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Elderly Care Across Europe: The Role of Formal and Informal Care in Family Decision-Making*

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Abstract

This paper studies how families make joint decisions about elderly care and labor supply, emphasizing the role of interactions between care recipients and their adult children. I develop a model in which an elderly parent and multiple children make simultaneous decisions about formal care use, informal caregiving, and labor force participation within a static, non-cooperative game of complete information. I estimate the model separately for Northern, Central, and Southern Europe using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) to account for cross-regional differences in institutions, labor markets, and preferences. I use the estimated model to evaluate five policy experiments aimed at expanding care provision and mitigating the labor market consequences of informal caregiving. The results show that subsidies targeted at formal care recipients substantially increase overall care coverage but have limited effects on informal caregivers' labor supply, particularly in Southern Europe. By contrast, subsidies targeted at informal caregivers generate larger informal-care and labor supply responses and can reduce employment gaps between caregivers and non-caregivers. These effects depend crucially on family structure, with larger families exhibiting stronger caregiving responses.

Keywords: elderly care, non-cooperative game, discrete choice, SHARE.

JEL Codes: D64, J14, J22.

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1 Introduction

The rising demand for elderly care resulting from population aging is one of the most pressing challenges that countries around the world will face in the coming decades. In the European Union, the ratio of individuals aged 65 or older to those aged 15 to 64 increased from 25% to 29.6% between 2010 and 2016 and is projected to rise to 51.2% by 2070. Over the same period, the share of people aged 65 and above who experience difficulties in carrying out daily activities due to health problems, currently estimated at 48.7%, is expected to increase by 21% (European Commission, 2018, 2019).

Elderly care encompasses a range of activities aimed at improving the quality of life of older adults who are no longer fully able to look after themselves because of physical or cognitive decline. These activities include assistance with daily tasks such as dressing, bathing, getting in and out of bed, or performing housework (Clancy et al., 2019). Elderly care is considered *formal* when it is provided by paid professional services, either in the care recipient’s home or in residential care facilities, and *informal* when it is provided by relatives or friends.

Adult children constitute one of the main sources of informal care for elderly parents. These are typically middle-aged individuals who weigh the cost of caregiving in terms of foregone labor earnings when making care and labor supply decisions. Importantly, these choices are shaped by interactions within the family. On the one hand, a child’s provision of informal care may depend on the amount of care supplied by their siblings, leading to specialization or free-riding. On the other hand, families may turn to formal care when the informal support they can collectively provide is insufficient to meet parental needs. Since the public sector bears most of the cost of formal care, and elderly care expenditures represent a rapidly growing component of public spending in many countries (Gruber et al., 2023), understanding how families make these decisions is relevant for the design of elderly care policies.

This paper studies how families make joint decisions about elderly care and labor supply, with a particular emphasis on interactions among family members. What drives families’ choices to provide formal and informal care? How does caregiving affect adult children’s labor supply? How do care policies influence these decisions? To address these questions, I model the behavior of family members making care provision and labor supply decisions by means of a static, non-cooperative game of complete information. In this setup, a family consists of an elderly parent and their adult children. Each child simultaneously chooses whether to be employed and whether to provide informal care to their parent. If employed, a child earns a wage that translates into consumption. At the same time, the parent decides whether to receive formal care. The choices of each family member are discrete and mutually exclusive, and they maximize their own payoffs, which depend on observable family characteristics, the choices of the other family members, and unobserved preference shocks. The outcome is a Nash equilibrium in which the parent receives formal care, informal care from one or multiple children, a combination of both, or no care at all.

I use this model to study the provision of elderly care in Europe, where there are substantial differences in care arrangements across countries. In Northern European countries, 47% of older adults with help needs receive some formal care. This share is considerably lower in Southern Europe, where care needs are often met informally by the relatives of care recipients, and the proportion of older individuals receiving no assistance at all is higher than in the North. Several factors may contribute to these differences. First, countries differ widely in the availability and generosity of publicly funded formal care. While public spending on formal care is around 3% of GDP in Northern Europe, it does not reach 1% in Southern European countries. Second, social norms and family structures vary across regions and may also shape care arrangements. In this regard, Southern European countries are often contrasted with Northern and Central European countries, where intergenerational contact is less frequent and co-residence rates

are lower. In Southern Europe, approximately 30% of individuals aged 60 or older live with at least one of their children, compared with only 2.5% in Northern Europe. These patterns may facilitate the provision of informal care in the South. On top of that, caregiving decisions are closely linked to labor supply choices, and individuals may face difficulties in balancing employment and caregiving. Indeed, in Southern Europe, there is a large gap in employment rates between individuals who provide care to their parents and those who do not.

I estimate the model using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), which provides information on care arrangements, labor supply decisions, and the characteristics of older parents and their adult children. I take advantage of the cross-country variation in these data and estimate the model separately for three regions —Northern, Central, and Southern Europe—, capturing systematic differences in institutional settings and preferences. The estimated model fits the observed care and employment choices closely across all three regions.

The model allows me to evaluate the effects of five care policy experiments designed either to expand access to formal care services or to compensate informal caregivers for the cost of providing care. The first counterfactual introduces a non-means-tested subsidy granted to parents conditional on the use of formal care. The second considers an alternative version of this policy in which the subsidy is extended to all parents with care needs, regardless of whether they rely on formal care services. The remaining three counterfactuals instead target informal caregivers. In the third, the subsidy is allocated equally among adult children who provide informal care, conditional on being employed. In the fourth, it is allocated among children who provide informal care while being non-employed. In the fifth, it is distributed among all children who provide informal care, irrespective of their employment status. I assess the effects of these policy alternatives on families' care and labor supply decisions in Central and Southern Europe. In the first experiment, the size of the subsidy is calibrated so that the share of total elderly care costs covered by public social protection systems in Central and Southern Europe matches the corresponding share in Northern Europe. For the three policies targeting informal caregivers, I recalibrate the subsidy amounts so that the total fiscal cost of each policy equals that of the formal care subsidy.

I evaluate the effects of the five policy experiments on families' care arrangements, the likelihood of providing informal care by number of siblings and caregiver gender, and the labor supply of informal caregivers in Central and Southern Europe. With respect to care arrangements, the subsidy targeted to parents who use formal care leads to a substantial increase in the uptake of formal services, whereas the subsidy extended to all parents with care needs has only limited effects on the type of care chosen by families. By contrast, subsidies directed at informal caregivers increase families' reliance on informal support, shifting care provision away from exclusively formal arrangements. Among the policies considered, the subsidy for formal care recipients is the most effective in expanding overall care coverage, increasing the share of older individuals who receive some form of help by 5.7 percentage points in Central Europe and by 10.9 percentage points in Southern Europe, closely followed by the subsidy for all children who provide informal care.

Turning to differences by family size, subsidies targeted at parents increase the probability that children provide informal care primarily in larger families, where caregiving responsibilities can be more easily shared. By contrast, only children, who often bear the full burden of care, are not more likely to engage in caregiving when access to formal care expands. Among the two parent-targeted policies, the subsidy conditional on the use of formal care generates larger increases in overall care receipt across all family sizes than the subsidy extended to all parents with care needs. Subsidies targeted at adult children, in contrast, lead to substantial increases in the probability of providing informal care across all family sizes, with stronger effects in Southern Europe. Subsidies for children who are employed or who provide care regardless of their employment status expand overall informal care provision by reducing the share of families in which no child provides informal care by 12 to 21 percentage points in Central

and Southern Europe, depending on family size, and by increasing the likelihood that multiple children provide care in larger families. Importantly, while these subsidies intensify informal caregiving, they do not fundamentally alter the underlying gradient in caregiving by number of siblings.

In terms of gender, women are substantially more likely than men to provide informal care in the baseline scenario, with the gap being larger in Southern Europe. These gender disparities become more pronounced under all five counterfactual policies. Although all policies increase the likelihood of providing informal care for both men and women, women respond more strongly, resulting in a wider gender gap, particularly under subsidies targeted at informal caregivers. The amplification of the gap varies with family size and is generally most pronounced in two-child families. This suggests that while subsidies can successfully expand care provision, they often do so by reinforcing existing gender roles rather than by redistributing care responsibilities more evenly between daughters and sons.

With respect to employment, in Central Europe, all policies except the subsidy for non-employed caregivers increase employment among caregivers and reduce the employment gap relative to non-caregivers, with the largest reduction arising from the subsidy for employed caregivers. By contrast, in Southern Europe, formal-care subsidies do not increase caregiver employment and instead tend to widen the employment gap between caregivers and non-caregivers. In this region, the gap narrows only under the subsidy that targets employed informal caregivers. The subsidy for non-employed caregivers, which by design rewards caregiving outside of employment, draws caregivers out of the labor force and widens the employment gap in both regions.

Overall, these findings have direct implications for the design of elderly care policies. I show that accounting for family structure, intra-family interactions, and cross-regional differences is important, as policy effects are heterogeneous across families and regions. This underscores the importance of targeting interventions to the specific institutional and demographic context in which they are implemented.

This paper contributes to several strands of the literature. First, it contributes to the body of work that proposes different modeling approaches to study the provision of elderly care. Some studies focus on the choices of a potential caregiver with a parent in need of assistance (Skira, 2015; Korfhage, 2019; Korfhage and Fischer, 2023), whereas others examine the decisions and preferences of care recipients over care arrangements (Kesternich et al., 2025; Görlach, 2025). Others model interactions within the family, considering the interplay between one parent and one child (Pezzin and Schone, 1999; Dobrescu and Iskhakov, 2013; Ko, 2022; Mommaerts, 2025) or between two siblings (Fontaine et al., 2009; Rainer and Siedler, 2009; Hunt, 2025). Some studies investigate the provision of formal or informal care or children’s location decisions in isolation, abstracting from the possibility of combining the two types of care or from adult children’s labor supply decisions (Hiedemann and Stern, 1999; Engers and Stern, 2002; Checkovich and Stern, 2002; Konrad et al., 2002; Maruyama and Johar, 2017; Stern, 2023). I contribute to this literature by developing a model that accounts for the heterogeneity in household structure in the data. My model allows for the joint determination of formal and informal care and labor supply. It incorporates strategic interactions among multiple siblings, permitting specialization and free-riding in caregiving, as well as differences in opportunity costs across children. By doing that, I can study how alternative care policies affect not only the type of care chosen but also the allocation of caregiving responsibilities within the family and their interaction with labor supply decisions.

This paper is most closely related to Byrne et al. (2009) and Barczyk et al. (2025). Byrne et al. (2009) study families’ elderly care provision decisions and evaluate various care policies in the context of the US. They develop and estimate a static, non-cooperative game in which family members from two generations make care and labor supply decisions. In their framework, care enters the parental health-quality production function as an input, but the estimated effect of care on health is small. As a result, their model predicts low rates of formal care use and essentially no behavioral responses to policy interventions. I instead take parental health as given and assume that children derive a “warm-glow”

utility from providing informal care that depends on parental health, the amount of informal care supplied by other family members, and the use of formal care, among other factors. The policy counterfactuals that I conduct with this model yield substantial behavioral responses to care policies. [Barczyk et al. \(2025\)](#) develop a static model in which parents and children bargain over care arrangements, accounting for financial incentives and heterogeneous caregiving preferences in the context of Europe. While children constitute a unitary household within their framework, my model treats each child as a separate decision-maker who maximizes individual utility, reflecting the fact that adult children often belong to different households. Moreover, whereas their model restricts care arrangements to either institutional care or informal care provided by a single child, my framework accommodates a richer set of arrangements observed in the data, including the combination of formal and informal care, and the possibility that multiple children provide informal care.

In the second place, this paper contributes to the literature that examines how elderly care arrangements differ across European countries. Studies in this group document substantial cross-country variation in the use of formal and informal care ([Attias-Donfut et al., 2005](#); [Barczyk and Kredler, 2019](#)). Some provide evidence of different degrees of substitutability between the two forms of care ([Bonsang, 2007, 2009](#); [Bolin et al., 2008a](#)) and of a negative association between providing informal care to parents and labor supply ([Spiess and Schneider, 2003](#); [Viitanen, 2005](#); [Bolin et al., 2008b](#); [Crespo, 2008](#); [Crespo and Mira, 2014](#)). [Bakx et al. \(2015\)](#) emphasize the role of institutions, social norms, and family cohesion in shaping these patterns, echoing a broader literature that stresses the importance of culture in explaining cross-country differences in domestic production, female labor force participation ([Alesina et al., 2015](#)), living arrangements ([Giuliano, 2007](#)), and other economic outcomes ([Guiso et al., 2006](#)), including the take-up of long-term care insurance ([Costa-Font, 2010](#)). Nevertheless, most of these studies abstract from the role of strategic interactions among family members in determining care provision. [Fontaine et al. \(2009\)](#) do allow for interactions in a model in which two siblings decide how to supply care to their parent. [Dobrescu and Iskhakov \(2013\)](#) analyze the saving behavior of elderly individuals in Europe using a dynamic discrete-choice game of incomplete information between one parent and one child. In contrast, my model features multiple children interacting with their parent in a static, non-cooperative framework with complete information. [Barczyk et al. \(2025\)](#) disentangle the roles of financial incentives and preference heterogeneity in explaining cross-country differences in care arrangements. I instead shift the focus toward understanding how care policies affect care arrangements, labor supply and the gender gap in caregiving within the family and how these effects vary across European regions.

