71	80	74	77	60	51	82	81	56	98
No. of siblings	2.37	2.89	2.75	2.25	1.96	2.40	2.05	1.66	2.31	1.94	2.37	1.30
Survey year												
2004	23	16	19	0	23	20	16	0	18	15	16	0
2005	0	6	1	0	0	3	0	0	0	4	0	0
2006	5	8	1	5	5	6	0	5	7	10	0	0
2007	13	13	15	25	12	10	23	22	12	15	11	22
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	17	12	12	6	14	11	11	13	1	5	20	8
2012	0	0	0	8	0	1	0	9	0	0	0	0
2013	16	18	15	5	14	16	15	10	9	21	32	6
2015	23	22	31	46	18	27	31	32	22	31	17	64
2017	1	0	1	1	1	1	1	0	0	0	4	0
2019	1	2	0	4	9	3	1	0	31	0	0	0
2020	2	2	6	1	5	2	1	8	0	0	0	0
Country												
Sweden	68	.	.	.	68	.	.	.	91	.	.	.
Denmark	32	.	.	.	32	.	.	.	9	.	.	.
Germany	.	39	.	.	.	46	.	.	.	47	.	.
Austria	.	3	.	.	.	2	.	.	.	6	.	.
Netherlands	.	6	.	.	.	8	.	.	.	2	.	.
France	.	41	.	.	.	31	.	.	.	35	.	.

Switzerland	.	6	.	.	.	5	.	.	.	2	.	.
Belgium	.	5	.	.	.	7	.	.	.	7	.	.
Luxembourg	.	0	.	.	.	0	.	.	.	0	.	.
Spain	.	.	43	.	.	.	38	.	.	.	19	.
Italy	.	.	46	.	.	.	47	.	.	.	74	.
Portugal	.	.	5	.	.	.	6	.	.	.	1	.
Greece	.	.	6	.	.	.	9	.	.	.	6	.
Poland	.	.	.	61	.	.	.	39	.	.	.	37
Czech Republic	.	.	.	28	.	.	.	47	.	.	.	52
Slovenia	.	.	.	6	.	.	.	6	.	.	.	5
Estonia	.	.	.	2	.	.	.	3	.	.	.	5
Croatia	.	.	.	3	.	.	.	5	.	.	.	1
N	573	2,270	1,274	758	538	1,061	206	221	24	98	50	65

Notes: Weighted using calibrated individual cross-sectional weights.

<sup>a</sup> Defined as a health condition that the respondent had ever been diagnosed with (waves 1 and 5) or was currently suffering from (waves 2, 4 and 6-8), such as a heart attack or other cardiovascular condition, stroke or cerebral vascular disease, diabetes, chronic lung disease, cancer or malignant tumor, ulcers, Parkinson's or Alzheimer's disease, cataracts, arthritis, or hip fracture.

Source: See Table 1.

Table A2. Sample characteristics: Weighted means and proportions (%) for respondents by country cluster, gender, and caregiving intensity among women.

Women	Non-caregivers				Low-intensity caregivers				High-intensity caregivers			
	Nordic	Continental	South	East	Nordic	Continental	South	East	Nordic	Continental	South	East
Age												
50-54	43	49	50	48	35	43	51	53	32	35	34	35
55-59	40	39	37	47	46	43	35	40	48	41	54	53
60-64	17	12	13	5	19	14	14	7	20	24	12	11
Self-rated health												
Poor	0	2	3	7	1	1	3	1	0	2	3	7
Fair	9	13	19	20	8	13	15	15	9	17	15	15
Good	27	48	42	50	26	38	44	46	14	41	51	55
Very good	33	27	23	20	36	34	29	33	37	25	22	20
Excellent	31	10	12	3	29	14	10	5	39	14	9	2
Physical health												
No health condition	47	43	46	39	43	43	38	37	53	36	27	43
One (+) health condition <sup>a</sup>	53	57	54	61	57	57	62	63	47	64	73	57
Education												
Low	17	21	59	18	13	12	44	6	20	16	76	19
Medium	28	52	25	66	30	50	36	61	37	61	19	56
Higher	55	27	16	16	57	38	21	33	43	23	5	25
Household characteristics												
No partner	10	14	15	21	33	32	26	40	36	31	19	42
Partnered	90	86	85	79	67	68	74	60	74	79	81	58
No child under 15	95	95	96	98	97	96	97	100	97	98	99	100
Child under 15	5	5	4	2	3	4	3	0	3	2	1	0
Household income												
Quintile 1	18	20	19	26	20	12	16	14	21	19	28	39
Quintile 2	16	18	22	18	23	17	18	16	18	19	20	21
Quintile 3	21	20	18	18	18	21	22	16	24	19	19	6
Quintile 4	22	22	19	17	20	23	22	21	19	20	20	12