More broadly, this paper is also related to a macroeconomic literature on old-age risks and long-term care policies ([De Nardi et al., 2010](#); [Attanasio et al., 2011](#); [Braun et al., 2017](#); [Koreshkova and Lee, 2021](#)). [Barczyk and Kredler \(2018\)](#) and [Barczyk et al. \(2023\)](#) argue that much of this work misses a key margin by neglecting the role of the family. They incorporate this aspect in dynamic, heterogeneous-agents models with overlapping generations calibrated to the US economy. While my approach differs in scope and methodology, it similarly emphasizes the importance of explicitly accounting for the family when evaluating elderly care policies.

The rest of the paper is organized as follows. I present some motivating evidence on elderly care provision across Europe in Section 2. I develop the model in Section 3 and discuss estimation in Section 4. I analyze the outcomes of the policy experiments in Section 5, and conclude in Section 6.

2 Motivating Evidence

This section offers a general overview of the provision of elderly care across Europe, based on data from the Survey of Health, Ageing and Retirement in Europe (SHARE). My analysis focuses on eight

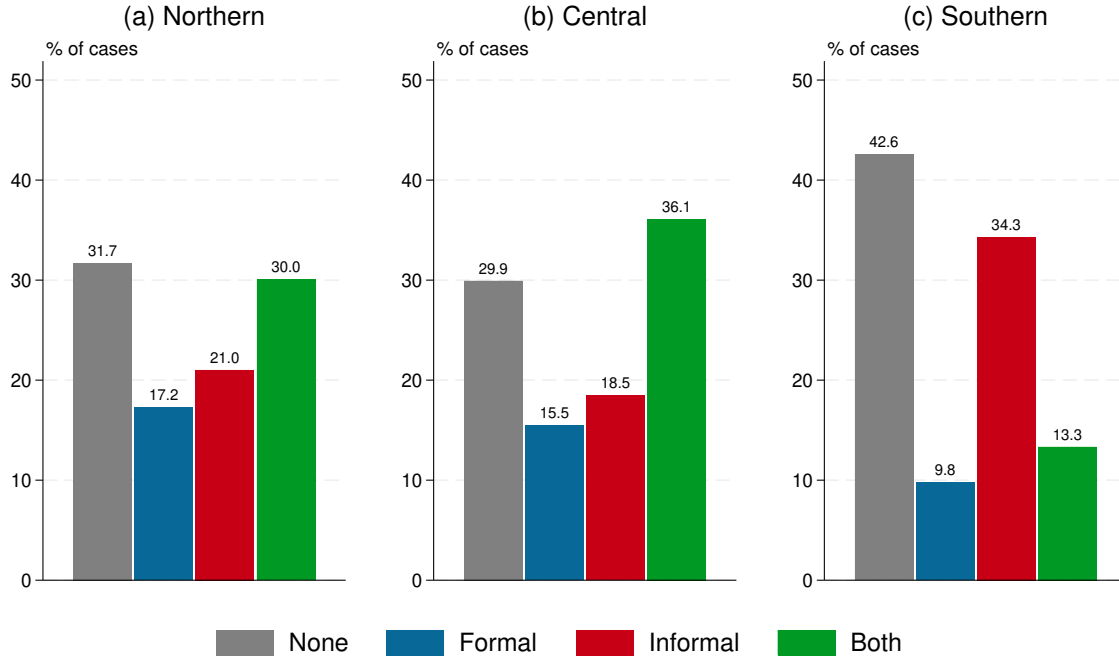


Figure 1: Type of care received by individuals aged 70 or older with care needs. The figure plots the percentage of individuals aged 70 or older with care needs and at least one child aged 60 or younger who receive no care, only formal care, only informal care, or both types of care in Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). Source: SHARE, waves 5 and 6.

countries that can be grouped into three regions: Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

Figure 1 represents how these countries differ in the use of informal and formal care. It shows the share of people aged 70 or older with difficulties performing activities of daily living who receive only formal care, only informal care, both types of care, or no care at all in the three country groups. In line with previous studies (Barczyk and Kredler, 2019), there is a North-South gradient in the use of formal care. The percentage of individuals who receive some formal care, alone or in combination with informal care, is 47.2% in Northern Europe, 51.6% in Central Europe, and 23.1% in Southern Europe. This fact can be partly explained by a significant degree of variety in terms of availability and generosity of public elderly care services across the continent. As can be seen in Figure A1, governments in Northern European countries devote more resources to these services (3.2% of GDP in Sweden, 2.5% in Denmark) than countries in the South (0.7% of GDP in Italy and Spain), and Central European countries are in between (from 2.1% in Belgium to 1.1% in Austria).¹ The resulting underprovision of formal care in the South may induce families in these countries to meet the needs of their parents informally, although this might be difficult for some. In the South, the use of informal care as the only means of help for the elderly is more prevalent (34.3% of cases) than in Northern and Central European countries (21% and 18.5%), where the percentage of individuals who do not receive any help is lower (31.7% and 29.9%)

¹The three regions differ not only in the level of public LTC spending but also in the organization of formal services and the design of care subsidies. Northern European systems are predominantly service-based and tax-funded, with broad public provision of in-kind home and residential care. Central European systems rely on social insurance or mixed arrangements that combine in-kind services with cash benefits, which can be used to compensate informal caregivers (e.g. the Austrian *Pflegegeld*, the French *APA*, and the German cash option). In Southern Europe, the formal sector is much less developed and public support takes the form mainly of transfers, such as the Italian attendance allowance and the means-tested Spanish *LAPAD*, with families often purchasing care privately. Rules on compensating informal carers and on work-care reconciliation (leave, respite) also vary across regions. See Barczyk and Kredler (2019) for details.

than in Southern countries (42.6%).

Secondly, there are differences in family structure and social norms across Europe that might also influence care arrangements. In this regard, Southern European countries are often categorized as “familistic” or “strong family” countries, contrasted with countries in Northern and Central Europe, with a less traditional family structure.² This gradient is evident in both co-residence rates and the frequency of intergenerational contact. In Southern Europe, around 30% of parents aged 60 and older live with at least one child, whereas in Northern Europe this figure is only about 2.5% (Kohli et al., 2005). Consistent with this pattern, Figure A2 shows a North-South gradient in family ties, which are stronger in Southern Europe than in Central and Northern Europe.

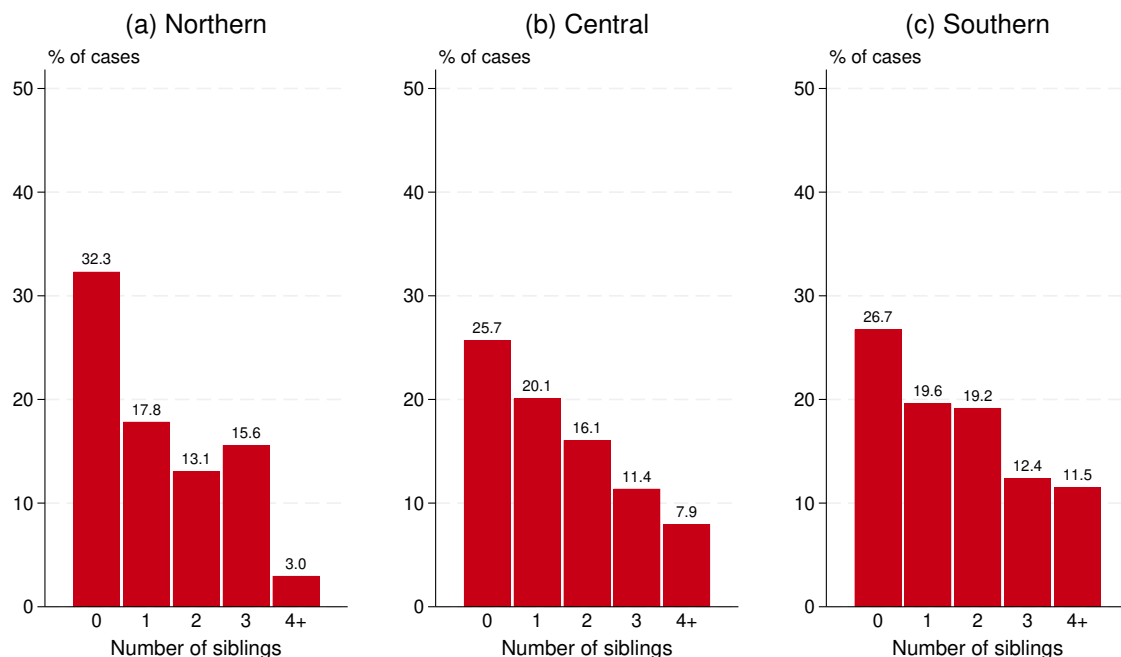


Figure 2: Probability of giving informal care to parents by number of siblings. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them, by number of siblings (from zero to four or more). The country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). Source: SHARE, waves 5 and 6.

These circumstances imply a greater potential for intergenerational support in Southern Europe, where the share of older parents who receive care from their children is larger than in Northern and Central Europe (see Figure A3). Across all regions, children are the primary providers of informal care, but their role as caregivers is influenced by the structure of their families and the interactions among their members. Figure 2 highlights one dimension along which caregiving decisions vary across families. According to this figure, the probability of engaging in care provision decreases with family size. In Northern Europe, this probability is highest for only children (32.3%) and lowest for those with four or more siblings (3%). While this specialization pattern is present in all regions, it is less pronounced in Southern Europe, where the likelihood of providing care is only 15.2 percentage points higher for an only child than for someone with four or more siblings.

Beyond family size, caregiving also differs systematically by gender. Figure 3 shows that women are more likely than men to provide informal care to parents in all regions. In Northern Europe, the share of

²Reher (1998) claims that the strength of family ties in Europe “refers to cultural patterns of family loyalties, allegiances, and authorities which are reflected in demographic patterns of co-residence with adult children and older family members”.

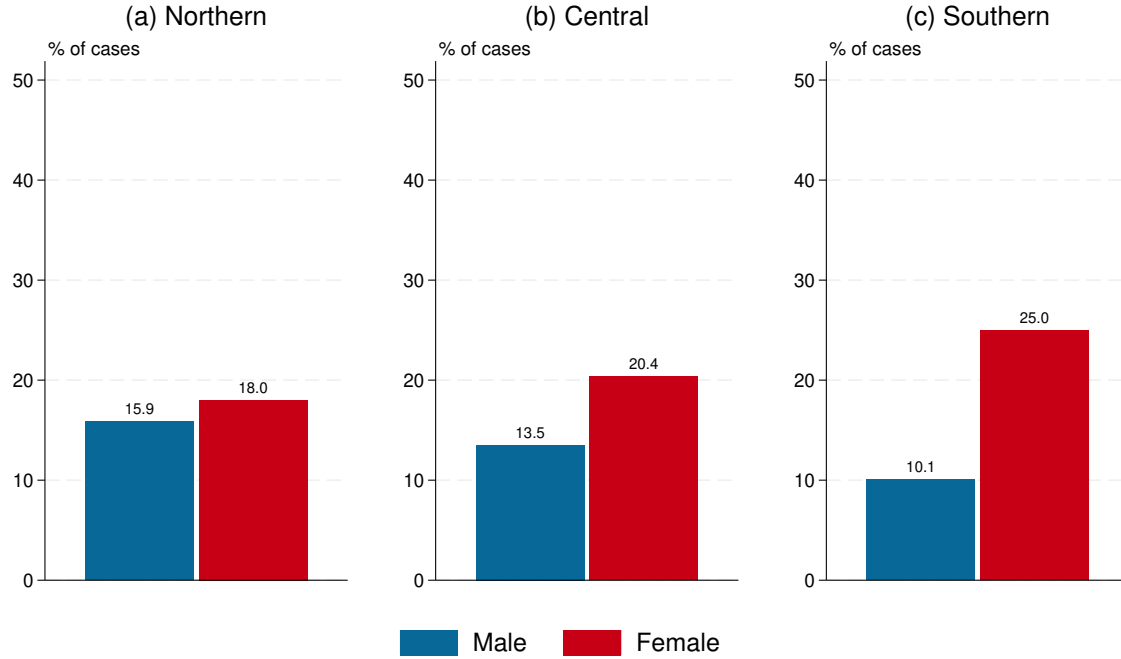


Figure 3: Probability of giving informal care by gender. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them, by gender of the caregiver. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). Source: SHARE, waves 5 and 6.

women who provide informal care to their parents is 18%, compared to 15.9% of men. This gap widens in Central Europe (20.4% versus 13.5%) and is largest in Southern Europe, where 25% of women provide informal care compared with 10.1% of men. This gender gap in caregiving may reflect social norms and differences in labor market outcomes, such as wages, between men and women, which translate into different opportunity costs of providing care.

Related to this opportunity cost, the decision to give care to parents is connected with labor supply. Figure 4 illustrates how this relationship varies across regions. In Central and Southern Europe, individuals who provide informal care to their parents are less likely to be employed than those who do not give any help, with a substantially larger employment gap in the South. This pattern contrasts with Northern Europe, where the employment rate of caregivers is even higher than that of non-caregivers. Differences also emerge along the intensive margin, as shown in Figure A4. In all three regions, individuals who care for their parents on a daily basis are less likely to be full-time employed than non-caregivers. In Northern and Central Europe, however, daily caregivers appear to partially substitute full-time for part-time employment, a pattern that is less evident in Southern Europe, where part-time work is considerably less prevalent.

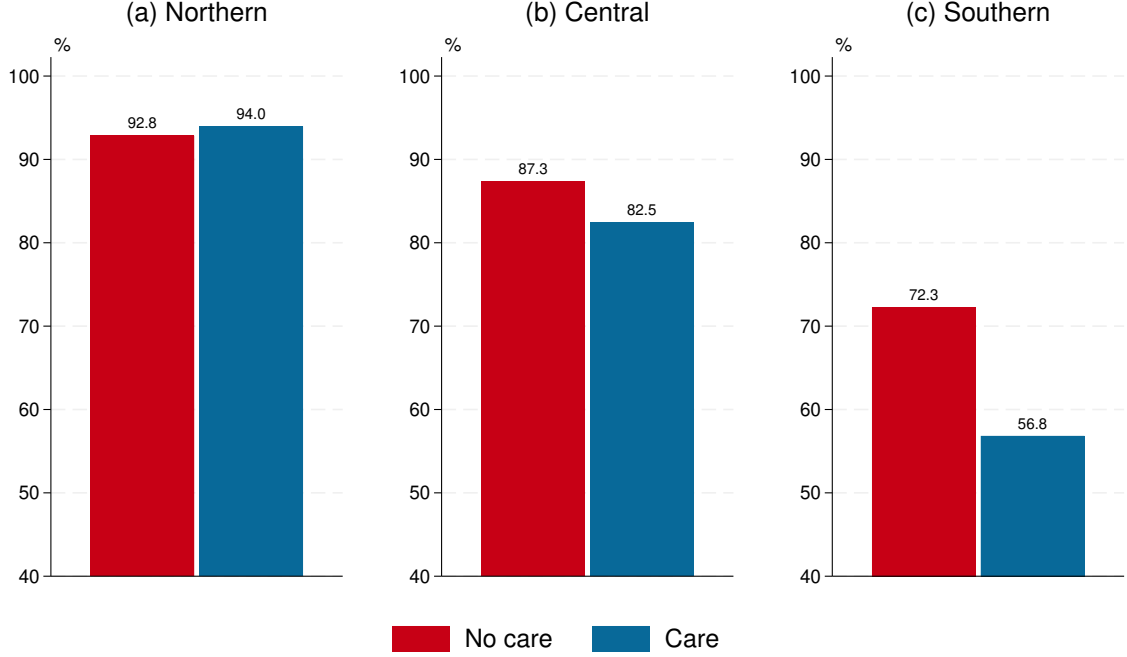


Figure 4: Employment rate of children by informal care given to parents. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who are employed or non-employed while giving informal care or no care at all. The country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). Source: SHARE, waves 5 and 6.

3 Model

The model is a static, non-cooperative game of complete information which features family members making simultaneous decisions.^{3,4} The decision makers are an elderly parent and their working-age children. Each child decides whether to be employed and whether to give informal care to their parent. If they choose to be employed, they earn a wage that they enjoy as consumption. Meanwhile, the parent decides whether to receive formal care. All these choices are discrete, mutually exclusive, and are made by players to maximize their respective payoffs. These payoffs depend on a set of observables representing family characteristics and the behavior of the other players. They also depend on unobservables in the form of choice-specific preference shocks that are known by all the players. Family members make their

³The non-cooperative structure is central to the question studied in this paper. Free-riding and specialization among siblings are important mechanisms that the model is designed to capture, and they arise precisely in a non-cooperative game because each family member best-responds to the others. A cooperative or collective model would assume that the family internalizes the caregiving externality and reaches an efficient allocation by construction, thereby abstracting from the behavior that the model aims to represent. The non-cooperative benchmark is also natural because adult children typically belong to separate households, with no device to enforce binding agreements or side-payments across them. This modeling assumption is consistent with the data, as the decline in per-child caregiving with the number of siblings documented in Figure 2 is what strategic under-provision predicts, and with a literature that studies strategic incentives in this context (Konrad et al., 2002; Byrne et al., 2009; Fontaine et al., 2009; Maruyama and Johar, 2017).

⁴Since the policies evaluated operate through contemporaneous payoffs — the price of formal care and compensation to informal caregivers —, a static model is sufficient to identify the first-order behavioral responses that the counterfactuals target. Compared to a dynamic game, a static framework likely understates the overall cost of informal caregiving for children, as it omits the inter-temporal cost of caregiving through career interruption, human capital depreciation, or foregone pension accrual, together with anticipation of future care needs, strategic timing among siblings, and a role for savings and bequests. However, estimating a dynamic model while preserving the strategic interaction among multiple children and their parent would increase computational demands substantially. Dynamic models in this literature typically consider only one decision-maker (Skira, 2015; Korfhage, 2019; Korfhage and Fischer, 2023) or two interacting family members (Dobrescu and Iskhakov, 2013; Ko, 2022; Hunt, 2025; Mommaerts, 2025).

decisions simultaneously, reaching a Nash equilibrium in which the parent receives formal care, informal care from one or multiple children, a combination of both, or no care at all.

Agents in this model face a number of trade-offs. In the first place, the employment and informal care decision of each child maps into a number of hours worked and hours of care. The number of hours worked, together with wages, determine the labor earnings of this child, which they consume. If this child gives informal care, they will derive some utility, but will not be able to work as many hours as if they do not give care, so their labor earnings will be lower. Moreover, their decision will consider the behavior of their parent and siblings with respect to caregiving. These interactions will be influenced by several factors. The presence of other caregiving siblings may reduce the marginal utility of providing care, while it may also increase the pressure or responsibility felt to give some care.

In the second place, the parent can choose to receive formal care, which can be combined with the help received from children. When children provide informal care, the parent may be less likely to rely on formal care, whereas little informal support may increase the utility of formal care, especially for parents in poor health or with limited resources to finance it. At the same time, when help from a spouse or other informal caregivers is available, the parent may depend less on their children, which changes their incentives to provide care.

3.1 Choices

In this model, a family is composed of a parent and their children. The children, indexed by $i = 1, 2, \dots, N$, make simultaneous decisions that concern their employment status and the provision of informal care for their parent. Let a_i denote the action of child i . Each child can choose among four mutually exclusive alternatives: to be non-employed and to give their parent no informal care, $a_i = \text{NENC}$; to be employed and to give their parent no informal care, $a_i = \text{ENC}$; to be non-employed and to give informal care, $a_i = \text{NEIC}$; and to be employed and to give informal care, $a_i = \text{EIC}$. Therefore, the action set of child i is $\mathcal{A}_i \equiv \{\text{NENC}, \text{ENC}, \text{NEIC}, \text{EIC}\}$. The actions of all the children in the family are collected by vector $\mathbf{a} \equiv (a_1, \dots, a_N)$, which is an element of $\mathcal{A} \equiv \mathcal{A}_1 \times \dots \times \mathcal{A}_N$.

At the same time, the parent makes a formal care decision. Let b denote their choice, which can be either to receive formal care, $b = \text{FC}$; or not, $b = \text{NFC}$. Thus, the parent's action set is $\mathcal{B} \equiv \{\text{NFC}, \text{FC}\}$. The actions of all the family members are collected by vector $\mathbf{d} \equiv (\mathbf{a}, b)$, which takes values in set $\mathcal{D} \equiv \mathcal{A} \times \mathcal{B}$.

3.2 Preferences

Each child draws utility from consumption and the chosen combination of employment status and informal care. I assume that child i 's utility is linear and additively separable between an observable and an unobservable component. In particular, the utility of choosing action a is

$$U_{ia} = \alpha_a(\mathbf{a}_{-i}, b, \mathbf{x}) + \beta C_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) + \epsilon_{ia}, \quad (1)$$

where $\alpha_a(\mathbf{a}_{-i}, b, \mathbf{x})$ is meant to capture the preferences of the child over combinations of elderly care and employment status, given the set $\mathbf{x} \in \mathcal{X}$ of observable characteristics in the family, and $\mathbf{a}_{-i}$ and b denote the choices made by the rest of siblings and the parent, respectively. I model $\alpha_a(\mathbf{a}_{-i}, b, \mathbf{x})$ as

$$\begin{aligned} \alpha_a(\mathbf{a}_{-i}, b, \mathbf{x}) = & \alpha_{0a} + \alpha_{1a}H + \alpha_{2a}\text{female}_i + \alpha_{3a}\text{near}_i + \alpha_{4a} \sum_{\ell \neq i} I_\ell(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) \\ & + \alpha_{5a} \sum_{\ell \neq i} \mathbb{1}\{I_\ell(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) = 0\} + \alpha_{6a}F(\mathbf{a}, b, \mathbf{x}) + \alpha_{7a}\text{spouse} + \alpha_{8a}\text{others}, \end{aligned} \quad (2)$$

a choice-specific linear index which depends on the parent's health status H , child i 's gender, whether child i lives less than 25 kilometers away from the parent, the number of hours $\sum_{\ell \neq i} I_\ell(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ of informal care given by the siblings, the number of siblings who do not provide any care, the number of hours $F(\mathbf{a}, b, \mathbf{x})$ of formal care that the parent receives, and whether the parent receives care from a spouse or other sources. I assume that all these elements, except for informal care given by siblings and formal care, are exogenous.⁵

$C_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ denotes the consumption level of child i for action a_i when the siblings play $\mathbf{a}_{-i}$ and the parent plays b . This is given by

$$C_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) = w(\mathbf{z}_i) N_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) + y_i, \quad (3)$$

where $w(\mathbf{z}_i)$ is the hourly wage offer for child i . This is a function of the observable, individual characteristics collected in $\mathbf{z}_i$, a subset of $\mathbf{x}$. $N_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ is the number of hours worked by i , which is determined by their choice a_i , and y_i represents other sources of income that child i may have.

ϵ_{ia} is a choice-specific, random preference shock that is common knowledge to all the family members, but unobserved for the econometrician. I assume that this preference shock is independent and identically distributed (i.i.d.) with probability density function g_{ϵ_i} .

The parent's choice-specific utility is

$$V_b = \delta_{0b} + \delta_{1b}H + \delta_{2b}\text{wealth} + \delta_{3b} \sum_{i=1}^N I_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) + \delta_{4b}\text{spouse} + \delta_{5b}\text{others} + \zeta_b, \quad (4)$$

where $\sum_{i=1}^N I_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ is the number of hours of informal care given by the children. Utility also depends on the parent's health, the value of wealth owned by them, and other sources of informal care, through indicators for care given by a spouse and other informal caregivers.⁶ ζ_b is an i.i.d., choice-specific preference shock that is common knowledge to all the family members, but unobserved for the econometrician. It is jointly distributed with the shocks of the children with density $g_{\epsilon, \zeta}(\epsilon, \zeta) = \prod_{i=1}^N g_{\epsilon_i} g_\zeta$.

3.3 Equilibrium

Let $\mathbf{U}_i = (U_i(\mathbf{d}, \mathbf{x}, \epsilon_i))_{\mathbf{d} \in \mathcal{D}}$ and $\mathbf{V} = (V(\mathbf{d}, \mathbf{x}, \zeta))_{\mathbf{d} \in \mathcal{D}}$ be vectors collecting the payoffs of child i and the parent, respectively, for each possible outcome $\mathbf{d} \in \mathcal{D}$ of the game. Matrix $\mathbf{U} = (\mathbf{U}_1, \dots, \mathbf{U}_N, \mathbf{V})$ gathers these vectors. Given their knowledge about the observable characteristics in $\mathbf{x}$ and the preference shocks (ϵ, ζ) , the parent and each child take a discrete action simultaneously in order to maximize their respective payoffs. Let σ_i be a strategy of child i , and π a strategy of the parent. Then, a strategy vector $(\sigma_1^*, \dots, \sigma_N^*, \pi^*) \equiv (\boldsymbol{\sigma}^*, \pi^*)$ is a Nash equilibrium if and only if each player's strategy is a best response,

⁵I consider that parental health is exogenous and independent of whether or not the parents receive care. I make this assumption because, in contrast to other forms of care, elderly care is concerned with the ability to carry out basic, daily activities. Thus, children may benefit from this form of care because it enhances the well-being of their parents, rather than improving their health. Earlier research has shown that receiving care does not affect mortality (Applebaum et al., 1988), and it has only a small impact on health overall, suggesting that earlier investments are much more relevant for the determination of the health stock (Finkelstein and McKnight, 2008).