Quintile 5	24	20	22	21	20	27	23	34	18	24	13	22
Family characteristics												
Parent not in poor health	79	80	79	78	70	73	76	69	35	48	39	39
Parent in poor health	21	20	21	22	30	27	24	31	65	52	61	61
Parent more than 25km away	56	49	27	35	40	35	12	35	16	6	4	9
Parent lives within 25km	44	51	73	65	60	65	88	65	84	94	96	91
Both parents alive	36	33	33	23	24	31	38	28	26	23	21	10
One parent deceased	64	67	67	77	76	69	62	72	74	77	79	90
No. of siblings	2.28	2.78	2.88	2.43	2.07	2.50	2.44	2.00	2.28	2.16	2.53	1.69
Survey year												
2004	24	16	21	0	18	15	16	0	36	16	15	0
2005	0	5	0	0	0	4	1	0	0	5	0	0
2006	6	8	1	4	3	7	1	6	11	8	0	1
2007	15	11	18	21	16	9	13	18	9	7	14	32
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	10	14	12	6	13	14	11	9	7	13	14	12
2012	0	0	0	9	0	1	0	10	0	2	0	12
2013	15	16	14	7	15	19	21	11	12	21	20	13
2015	22	24	29	48	24	23	25	37	23	17	19	14
2017	2	2	3	1	2	2	2	1	2	3	2	4
2019	2	2	0	2	4	4	7	1	0	5	14	3
2020	3	2	2	2	6	3	3	7	0	4	0	8
Country												
Sweden	65	.	.	.	68	.	.	.	59	.	.	.
Denmark	35	.	.	.	32	.	.	.	41	.	.	.
Germany	.	41	.	.	.	42	.	.	.	48	.	.
Austria	.	3	.	.	.	2	.	.	.	3	.	.
Netherlands	.	5	.	.	.	8	.	.	.	7	.	.
France	.	41	.	.	.	38	.	.	.	31	.	.
Switzerland	.	5	.	.	.	5	.	.	.	3	.	.
Belgium	.	4	.	.	.	6	.	.	.	8	.	.

Luxembourg	.	0	.	.	.	0	.	.	.	0	.	.
Spain	.	.	44	.	.	.	38	.	.	.	40	.
Italy	.	.	47	.	.	.	56	.	.	.	55	.
Portugal	.	.	2	.	.	.	1	.	.	.	2	.
Greece	.	.	8	.	.	.	6	.	.	.	3	.
Poland	.	.	.	70	.	.	.	43	.	.	.	53
Czech Republic	.	.	.	20	.	.	.	46	.	.	.	38
Slovenia	.	.	.	4	.	.	.	3	.	.	.	3
Estonia	.	.	.	2	.	.	.	4	.	.	.	2
Croatia	.	.	.	4	.	.	.	4	.	.	.	4
N	666	2,830	1,820	990	936	1,857	429	501	40	366	242	125

Notes: See Table A1.

Source: See Table 1.

Table A3. OLS estimates of unpaid caregiving to independently living parents and labor supply by gender and country cluster, controlling for household income.