⁶Spousal care enters the model through the parent's and the children's payoffs. Parents who receive spousal care are less likely to rely on their children and on formal services, which in turn affects the children's incentives to provide care. As spousal care is exogenous, the model abstracts from the spouse's response to the policies. This is a reasonable simplification, since spouses who care for a dependent partner are typically elderly themselves and retired, so they do not face the work-care trade-off that their children do.

that is, if for every $i \in N$ and every possible strategy,

$$\begin{aligned} U_i(\boldsymbol{\sigma}^*, \pi^*, \mathbf{x}, \epsilon_i) &\geq U_i(\sigma_i, \boldsymbol{\sigma}_{-i}^*, \pi^*, \mathbf{x}, \epsilon_i) \\ V(\boldsymbol{\sigma}^*, \pi^*, \mathbf{x}, \zeta) &\geq V(\boldsymbol{\sigma}^*, \pi, \mathbf{x}, \zeta), \end{aligned} \tag{5}$$

where $\boldsymbol{\sigma}_{-i}^*$ collects the best response of child i 's siblings.

4 Estimation

This section provides a brief description of the data and variables used in the model and presents the estimation procedure.

4.1 Sample selection and variable definitions

I estimate the model using individual-level data from Waves 5 and 6 of SHARE, spanning eight countries (Austria, Belgium, Denmark, France, Germany, Italy, Spain, and Sweden) in years 2013 and 2015.⁷ I target families where at least one of the parents is retired, older than 70, has one or more limitations to perform activities of daily living, and whose children are younger than 60.⁸ I obtain this information from the sample of survey respondents who are potential care recipients and provide information about their children.

Each observation in my sample is a child-parent dyad when the survey interview was conducted. All the dyads which share the same parent constitute a family f playing a game. For each family, I observe the employment and informal care decisions made by each child and the parent's formal care choice, represented by a_{if} and b_f , respectively, as well as the vector of family characteristics $\mathbf{x}_f$.

I measure the health status of the parent following Ko (2022), using the information about limitations with activities of daily living (ADL) and cognitive impairment.⁹ Survey respondents take word recall, orientation, and numeracy tests to assess their cognitive abilities. Using the scores from these tests, I categorize a respondent as cognitively impaired if they are in the bottom 10% of the cognitive score distribution of the sample. Next, I classify an individual as having light care needs if they have difficulties with three or fewer ADLs and are not cognitively impaired, and as having severe care needs if they have more than three ADLs or cognitive impairment. Thus, H_f in the model is a dummy that takes value 1 if the parent has severe care needs.

My measure of parental wealth, also included in $\mathbf{x}_{if}$, comes from the value of all financial and real assets of the respondent, net of debts and liabilities, and adjusted for constant PPP exchange rates to allow for comparison across countries and over time. I divide this amount, which represents the total stock of wealth that the parent has at the moment, by the number of weeks that they are expected to live according to national life expectancy at age 65. I use these "weekly assets" in the model as a way to incorporate consumption smoothing and account for the possibility that older or wealthier parents may run down their assets at a different rate than younger or poorer ones.

⁷The choice of Waves 5 and 6 is driven by data availability and comparability constraints across waves. Wave 3 is a dedicated retrospective life history wave with a different structure from the other waves, and is therefore not considered. Waves 1, 2, and 4 are excluded from the estimation sample because they do not allow individual child identification in the care provision variables, while Waves 5 and 6 do. Wave 7 presents two additional problems. First, there are respondents who completed a SHARELIFE retrospective module for whom care information is not available, reducing the usable sample substantially. Second, in the remaining sample, children's characteristics used in the estimation procedure suffer from severe missing values. Finally, Waves 8 and 9 cover the COVID-19 period and would not be representative of elderly care and labor supply decisions under ordinary conditions.

⁸I exclude children who are older than 60 to lessen the concerns about simultaneous retirement and caregiving decisions.

⁹Activities of daily living include dressing, bathing/showering, eating/cutting up food, walking across a room, getting in/out of bed, and using the toilet.

In the model, the child chooses between providing informal care and not providing care. In the data, I consider that a child gives informal care if they helped their parent with personal care (dressing, bathing or showering, eating, getting in or out of bed, using the toilet), practical household help (home repairs, gardening, transportation, shopping, household chores), or help with paperwork (filling out forms, settling financial or legal matters) in the twelve months before the interview. An analogous definition applies to the informal care supplied by the spouse of the care recipient and other informal helpers such as the parent’s siblings, children-in-law or friends.

The parent in the model can choose between two alternatives: to receive formal care or not. In the data, I consider that a respondent receives formal care if they stayed in a nursing home or a residential care facility, or received professional care, help with domestic tasks, or meals-on-wheels at home in the twelve months before the interview.

The decision of child i to give informal care and that of the parent to receive formal care map to a number of hours $I_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ of informal care given and a number of hours $F(\mathbf{a}, b, \mathbf{x})$ of formal care received that depend on individual and family characteristics in $\mathbf{x}$. Since there is no information about hours of care in Waves 5 and 6 of SHARE, I impute these using data from Waves 1 and 2, as explained in Appendix C.

4.2 Hours worked and wages

In terms of employment, a child in the model has two options: to be employed or to be non-employed. This choice corresponds to a number of hours worked $N_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ that depends on individual characteristics in $\mathbf{x}$ and the decision to give informal care. In particular,

$$N_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) = \begin{cases} \tilde{N}_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) & \text{if } a_i = \text{ENC}, \\ \tilde{N}_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) - I_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x}) & \text{if } a_i = \text{EIC}, \\ 0 & \text{otherwise.} \end{cases} \quad (6)$$

where $\tilde{N}_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ is the potential number of hours that i could work.

The data gathered by SHARE in Waves 5 and 6 allows me to categorize the children of survey respondents as employed or non-employed, but there is no information on the number of hours worked by them. To overcome this limitation, I impute $\tilde{N}_i(a_i, \mathbf{a}_{-i}, b, \mathbf{x})$ using data on hours worked from the European Union Statistics on Income and Living Conditions (EU-SILC). Targeting individuals aged between 30 and 60 in the countries and years studied, I regress the logarithm of hours worked on a fourth-order polynomial of age, and dummies for gender and having college education. Table B1 shows the estimated coefficients.

I assume that wage offers w_{if} depend on a set $\mathbf{z}_{if}$ of observable characteristics of child i in family f and are measured with error ξ_{if} , such that

$$\ln w_{if} = \mathbf{z}_{if}' \boldsymbol{\lambda} + \xi_{if}, \quad (7)$$

similar to Mincer (1974), with ξ_{if} being i.i.d. normal. Since SHARE does not report the wages of the children of survey respondents, I use EU-SILC data on employees’ gross earnings from hours usually worked per week in the main job for the set of countries and years studied. Since I can only observe the wages of employed individuals in this dataset, I follow standard arguments in the literature to correct for self-selection bias (Heckman, 1974, 1979) in the estimation of $\boldsymbol{\lambda}$. In particular, $\mathbf{z}_{if}$ consists of a quadratic polynomial in child i ’s age, and dummies for gender, and college education. The marital status of the child and whether they have children act as exclusion restrictions for identification, since these aspects

affect the utility associated with employment and care choices, but not wages. Table B2 displays the estimated coefficients.

4.3 Preferences

To estimate child i 's preferences over employment and care alternatives, I assume that the unobservables $\epsilon_i(a)$ for $i = 1, \dots, N$ and $\zeta(b)$ are independent and identically distributed as type-I extreme value. All the parameters in $\alpha(a, b, \mathbf{x})$, as defined in Equation (2), are choice-specific, and I normalize to zero the ones corresponding to action $a_i = \text{NENC}$. In the parent's utility function, I also normalize to zero the parameters associated with $b = \text{NFC}$.

Let $\theta \in \mathbb{R}^{34}$ be the vector that collects the parameters in $\alpha(a, b, \mathbf{x})$, together with $\beta, \delta_0, \delta_1, \delta_2, \delta_3, \delta_4$, and δ_5 . I estimate θ by maximum simulated likelihood (MSL), using the probability distribution of the possible outcomes $\mathbf{d} \in \mathcal{D}$ of the game, conditional on the observables $\mathbf{x}_f$. Since these probabilities do not have a closed form, I approximate them numerically by making R independent draws of the unobservables, denoted by $(\epsilon_f^{(r)}, \zeta_f^{(r)})$, for $r = 1, \dots, R$. For each draw, I simulate the game played by each family in the data, and obtain a Nash equilibrium in pure strategies.^{10,11} Let $\Pr(\mathbf{d}|\mathbf{x}_f; \theta, \epsilon_f^{(r)}, \zeta_f^{(r)})$ be the probability that family f plays outcome $\mathbf{d}$ in equilibrium, given a value of θ and the error draws $\epsilon_f^{(r)}$ and $\zeta_f^{(r)}$. I obtain an estimate $\widetilde{\Pr}(\mathbf{d}|\mathbf{x}_f; \theta, \epsilon_f^{(r)}, \zeta_f^{(r)})$ of this probability by means of a flexibly specified logit model where the outcome of the game is assumed to depend on a polynomial of characteristics of the family.¹² Averaging over draws, the simulated probability that family f plays outcome $\mathbf{d}$ is

$$\widehat{\Pr}(\mathbf{d}|\mathbf{x}_f; \theta) = \frac{1}{R} \sum_{r=1}^R \widetilde{\Pr}(\mathbf{d}|\mathbf{x}_f; \theta, \epsilon_f^{(r)}, \zeta_f^{(r)}). \quad (8)$$

Thus, the MSL estimator $\hat{\theta}_{\text{MSL}}$ maximizes the log-likelihood

$$\widehat{\mathcal{L}}(\theta) = \sum_{f=1}^F \hat{\ell}_f(\theta) = \sum_{f=1}^F \sum_{\mathbf{d} \in \mathcal{D}_f} \mathbb{1}\{\mathbf{d}_f = \mathbf{d}\} \ln \widehat{\Pr}(\mathbf{d}|\mathbf{x}_f; \theta), \quad (9)$$

where $\hat{\ell}_f(\theta)$ is the simulated likelihood contribution of family f .¹³

I apply the estimation algorithm separately to the samples of families with three or fewer children in Northern, Central, and Southern Europe, which consist of 506, 2,276, and 2,330 families, respectively. As Table B3 shows, these families represent 87.7% of the initial sample in Northern Europe, 86.5% in Central Europe, and 83.3% in Southern Europe. I feed the optimization algorithm with the estimates of θ from a version of the model with no interactions among family members as initial values, and make 50 draws of the unobservables in the simulations.

¹⁰I simulate the game played by each family in the data by means of the Python interface of the Gambit library (McKelvey et al., 2014). This software computes the Nash equilibria of any finite, non-cooperative game using algorithms based on McKelvey and McLennan (1996).

¹¹I focus on equilibria in pure strategies because mixed strategies lack empirical support in the situation described by my model. In the simulations, cases in which families do not have any equilibrium in pure strategies are very rare.

¹²The polynomial of family characteristics contains quadratic polynomials of the value of weekly assets of the parent and the ages of the children, dummies for the parent's gender and having severe care needs, interactions between these variables, and an intercept.

¹³Theoretically, the game could exhibit multiple equilibria at some realizations of θ, ϵ and ζ . In case of multiplicity, I assume that all the possible equilibria are equally likely. This approach could be extended by estimating the probability of playing each equilibrium as a function of covariates, as part of the overall likelihood function. Thus, this equilibrium selection mechanism can be seen as a simplified version of the one proposed by Bjorn and Vuong (1984) in the context of labor force participation in the household, further explored by Tamer (2003) and Bajari et al. (2010).

4.4 Estimation results and model fit

Table 1 reports the parameter estimates of the preferences of the children and the parent for Northern, Central, and Southern Europe. The three sets of coefficient values aim to capture the influence of different family characteristics, institutions and social norms in the provision of elderly care across Europe. These coefficients are parameters of the players' payoff indices. Each measures how the payoff of a given action changes with a covariate, relative to the normalized base category (no formal care for the parent, and non-employment without informal caregiving for the children).¹⁴ I compute asymptotic standard errors as in Gouriéroux and Monfort (1991).

Table 1: Model parameter estimates

	Northern				Central			Southern		
<i>A: Parent's parameters</i>										
δ_0 : Constant	-0.971 (0.0006)				-0.663 (0.0002)			-1.578 (0.0003)		
δ_1 : Severe LTC needs (dummy)	0.339 (0.0003)				0.389 (0.0002)			0.046 (0.0001)		
δ_2 : Parental wealth	0.00025 (0.00009)				0.00004 (0.00001)			0.00004 (0.00002)		
δ_3 : Hours IC from children	0.169 (0.0003)				0.110 (0.0001)			0.025 (0.0001)		
δ_4 : IC from spouse (dummy)	0.246 (0.0003)				0.594 (0.0002)			0.318 (0.0001)		
δ_5 : IC from others (dummy)	0.860 (0.0004)				0.691 (0.0002)			0.634 (0.0002)		
<i>B: Child's parameters</i>										
β	0.025 (0.0002)				0.003 (0.000005)			0.005 (0.00008)		
	ENC	NEIC	EIC	ENC	NEIC	EIC	ENC	NEIC	EIC	
α_0 : Constant	0.819 (0.0005)	-2.279 (0.0009)	-1.144 (0.0005)	0.312 (0.0002)	-4.244 (0.0007)	-1.824 (0.0003)	0.230 (0.0001)	-3.038 (0.0004)	-3.157 (0.0005)	
α_1 : Severe LTC needs (dummy)	0.361 (0.0003)	1.700 (0.0007)	0.660 (0.0004)	-0.065 (0.0001)	0.447 (0.0002)	-0.240 (0.0001)	-0.067 (0.0001)	0.561 (0.0001)	0.317 (0.0002)	
α_2 : Child is female (dummy)	-0.410 (0.0003)	-0.578 (0.0004)	-0.346 (0.0005)	-0.181 (0.0001)	0.642 (0.0002)	0.391 (0.0002)	-0.669 (0.0002)	1.214 (0.0002)	0.873 (0.0002)	
α_3 : Child lives nearby (dummy)	0.394 (0.0004)	1.004 (0.0007)	1.559 (0.0006)	-0.092 (0.0001)	2.779 (0.0005)	1.159 (0.0003)	-0.310 (0.0002)	0.892 (0.0002)	1.033 (0.0002)	
α_4 : Hours IC from siblings	-0.188 (0.0003)	-0.133 (0.0002)	0.095 (0.0004)	-0.046 (0.0001)	0.147 (0.0001)	0.128 (0.0002)	-0.009 (0.0001)	0.097 (0.0001)	0.104 (0.0001)	
α_5 : Number of siblings who do not give IC	-0.312 (0.0003)	-1.180 (0.0008)	-1.395 (0.0006)	0.201 (0.0001)	-0.348 (0.0002)	-0.612 (0.0002)	0.039 (0.0001)	-0.579 (0.0002)	-0.754 (0.0002)	
α_6 : Hours of FC	-0.004 (0.0003)	-0.019 (0.0003)	-0.003 (0.0002)	-0.000 (0.0001)	0.002 (0.0001)	0.003 (0.0001)	0.002 (0.0001)	-0.002 (0.0001)	0.002 (0.0001)	
α_7 : IC from spouse (dummy)	0.176 (0.0003)	0.408 (0.0003)	0.159 (0.0002)	0.516 (0.0002)	0.150 (0.0001)	0.473 (0.0002)	0.285 (0.0001)	0.158 (0.0001)	0.258 (0.0001)	
α_8 : IC from others (dummy)	-0.355 (0.0004)	1.635 (0.0006)	0.473 (0.0004)	-0.286 (0.0001)	0.528 (0.0002)	0.509 (0.0002)	-0.022 (0.0001)	0.637 (0.0002)	0.901 (0.0002)	

Note: The child's choice alternatives are *non-employment and no care* (NENC; base category), *employment and no care* (ENC), *non-employment and informal care* (NEIC), and *employment and informal care* (EIC). Columns 2-4 report the choice-specific parameters estimated for Northern Europe, columns 5-7 the ones for Central Europe, and columns 8-10 the ones for Southern Europe. Asymptotic standard errors in parentheses.

¹⁴In general, the estimated coefficients need not have the same sign as the covariate's marginal effect on the equilibrium probability of an action. This is both because marginal effects in a multinomial discrete choice model depend on all coefficients jointly, and because several covariates —the care provided by siblings and the formal care received by the parent— are themselves equilibrium outcomes of the game. I therefore read the coefficients as statements about payoffs, and I base claims about behavior on the model's simulated care arrangements.

In Panel A of Table 1, the parent’s payoff from receiving formal care, relative to receiving none, rises with the severity of care needs (δ_1) and with parental wealth (δ_2), the latter being consistent with wealthier parents being better able to finance formal services. Both effects are sizable in Northern and Central Europe and weaker in the South, where formal care plays a smaller role. The coefficient on children’s informal care, δ_3 , is positive in all regions and larger in Northern and Central Europe, consistent with the combination of formal and informal care observed in Figure 1 and with a stronger role for formal services where public provision is more developed. The coefficients on receiving informal care from a spouse, δ_4 , and from other sources, δ_5 , are positive in all regions, indicating that the payoff of formal care, relative to none, is higher when the parent also has access to these other forms of help. This can be read as capturing complementarities in the parent’s care arrangements —parents who already receive some help are more likely to combine it with formal services— rather than as substitution away from formal care.

In Panel B of Table 1, the estimate of the child’s marginal utility of consumption, β , should be interpreted with caution when comparing across regions. Because the model is estimated separately by region and the scale of the preference shock is normalized, β is identified only relative to that scale and to the units and level of the regional consumption variable, so its value is not directly comparable across regions.

The rest of parameters of the child are choice-specific. The estimates of α_3 and α_1 suggest that the payoff of caregiving alternatives rise with physical proximity to the parent and, for the non-employed caregiving option, with the severity of the parent’s needs, consistent with caregiving by children who live close and whose parents are most dependent. The payoff of caregiving is higher for daughters in Central and Southern Europe, with α_2 being positive and largest in the South, in line with the pronounced gender gap in caregiving in these regions observed in Figure 3.

The parameters governing the interactions among siblings are central to the within-family allocation of care. The coefficient on the number of siblings who provide no care, α_5 , is negative for both caregiving alternatives in every region, and most negative in the North. This means that the payoff of providing informal care, relative to the base alternative, falls as more siblings decline to contribute. The coefficient on hours of informal care provided by siblings, α_4 , is positive across caregiving alternatives in Central and Southern Europe, and in the North except for the non-employed with care option, where it is negative. This suggests that siblings’ caregiving raises the payoff of providing informal care oneself in most cases, with the exception of the non-employed caregiving alternative in Northern Europe.

The coefficient on the hours of formal care the parent receives, α_6 , links the parent’s formal-care decision to the children’s choices, but the estimates are small throughout, ranging from -0.019 to 0.003 across regions and actions. The parent’s formal-care use therefore has a limited effect on the payoff of the children’s alternatives. Where the coefficient is largest, in the Northern non-employed caregiving payoff (-0.019), the negative sign is consistent with formal care substituting for the children’s informal care.

The coefficients on the parent receiving informal care from a spouse, α_7 , and from other sources, α_8 , capture how the availability of these alternative sources of care affects the payoff of the child. The estimate of α_7 is positive for all caregiving alternatives in every region, consistent with spousal and child caregiving being complementary. The estimate of α_8 is positive and sizable for the caregiving alternatives but negative for employed, no-care alternative. This suggests that the presence of other helpers raises the relative payoff of the child’s own caregiving rather than displacing it.

To evaluate the goodness of fit of the estimated model, Table B4 and Figures A5 and A6 compare the elderly care arrangements and children’s employment choices observed in the estimation sample with those obtained in the model simulations. Figures A7 and A8, together with Table B5, compare care arrangements across families of different sizes. Finally, Figure A9 focuses on the probability of giving

informal care by gender of the caregiver. Overall, the model fits the observed care and employment choices closely across all three regions. It also reproduces the observed decline in individual caregiving rates as family size increases and the gender gap in caregiving.

5 Policy Experiments

As discussed in Section 2, there is substantial heterogeneity in both access to elderly care and labor market outcomes of informal caregivers across Europe. In Southern Europe, in particular, a non-negligible share of individuals with care needs do not receive any help, and there are large employment gaps between individuals who provide informal care and those who do not. In this context, policymakers may be interested in expanding access to formal care services or compensating informal caregivers for the costs of providing care. In this section, I use the estimated model to simulate five policy experiments that serve these purposes.

The first policy consists of a non-means-tested subsidy that is given to parents conditional on receiving formal care.¹⁵ To implement this experiment in the model, I increase the value of the estimate of δ_0 . In the parent's utility function, the role of wealth is captured by $\delta_{2b}W$. Parents may derive utility from wealth for two reasons: first, wealth could be used to pay for formal care; and second, it could be enjoyed as consumption or as bequest left to children. An alternative specification of the parent's utility makes these two roles more explicit, replacing $\delta_{2b}W$ by $\gamma\widetilde{W} + \eta_b W$, with

$$\widetilde{W} = \begin{cases} W - p & \text{if } b = \text{FC}, \\ W & \text{otherwise,} \end{cases} \quad (10)$$

and p being the price of formal care. For $b = \text{FC}$, this would be $(\gamma + \eta_b)W - \gamma p$, and the subsidy could be implemented by reducing the value of p . In my specification of the parent's utility, this is equivalent to increasing the value of δ_0 by $\gamma \times \text{subsidy}$. I use the value estimated for the child's marginal utility of consumption β in each region as an approximation to γ .¹⁶

Next, I consider an alternative implementation of this subsidy that extends it to all parents with care needs, regardless of whether they use formal care. In the model, I implement this policy by increasing the value of parental wealth W . The remaining three experiments instead allocate the subsidy equally among the children who provide informal care in the family, either conditional on, or independent of, their labor force participation. Specifically, in the third experiment, the subsidy is divided among children who are both employed and provide informal care (i.e., those choosing $a_i = \text{EIC}$), with each qualifying child receiving an addition to their non-labor income y_i , which raises their consumption as specified in Equation (3). In the fourth experiment, the subsidy is instead shared among children who are non-employed and give informal care (i.e., those choosing $a_i = \text{NEIC}$), which again raises y_i . In the fifth experiment, the subsidy is shared among all the children who provide informal care in the family regardless of employment status (i.e., those choosing $a_i \in \{\text{NEIC}, \text{EIC}\}$), again as an increase in y_i .

To assess the impact of these policy alternatives across regions, I conduct the simulations separately for Central and Southern Europe. In each experiment, the amount granted to families depends on the level of care needs (light or severe) and ranges between 6,597 and 10,681 euros per year in Central Europe, and 7,172 and 10,192 euros in Southern Europe. These amounts correspond to the transfers required to

¹⁵Cash benefits or subsidies are one of the many alternatives that countries have implemented to help meet elderly care needs (Colombo et al., 2011).

¹⁶As explained in Section 4.4, the value of the child's marginal utility of consumption, β , is not directly comparable across regions. When it enters the formal-care experiment to approximate the marginal utility of wealth in converting the subsidy into a utility shift, the magnitude of the experiment scales with it, so its results are best read as informative about the direction and relative size of the policy effects.

equalize the share of total elderly care costs covered by public social protection systems in Central and Southern Europe with the corresponding share in Northern Europe. For the three subsidies targeting informal caregivers, I recalibrate the transfers so that the total fiscal cost of each policy matches that of the formal care subsidy. In the next subsections, I discuss the effects of the five policies on care arrangements and the employment choices of the children of care recipients in Central and Southern Europe.¹⁷

5.1 Type of care received

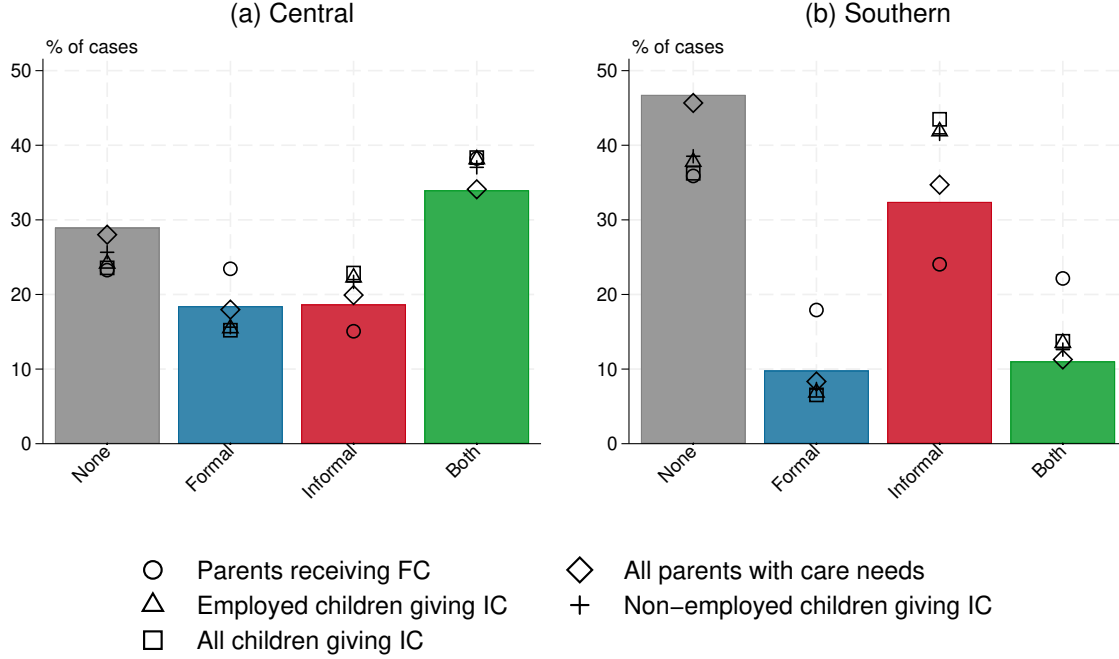


Figure 5: Type of care received by parents in baseline and policy simulations. The figure plots the percentage of parents aged 70 or older with care needs who receive no care, only formal care, only informal care, or both types of care in baseline (bars) and policy (markers) simulations. The evaluated policies are a subsidy for parents, conditional on formal care (dots); a subsidy for parents, unconditional on formal care (diamonds); a subsidy for caregiving children, conditional on employment (triangles); a subsidy for caregiving children, conditional on non-employment (crosses); and a subsidy for caregiving children, unconditional on employment (squares). The two country groups represented are Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). The shares are also reported in Table B6.