	Employment				Full-time work			
Men	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	-0.033*** (0.012)	-0.005 (0.010)	0.010 (0.024)	-0.013 (0.025)	0.009 (0.013)	-0.006 (0.011)	0.005 (0.026)	-0.001 (0.012)
High-intensity caregiving	0.043** (0.017)	-0.083** (0.039)	-0.078 (0.055)	-0.025 (0.045)	0.010 (0.045)	-0.035 (0.031)	0.022 (0.047)	0.003 (0.036)
Constant	1.03	0.96	0.98	0.77	1.00	1.00	0.91	0.97
R <sup>2</sup>	0.10	0.11	0.15	0.17	0.05	0.03	0.10	0.05
N	1,135	3,429	1,530	1,044	1,087	3,131	1,306	911
Women								
No care (ref.)								
Low-intensity caregiving	-0.003 (0.012)	-0.011 (0.013)	-0.006 (0.025)	-0.006 (0.019)	0.011 (0.020)	-0.035* (0.018)	-0.033 (0.033)	0.016 (0.013)
High-intensity caregiving	-0.038 (0.048)	-0.081*** (0.027)	-0.043 (0.033)	-0.013 (0.033)	-0.092 (0.084)	-0.112*** (0.035)	-0.052 (0.052)	0.008 (0.023)
Constant	0.95	0.79	0.51	0.66	0.78	0.63	0.72	0.87
R <sup>2</sup>	0.06	0.19	0.27	0.26	0.09	0.10	0.10	0.03
N	1,642	5,053	2,491	1,616	1,547	3,731	1,146	1,337

Notes: See Table 3 for model specification plus household income controls.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.

Table A4. OLS estimates of unpaid caregiving to independently living parents and labor supply by gender and country cluster, without country fixed effects.

	Employment				Full-time work			
Men	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	-0.028** (0.012)	0.010 (0.010)	0.033 (0.024)	0.043* (0.026)	0.013 (0.012)	-0.008 (0.011)	-0.006 (0.027)	0.003 (0.013)
High-intensity caregiving	0.041*** (0.015)	-0.087** (0.040)	-0.067 (0.055)	0.016 (0.048)	0.002 (0.047)	-0.034 (0.032)	0.010 (0.046)	0.005 (0.036)
Constant	1.01	0.93	1.01	0.85	0.97	0.97	0.84	0.99
R <sup>2</sup>	0.08	0.06	0.09	0.06	0.03	0.02	0.05	0.04
N	1,135	3,429	1,530	1,044	1,087	3,131	1,306	911
Women								
No care (ref.)								
Low-intensity caregiving	0.003 (0.012)	0.006 (0.014)	0.037 (0.026)	0.051*** (0.019)	0.019 (0.020)	-0.046** (0.019)	-0.036 (0.034)	0.017 (0.013)
High-intensity caregiving	-0.034 (0.049)	-0.095*** (0.028)	-0.014 (0.036)	0.016 (0.036)	-0.085 (0.083)	-0.119*** (0.037)	-0.050 (0.053)	0.009 (0.023)
Constant	0.92	0.77	0.56	0.84	0.74	0.61	0.76	0.92
R <sup>2</sup>	0.04	0.13	0.18	0.15	0.07	0.05	0.06	0.03
N	1,642	5,053	2,491	1,616	1,547	3,731	1,146	1,337

Notes: See Table 3 for model specification but without country controls.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.

Table A5. First stage of family variables and high-intensity caregiving by gender and country cluster.

Men	Nordic	Continental	South	East
Parent in poor health	0.018 (0.011)	0.038*** (0.011)	0.064*** (0.018)	0.014 (0.023)
Parent lives within 25km	0.020** (0.008)	0.018*** (0.006)	0.031*** (0.009)	0.069*** (0.017)
One parent deceased	0.005 (0.011)	0.013* (0.007)	0.006 (0.012)	0.058*** (0.019)
No of siblings	-0.001 (0.003)	-0.004** (0.002)	-0.001 (0.003)	-0.009 (0.007)
Constant	0.03	0.00	-0.05	-0.12
F-statistic	1	2	1	2
R <sup>2</sup>	0.04	0.04	0.05	0.08
N	948	2,572	1,254	672
Women				
Parent in poor health	0.048*** (0.014)	0.090*** (0.013)	0.140*** (0.021)	0.087*** (0.022)
Parent lives within 25km	0.030*** (0.008)	0.082*** (0.007)	0.090*** (0.011)	0.086*** (0.014)
One parent deceased	0.014 (0.010)	0.049*** (0.008)	0.023* (0.014)	0.030 (0.019)
No of siblings	-0.002 (0.003)	-0.010*** (0.002)	-0.006 (0.004)	-0.009 (0.006)
Constant	-0.01	0.00	-0.05	-0.08
F-statistic	1	7	5	3
R <sup>2</sup>	0.04	0.07	0.08	0.09
N	1,373	3,802	2,039	1,108

Notes: See Table 3.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.