Figure 5 and Table 2 represent the results of the five policies on the type of care chosen by families. The subsidy for parents who receive formal care induces a shift toward formal services in Southern Europe, where formal care use is initially lower than in the rest of Europe. In this region, the share of parents receiving any care increases by 10.9 percentage points, driven by large rises in both formal-only care (+8.1 p.p.) and combined formal and informal care (+11.1 p.p.). Overall, formal care use increases by 19.2 p.p. and informal care use by 2.8 p.p.

¹⁷As noted in Section 3.2, spousal care is exogenous and held fixed across the baseline and the policy experiments. Because the three subsidies targeted at children are directed at their labor supply, which also drives the employment and gender-gap results, allowing spouses to re-optimize would leave the results essentially unchanged. In the case of the parent-targeted subsidies, a spouse who could re-optimize might substitute some of their own care toward the newly subsidized formal services, so the model may understate the crowding-out of informal care in those cases.

Table 2: Comparison of care arrangements between policy experiments and baseline simulations

Outcome	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. Central Europe</i>					
Rate of only FC users (p.p.)	+5.0	-0.5	-3.0	-2.8	-3.2
Rate of only IC users (p.p.)	-3.6	+1.3	+3.6	+3.0	+4.2
Rate of users of both types of care (p.p.)	+4.3	+0.1	+4.2	+3.1	+4.4
Rate of users of FC (p.p.)	+9.3	-0.3	+1.2	+0.3	+1.2
Rate of users of IC (p.p.)	+0.7	+1.4	+7.8	+6.1	+8.6
Rate of care users (p.p.)	+5.7	+0.9	+4.8	+3.3	+5.4
Cost (million euros/year)	44,291.7	70,328.7	44,291.7	44,291.7	44,291.7
Cost (% GDP)	0.8%	1.2%	0.8%	0.8%	0.8%
<i>B. Southern Europe</i>					
Rate of only FC users (p.p.)	+8.1	-1.5	-2.9	-2.5	-3.3
Rate of only IC users (p.p.)	-8.4	+2.3	+9.5	+9.1	+11.1
Rate of users of both types of care (p.p.)	+11.1	+0.3	+2.5	+1.6	+2.7
Rate of users of FC (p.p.)	+19.2	-1.2	-0.5	-0.9	-0.6
Rate of users of IC (p.p.)	+2.8	+2.5	+11.9	+10.7	+13.8
Rate of care users (p.p.)	+10.9	+1.1	+9.0	+8.2	+10.5
Cost (million euros/year)	32,616.5	80,852.9	32,616.5	32,616.5	32,616.5
Cost (% GDP)	1.2%	2.9%	1.2%	1.2%	1.2%

Note: Each row reports the change of each rate in percentage points between each policy experiment (in columns) and the baseline simulations in Central and Southern Europe. The last two rows of each panel report the total cost of each policy in millions of euros per year and the share of GDP that it represents for the region in 2015. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. Population effects by country are reported in Tables B7 and B8.

By contrast, the subsidy for all parents with care needs has relatively modest effects. In Southern Europe, it leaves overall care receipt almost unchanged (rises by only 1.1 p.p.), with a small increase in the share of individuals relying on informal care (+2.5 p.p.). Unlike the previous subsidy, this policy does not shift families toward formal services. Instead, it even generates a slight decline in formal care use (-1.2 p.p.).¹⁸

The subsidy for employed children who provide informal care increases the use of this type of care substantially, raising the share of users by 11.9 p.p., pushing families away from formal-only care (-2.9 p.p.) and lifting overall care receipt by 9 p.p. The subsidy directed at non-employed caregivers and the one covering all children who provide informal care generate similar patterns, raising informal care use by 10.7 and 13.8 p.p. and overall care receipt by 8.2 and 10.5 p.p., respectively.

In population terms, the subsidy conditional on formal care raises the number of individuals receiving some care by roughly 236,000 in Central Europe and 458,000 in Southern Europe, whereas the unconditional transfer to all parents with care needs increases it by only about 39,000 and 45,000, respectively. Among the three subsidies for informal caregivers, the subsidy to employed caregivers adds roughly 200,000 care recipients in Central Europe and 378,000 in Southern Europe, the subsidy to non-employed caregivers about 137,000 and 347,000, and the subsidy to all caregivers about 224,000 and 443,000, respectively. The full country-level breakdown of these population effects is reported in Tables B7 and B8.

¹⁸In the model, children's payoffs do not depend on parental wealth, so the subsidy for all parents with care needs affects only the parent's own formal-care decision and does not alter the children's incentives to provide informal care. If parents could direct additional wealth toward their children through inter vivos transfers or bequests conditional on caregiving, that wealth could be used to elicit informal care, and the subsidy would have a larger effect on care receipt. This result should therefore be read as conditional on the absence of such an exchange mechanism. The role of bequest and exchange motives in shaping care arrangements has been studied by [Bernheim et al. \(1985\)](#), [Pauly \(1990\)](#), [Cremer et al. \(2012\)](#), [Dobrescu \(2015\)](#), [Barczyk and Kredler \(2018\)](#), [Ko \(2022\)](#), [Barczyk et al. \(2023\)](#), and [Mommaerts \(2025\)](#), among others.

Taken together, formal-care subsidies substantially increase the use of these services, while subsidies for all parents with care needs have limited effects on care arrangements. By comparison, subsidies for caregivers make families more likely to rely on informal support. The subsidy for formal care recipients is the most effective at increasing the share of individuals who receive some care, closely followed by the subsidy for all children who provide informal care. These patterns are similar in Central Europe, though the magnitudes of the effects are smaller.

5.2 Care arrangements by number of siblings

Figure 6 illustrates how the five policy experiments affect the probability that adult children provide informal care to their parents, by family size. Subsidies for parents conditional on receiving formal care increase this probability in Central Europe among two-child families (from 20% in the baseline to 24.9%) and in Southern Europe among three-child families (from 21.6% to 25.9%), while it remains essentially unchanged for the rest. In these families, caregiving responsibilities may be shared more easily, so even modest reductions in the overall care burden, such as those induced by subsidized formal care, may make stepping in as an informal caregiver more manageable. In this context, and especially in Central Europe, formal and informal care often act as complements rather than substitutes. These dynamics may be reinforced by norms among siblings regarding caregiving, leading to a more even distribution of caregiving responsibilities once formal support becomes available. By contrast, single children bear the full burden of care and therefore are not more likely to engage in caregiving when formal care expands.

A similar pattern is observed when the subsidy is extended to all parents with care needs. The probability of providing informal care to parents increases among two-child families in Central Europe by 5.4 p.p., and by 1.5 p.p. among three-child families in Southern Europe, while effects remain limited for the other families.

Subsidies targeted at children, whether conditional on employment or not, produce large increases in the probability of providing informal care across all family sizes. In Central Europe, the subsidy for employed, informal caregivers raises this probability by 11.9 p.p. for one-child families, by 13.8 p.p. for two-child families, and by 8.5 p.p. for three-child families. The subsidy for non-employed caregivers and the one covering all informal caregivers produce increases of broadly similar magnitude, though the non-employed variant is weaker among only children (+5.2 p.p. in Central Europe). In Southern Europe the responses are even larger, with the employment-conditional subsidy raising the probability of giving informal care by 12.8 p.p. among one-child families, 10.1 p.p. among two-child families, and 11.3 p.p. among three-child families.

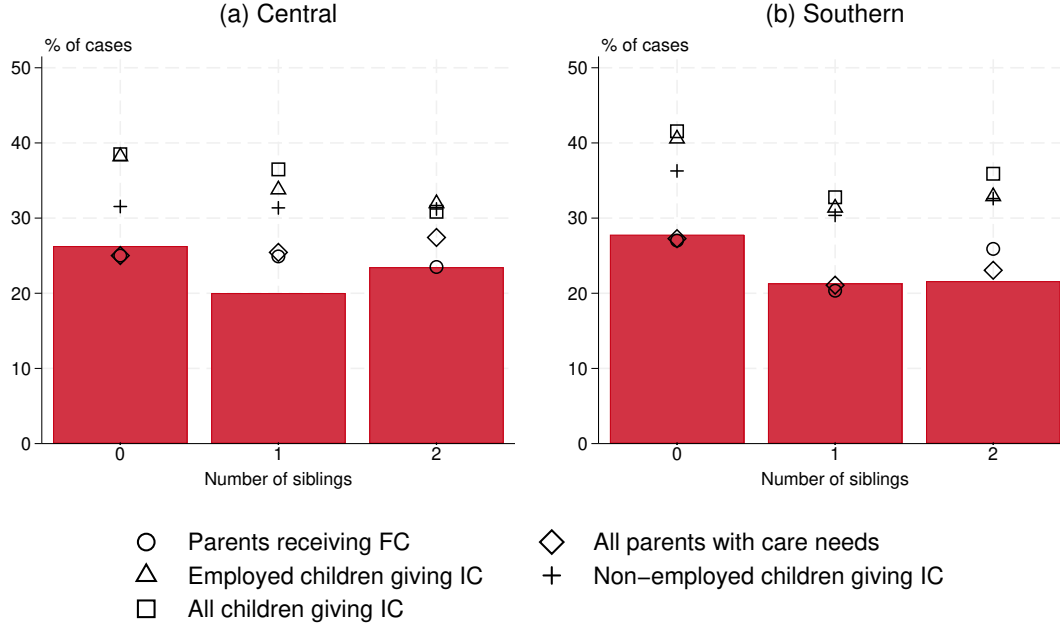


Figure 6: Probability of giving informal care to parents by number of siblings in baseline and policy simulations. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them in baseline (bars) and policy (markers) simulations, by number of siblings of the caregiver. The evaluated policies are a subsidy for parents, conditional on formal care (dots); a subsidy for parents, unconditional on formal care (diamonds); a subsidy for caregiving children, conditional on employment (triangles); a subsidy for caregiving children, conditional on non-employment (crosses); and a subsidy for caregiving children, unconditional on employment (squares). The two country groups represented are Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). The shares are also reported in Table B9.

Table 3 and Table 4 provide further detail on how care arrangements change in response to the policies in families of different sizes. Under the subsidy for parents receiving formal care, overall care receipt increases for all family sizes in both regions, with larger gains in Southern Europe. In Central Europe, the share of families in which the parent receives any care rises by 7.5 p.p. in one-child families, by 3.9 p.p. in two-child families, and by 5.5 p.p. in three-child families. In Southern Europe, the increases are 12.5 p.p., 8.6 p.p., and 12.5 p.p., respectively. As discussed in Section 5.1, these gains reflect a shift toward formal care. For example, in Southern Europe, the share of families in which the parent receives only formal care rises by 12.1 p.p. among one-child families, by 6.7 p.p. among two-child families, and by 5 p.p. among three-child families, while the share of those receiving both formal and informal care rises by 9.8 p.p., 13.4 p.p., and 9.1 p.p., respectively. At the same time, the share of those who rely only on informal care falls by 9.5 p.p. in one-child families, by 11.5 p.p. in two-child families, and by 1.6 p.p. in three-child families.

In turn, the subsidy for all parents with care needs has small effects. In Central Europe, care receipt increases by 1.7 p.p. in one-child families and by 3.1 p.p. in three-child families, but decreases by 1.1 p.p. in two-child families. In Southern Europe, the corresponding changes are +1.1 p.p., +3.3 p.p., and -0.3 p.p. Shifts in the type of care chosen are also mixed. For instance, in Southern Europe, the share receiving only informal care increases substantially in three-child families (+9.5 p.p.), while the share receiving formal care declines (-6.2 p.p.), indicating that this policy does not consistently move families toward formal services.