Table A6. OLS estimates of unpaid caregiving to independently living parents and labor supply by gender and country cluster, controlling for family variables.

	Employment				Full-time work			
Men	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	-0.028** (0.014)	0.003 (0.012)	0.022 (0.026)	0.003 (0.030)	0.016 (0.014)	-0.001 (0.012)	-0.004 (0.029)	0.004 (0.009)
High-intensity caregiving	0.031* (0.018)	-0.143*** (0.050)	-0.039 (0.057)	-0.011 (0.055)	-0.008 (0.063)	-0.023 (0.037)	0.007 (0.058)	-0.037 (0.051)
Parent in poor health	-0.014 (0.016)	-0.011 (0.015)	-0.014 (0.026)	-0.016 (0.030)	0.017 (0.015)	-0.009 (0.013)	-0.000 (0.027)	-0.011 (0.016)
Parent lives within 25km	0.027* (0.014)	0.009 (0.012)	-0.001 (0.022)	0.024 (0.028)	-0.021 (0.014)	0.021* (0.012)	0.038 (0.025)	0.028* (0.017)
One parent deceased	-0.002 (0.015)	-0.011 (0.013)	-0.064*** (0.020)	-0.038 (0.028)	0.002 (0.014)	-0.007 (0.012)	-0.005 (0.022)	-0.012 (0.011)
No. of siblings	-0.006 (0.005)	-0.002 (0.004)	-0.022*** (0.007)	-0.030** (0.014)	0.003 (0.004)	0.004 (0.003)	-0.002 (0.006)	-0.008 (0.008)
Constant	1.02	0.92	1.09	0.85	0.96	0.97	0.90	0.99
R <sup>2</sup>	0.10	0.06	0.12	0.12	0.04	0.03	0.09	0.07
N	948	2,572	1,254	672	906	2,355	1,077	595
	Employment				Full-time work			
Women	Nordic	Continental	South	East	Nordic	Continental	South	East
No care (ref.)								
Low-intensity caregiving	0.007 (0.014)	0.017 (0.015)	0.043 (0.029)	0.013 (0.024)	0.013 (0.021)	-0.024 (0.021)	-0.007 (0.037)	0.008 (0.018)
High-intensity caregiving	-0.007 (0.051)	-0.054* (0.032)	-0.028 (0.041)	-0.030 (0.043)	-0.090 (0.092)	-0.143*** (0.043)	-0.030 (0.066)	-0.009 (0.032)
Parent in poor health	-0.028 (0.018)	-0.037** (0.018)	-0.061** (0.026)	-0.007 (0.026)	0.010 (0.024)	0.032 (0.024)	-0.081* (0.042)	0.002 (0.019)
Parent lives within 25km	-0.002	0.007	-0.015	-0.010	-0.005	-0.015	0.045	-0.013

	(0.015)	(0.017)	(0.026)	(0.025)	(0.022)	(0.022)	(0.036)	(0.017)
One parent deceased	-0.023* (0.014)	0.005 (0.016)	0.051** (0.025)	-0.007 (0.026)	-0.003 (0.025)	0.025 (0.022)	-0.041 (0.033)	0.052** (0.024)
No. of siblings	-0.007 (0.006)	0.001 (0.004)	-0.001 (0.008)	-0.028** (0.011)	-0.010 (0.009)	-0.002 (0.006)	0.004 (0.009)	-0.001 (0.008)
Constant	0.97	0.76	0.66	0.71	0.79	0.66	0.85	0.81
R <sup>2</sup>	0.05	0.16	0.22	0.26	0.08	0.09	0.07	0.05
N	1,373	3,802	2,039	1,108	1,294	2,811	930	893

Notes: See Table 3.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: see Table 1.

## **CENTRE FOR ECONOMIC DEMOGRAPHY**

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