The subsidy for employed, informal caregivers expands informal care provision across all family sizes.

Table 3: Changes in care provision by number of children. Policy experiments vs. baseline simulations – Central Europe

	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. One child</i>					
Receiving only FC	+7.1	+1.3	-1.6	-0.7	-1.7
Receiving only IC	-0.5	+5.6	+8.0	+7.8	+8.2
Receiving both types of care	+0.9	-5.2	-0.2	-2.6	-0.1
Receiving FC	+8.0	-3.9	-1.8	-3.3	-1.8
Receiving IC	+0.4	+0.4	+7.9	+5.2	+8.2
Receiving care	+7.5	+1.7	+6.2	+4.5	+6.4
No child provide IC	+1.3	+1.3	-11.9	-5.3	-12.2
One child provides IC	-1.3	-1.3	+11.9	+5.3	+12.2
Two children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
Three children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
<i>B. Two children</i>					
Receiving only FC	+2.8	-2.0	-3.9	-4.1	-5.3
Receiving only IC	-8.3	-5.2	-2.4	-4.2	-1.6
Receiving both types of care	+9.3	+6.0	+9.6	+9.8	+11.3
Receiving FC	+12.2	+4.1	+5.7	+5.7	+6.0
Receiving IC	+1.0	+0.9	+7.2	+5.6	+9.7
Receiving care	+3.9	-1.1	+3.3	+1.5	+4.4
No child provide IC	-6.0	-6.5	-17.7	-13.7	-20.6
One child provides IC	+2.2	+2.2	+7.9	+4.6	+8.2
Two children provide IC	+3.8	+4.3	+9.8	+9.0	+12.4
Three children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
<i>C. Three children</i>					
Receiving only FC	+4.9	-1.1	-3.7	-4.5	-2.3
Receiving only IC	-1.1	+4.5	+6.0	+6.8	+6.9
Receiving both types of care	+1.7	-0.3	+2.7	+1.9	+0.5
Receiving FC	+6.6	-1.4	-1.0	-2.6	-1.8
Receiving IC	+0.5	+4.2	+8.7	+8.8	+7.4
Receiving care	+5.5	+3.1	+5.0	+4.3	+5.1
No child provide IC	-2.3	-5.4	-12.8	-11.9	-12.0
One child provides IC	+2.2	+0.6	+4.6	+4.8	+5.4
Two children provide IC	+2.5	+3.2	+3.7	+3.1	+3.1
Three children provide IC	-2.4	+1.6	+4.5	+4.1	+3.5

Note: Each column reports the change in percentage points in the share of families under different care arrangements between each policy experiment and the baseline simulations in Central Europe. Panels A, B, and C correspond to families with one, two, and three adult children, respectively. “FC” denotes formal care and “IC” denotes informal care. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The corresponding shares are reported in Table B10.

The share of parents receiving informal care rises in Central Europe by 7.9 p.p. in one-child families, by 7.2 p.p. in two-child families, and by 8.7 p.p. in three-child families. In Southern Europe, the corresponding increases are 10.1 p.p., 11.9 p.p., and 14.6 p.p. This policy also reduces the share of families in which no child provides informal care by 11.9–17.7 p.p. in Central Europe and by 12.8–15.2 p.p. in Southern Europe, depending on family size. In Central Europe, the share of two-child families with two caregiving children rises by 9.8 p.p., and the share of three-child families with three caregiving children rises by 4.5 p.p. In Southern Europe, the corresponding increases are 6.7 p.p. and 6.4 p.p. The subsidy for non-employed caregivers moves informal care in the same direction but by somewhat less, particularly among only children. It raises the share of parents receiving informal care by 5.2–8.8 p.p. in Central Europe, and by 6.2–14.9 p.p. in Southern Europe, and cuts the share of families with no caregiving child by 5.3–13.7 p.p. and by 8.5–16.1 p.p., respectively. The subsidy for all informal caregivers produces similar movements.

In sum, subsidies tied to formal-care use shift families toward formal services and expand overall care receipt, with larger gains in Southern Europe. However, their effects on children’s informal caregiving

Table 4: Changes in care provision by number of children. Policy experiments vs. baseline simulations – Southern Europe

	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. One child</i>					
Receiving only FC	+12.1	+0.6	-1.4	-0.0	-0.8
Receiving only IC	-9.5	+0.4	+8.1	+5.5	+9.0
Receiving both types of care	+9.8	+0.1	+2.0	+0.7	+1.5
Receiving FC	+22.0	+0.7	+0.6	+0.7	+0.7
Receiving IC	+0.3	+0.6	+10.1	+6.2	+10.4
Receiving care	+12.5	+1.1	+8.6	+6.2	+9.7
No child provide IC	+0.8	+0.5	-12.8	-8.5	-13.8
One child provides IC	-0.8	-0.5	+12.8	+8.5	+13.8
Two children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
Three children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
<i>B. Two children</i>					
Receiving only FC	+6.7	-2.2	-3.2	-3.2	-4.1
Receiving only IC	-11.5	-0.6	+7.1	+8.0	+8.5
Receiving both types of care	+13.4	+2.5	+4.7	+3.9	+5.7
Receiving FC	+20.1	+0.3	+1.6	+0.7	+1.6
Receiving IC	+1.9	+1.9	+11.9	+11.9	+14.2
Receiving care	+8.6	-0.3	+8.7	+8.7	+10.1
No child provide IC	+0.9	+0.1	-13.4	-12.8	-16.0
One child provides IC	+0.2	+0.3	+6.8	+7.6	+9.1
Two children provide IC	-1.1	-0.4	+6.7	+5.2	+6.9
Three children provide IC	+0.0	+0.0	+0.0	+0.0	+0.0
<i>C. Three children</i>					
Receiving only FC	+5.0	-2.9	-4.7	-4.6	-5.3
Receiving only IC	-1.6	+9.5	+15.2	+15.9	+18.1
Receiving both types of care	+9.1	-3.3	-0.6	-1.1	-0.5
Receiving FC	+14.1	-6.2	-5.2	-5.6	-5.8
Receiving IC	+7.5	+6.3	+14.6	+14.9	+17.6
Receiving care	+12.5	+3.3	+9.9	+10.3	+12.3
No child provide IC	-6.0	-3.6	-15.2	-16.1	-20.0
One child provides IC	+1.6	+2.3	+3.1	+5.5	+6.0
Two children provide IC	+2.1	+1.8	+5.8	+4.1	+4.9
Three children provide IC	+2.4	-0.5	+6.4	+6.4	+9.0

Note: Each column reports the change in percentage points in the share of families under different care arrangements between each policy experiment and the baseline simulations in Southern Europe. Panels A, B, and C correspond to families with one, two, and three adult children, respectively. “FC” denotes formal care and “IC” denotes informal care. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The corresponding shares are reported in Table B11.

are limited and tend to be concentrated in family structures where caregiving can be shared more easily among siblings. By contrast, the broad, unconditional subsidy for all parents with care needs has weak and uneven effects. It neither consistently promotes formal care nor substantially increases care receipt, and in some cases, it even shifts families toward informal support. Finally, subsidies targeted at informal caregivers are the most effective at mobilizing informal care. They raise informal caregiving across all family sizes, sharply reduce the fraction of families in which no child provides care, and increase the likelihood that multiple children participate in larger families, without fundamentally altering the underlying gradient in caregiving by family size.

5.3 Informal caregiving by gender

Figure 7 shows the effects of the five policy experiments on the probability that men and women provide informal care to their parents. In both Central and Southern Europe, women are substantially more likely to provide informal care than men in the baseline scenario, and the difference is especially large in the South. These gender differences persist across all policy scenarios and generally become more pronounced

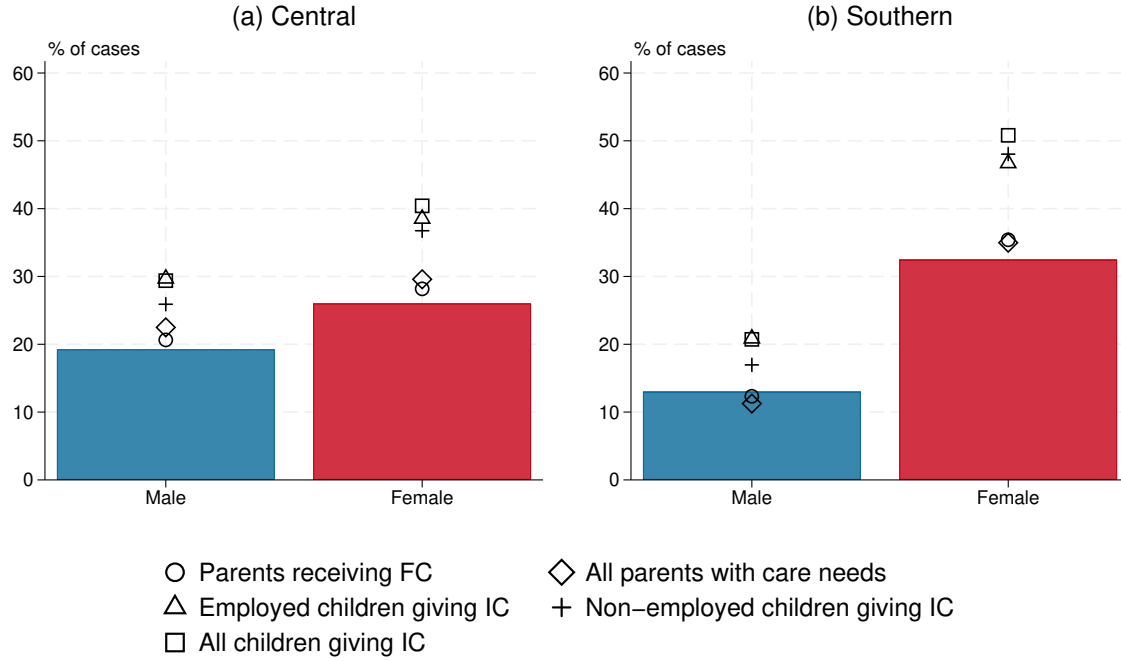


Figure 7: Probability of giving informal care to parents by gender in baseline and policy simulations. The figure plots the percentage of individuals who are aged 60 or younger, have at least one parent with care needs aged 70 or older, and give informal care to them in baseline (bars) and policy (markers) simulations, by gender of the caregiver. The evaluated policies are a subsidy for parents, conditional on formal care (dots); a subsidy for parents, unconditional on formal care (diamonds); a subsidy for caregiving children, conditional on employment (triangles); a subsidy for caregiving children, conditional on non-employment (crosses); and a subsidy for caregiving children, unconditional on employment (squares). The two country groups represented are Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). The percentages are also reported in Table B12.

relative to the baseline, especially under subsidies that directly incentivize informal caregiving.

In Central Europe, all five policies increase the probability of giving informal care to parents for both genders, but women respond more strongly, which widens the gap with respect to men. Under the formal-care subsidy, men's probability increases by 1.3 p.p., while women's rises by 2.2 p.p., increasing the gap by 0.9 p.p. The subsidy for all parents with care needs raises men's probability by 3.2 p.p. and women's by 3.6 p.p., widening the gap by only 0.4 p.p. The three subsidies for informal caregivers generate much larger increases in the probability of giving informal care, and still amplify the gender gap. The employment-conditional subsidy raises men's caregiving probability by 10.4 p.p. and women's by 12.5 p.p., expanding the gap by 2.1 p.p. The variant directed at non-employed caregivers raises men's probability by 6.6 p.p. against women's 10.7 p.p., and the subsidy covering all caregivers by 10.1 and 14.4 p.p. They both widen the gap by roughly 4 p.p., more than the employment-conditional version, since non-employed caregiving is disproportionately female.

In Southern Europe, where gender gaps are already substantial in the baseline scenario, the amplification of these differences is even starker. Subsidies for parents raise women's caregiving probability and leave men's unchanged or slightly lower. Under the formal-care subsidy, men's probability declines by 0.7 p.p. while women's grows by 2.9 p.p., widening the gap by 3.6 p.p. The subsidy for all parents with care needs has very similar effects. Meanwhile, subsidies for informal caregivers dramatically increase the probability of providing care for both genders, but disproportionately for women. The employment-conditional subsidy increases men's probability by 7.9 p.p. and women's by 14.2 p.p., opening the gap

by 6.3 p.p. The subsidy for non-employed caregivers raises men’s probability by only 4 p.p. against women’s 15.5, widening the gap by 11.6 p.p., while the subsidy covering all caregivers opens it by 10.6 p.p. Because non-employed caregiving is even more heavily female in the South, the variants of the subsidy that do not condition on employment amplify the gender gap the most.

Table 5 shows how gender differences in informal caregiving respond to the policies across families of different sizes. As discussed before, across policy scenarios, the probability of providing informal care to parents rises in general for both men and women, but women respond more. In Central Europe, subsidies targeted at parents increase women’s participation in caregiving more than men’s in two-child families. In particular, the formal-care subsidy raises women’s probability of giving informal care by 6.7 p.p. in these families, while men’s increases by 3.1 p.p., widening the gender gap by 3.6 p.p. The subsidy for all parents with care needs widens it by 2.1 p.p. However, the direction of these effects varies with family size. In one-child families, both parent subsidies widen the gap only slightly (by 1.6 p.p.), as caregiving declines more modestly for both genders. In three-child families, by contrast, they narrow it –by 2.8 p.p. under the formal-care subsidy and by 1.9 p.p. under the subsidy for all parents with care needs– because men’s caregiving rises by at least as much as women’s, and under the formal-care subsidy women’s actually falls. The subsidies for informal caregivers have a much larger impact. In one-child families, the employment-conditional subsidy increases men’s caregiving probability by 12 p.p. and women’s by 11.9 p.p., whereas in two-child families it raises men’s by 11.7 p.p. and women’s by 15.8 p.p., expanding the gap by 4.1 p.p. In three-child families, men’s caregiving probability increases by 8.1 p.p., women’s by 8.9 p.p., and the gap by 0.7 p.p. The unconditional variant produces broadly similar effects, though it widens the gap somewhat more in three-child families. The non-employed-caregiver subsidy widens the gender gap the most in one- and two-child families (by 8 and 7.1 p.p.), but narrows it slightly in three-child families (by 1.5 p.p.).

Table 5: Changes in the probability of giving informal care by number of siblings and gender. Policy experiments vs. baseline simulations

Number of siblings	0			1			2		
	Men	Women	Gap (p.p.)	Men	Women	Gap (p.p.)	Men	Women	Gap (p.p.)
<i>A. Central Europe</i>									
Parents receiving FC	-2.1	-0.6	-1.6	+3.1	+6.7	-3.6	+1.4	-1.4	+2.8
All parents with care needs	-2.1	-0.6	-1.6	+4.4	+6.5	-2.1	+4.8	+3.0	+1.9
Employed children giving IC	+12.0	+11.9	+0.1	+11.7	+15.8	-4.1	+8.1	+8.9	-0.7
Non-employed children giving IC	+0.9	+8.8	-8.0	+7.8	+14.9	-7.1	+8.4	+7.0	+1.5
All children giving IC	+11.3	+13.0	-1.7	+13.8	+19.1	-5.3	+5.3	+9.7	-4.4
<i>B. Southern Europe</i>									
Parents receiving FC	-0.3	-1.3	+1.0	-3.8	+2.0	-5.7	+2.7	+6.0	-3.3
All parents with care needs	-0.3	-0.8	+0.5	-3.4	+3.1	-6.6	-0.5	+3.4	-3.9
Employed children giving IC	+12.1	+13.4	-1.2	+5.6	+14.8	-9.2	+8.5	+14.1	-5.5
Non-employed children giving IC	+4.3	+12.6	-8.3	+0.6	+18.0	-17.3	+7.6	+14.4	-6.9
All children giving IC	+10.7	+16.8	-6.1	+5.7	+17.6	-11.9	+8.8	+19.9	-11.2

Note: Each row reports the change in percentage points in the probability of providing informal care to parents between each policy experiment and the baseline simulation, by number of siblings and gender, and in the gap between men and women. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. Panels A and B correspond to Central (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain), respectively. The corresponding shares are reported in Table B13.

In Southern Europe, the same pattern is even more pronounced as baseline gaps are already large. Subsidies for parents leave men’s participation in caregiving roughly unchanged or slightly lower than

in the baseline scenario but increase women’s caregiving in two- and three-child families, widening the gender gap. For example, in two-child families, the formal-care subsidy reduces men’s probability by 3.8 p.p. while raising women’s by 2 p.p., expanding the gap by 5.8 p.p. The subsidy for all parents with care needs opens a similar gap. The subsidies for informal caregivers increase caregiving for both genders, but far more for women. In one-child families, the employment-conditional subsidy raises men’s caregiving probability by 12.1 p.p. and women’s by 13.4 p.p., widening the gap by 1.3 p.p. In two- and three-child families, the gap increases by 9.2 p.p. and 5.5 p.p., respectively. The non-employed variant of the subsidy also widens the gender gap substantially. This opens by 17.3 p.p. among two-child families, since almost all the induced caregiving in these families comes from women (+18 p.p. against +0.6 p.p. for men). The unconditional version of the subsidy has similar effects.

Overall, these results suggest that while subsidies can successfully expand care provision, they can often do so by reinforcing gender roles rather than by redistributing caregiving more evenly between daughters and sons.

5.4 Employment

Figure 8 and Table 6 illustrate the effects of the policies on the employment choices of the children of care recipients. The subsidy for parents receiving formal care increases the share of employed caregivers in Central Europe and nearly eliminates the gap with respect to non-caregivers. Relative to the baseline, overall employment rises by 0.8 p.p., driven by a 2.7 p.p. increase among caregivers, while employment of non-caregivers is essentially unchanged. As a result, the employment gap between the two groups shrinks from 2.8 to 0.4 p.p. In Southern Europe, by contrast, this policy lowers employment among caregivers by 2.6 p.p., while non-caregiver employment increases by 1 p.p. The employment gap therefore widens by 3.6 p.p., suggesting that expanding formal care access does not translate into higher employment rates for caregivers in the South.

The subsidy for all parents with care needs has weaker effects in Central Europe but points in the same direction. Employment increases by 0.3 p.p. overall, with caregivers’ employment rising by 2.2 p.p. while non-caregivers’ falls by 0.2 p.p., which reduces the gap between the two groups by 2.4 p.p. In Southern Europe, however, this policy lowers caregiver employment by 3.3 p.p. and slightly raises non-caregiver employment by 0.6 p.p., widening the employment gap by 3.9 p.p.

Table 6: Comparison of employment choices between policy experiments and baseline simulations

Outcome	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. Central Europe</i>					
Employment rate (p.p.)	+0.8	+0.3	+1.7	-6.4	+0.4
Employment rate of non-caregivers (p.p.)	+0.2	-0.2	-0.6	+0.2	-0.8
Employment rate of caregivers (p.p.)	+2.7	+2.2	+7.0	-20.0	+3.5
Employment gap non-caregivers/caregivers (p.p.)	-2.4	-2.4	-7.6	+20.3	-4.3
Cost (million euros/year)	44,291.7	70,328.7	44,646.4	44,046.6	44,605.3
Cost (% GDP)	0.8%	1.2%	0.8%	0.8%	0.8%
<i>B. Southern Europe</i>					
Employment rate (p.p.)	+0.0	-0.3	+3.6	-7.4	-1.7
Employment rate of non-caregivers (p.p.)	+1.0	+0.6	+1.0	+1.1	+0.7
Employment rate of caregivers (p.p.)	-2.6	-3.3	+11.6	-22.5	-2.8
Employment gap non-caregivers/caregivers (p.p.)	+3.6	+3.9	-10.6	+23.6	+3.6
Cost (million euros/year)	32,616.5	80,852.9	32,539.1	32,740.0	32,719.4
Cost (% GDP)	1.2%	2.9%	1.2%	1.2%	1.2%

Note: Each row reports the change of each rate in percentage points between each policy experiment (in columns) and the baseline simulations in Central and Southern Europe. The last two rows of each panel report the total cost of each policy in millions of euros per year and the share of GDP that it represents for the region in 2015. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment.

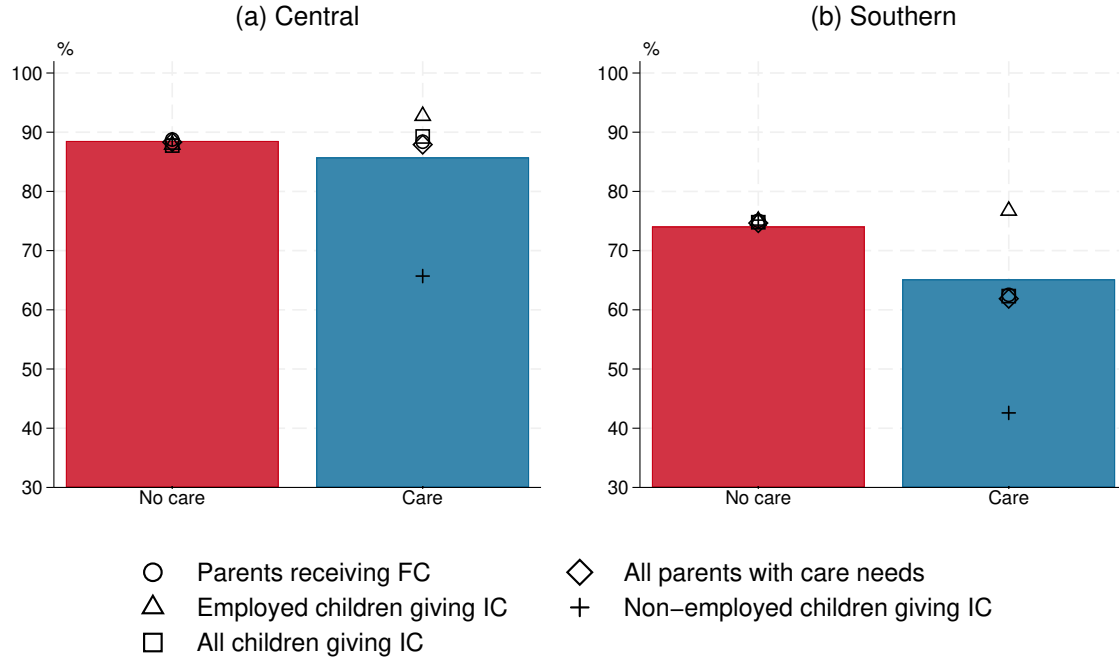


Figure 8: Employment rate of children by informal care given to parents in baseline and policy simulations. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who are employed or non-employed, while giving informal care or no care in baseline (bars) and policy (markers) simulations. The evaluated policies are a subsidy for parents, conditional on formal care (dots); a subsidy for parents, unconditional on formal care (diamonds); a subsidy for caregiving children, conditional on employment (triangles); a subsidy for caregiving children, conditional on non-employment (crosses); and a subsidy for caregiving children, unconditional on employment (squares). The two country groups represented are Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). The percentages are also reported in Table B14.

Informal care subsidies yield the strongest employment responses. In Central Europe, the subsidy for employed children giving informal care raises overall employment by 1.7 p.p., led by a 7 p.p. increase in caregiver employment while non-caregiver employment falls by 0.6 p.p. The gap between the two groups thus decreases by 7.6 p.p., reversing in favor of caregivers. In Southern Europe, the subsidy increases overall employment by 3.6 p.p., with a large 11.6 p.p. increase among caregivers and a smaller 1 p.p. rise among non-caregivers. The gap between the two narrows by 10.6 p.p., slightly reversing in favor of caregivers. The subsidy for all children giving informal care produces similar but somewhat smaller effects in Central Europe, whereas in Southern Europe it slightly widens the gap by marginally reducing caregiver's employment. The subsidy directed at non-employed caregivers naturally draws caregivers out of employment. In Central Europe, caregiver's employment falls by 20 p.p. and overall employment by 6.4 p.p., widening the gap with non-caregivers by 20.3 p.p. In Southern Europe, the corresponding declines are 22.5 p.p. among caregivers and 7.4 p.p. overall, widening the gap by 23.6 p.p.

In sum, in Central Europe both formal- and informal-care subsidies raise caregiver employment and reduce the employment gap, with largest improvements coming from the subsidy for employed caregivers. In Southern Europe, by contrast, formal-care subsidies do not increase caregiver employment and instead tend to widen the gap. There, the gap narrows only under the subsidy that targets employed informal caregivers. The broader caregiver subsidies, which also reward non-employed caregivers, widen it slightly.

6 Conclusion

In this paper, I study how families make joint decisions about elderly care and labor supply, with a particular emphasis on interactions among family members at the time these decisions are made and on the allocation of caregiving responsibilities within the family. To this end, I develop and estimate a model in which elderly parents and their adult children make decisions about formal and informal care provision and labor supply within a static, non-cooperative game of complete information. I estimate this model separately for Northern, Central, and Southern European countries using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) to account for cross-regional differences in institutional settings, labor market conditions, and preferences. The estimated model fits the observed patterns of care provision and employment among adult children closely across all three regions.

I then use the estimated model to evaluate the effects of five policy experiments aimed at expanding care provision and mitigating the labor market consequences associated with informal caregiving, and to compare their effects across regions. The results highlight important trade-offs and reveal heterogeneity in policy responses between Central and Southern Europe. Subsidies targeted at formal care recipients are the most effective at increasing overall care coverage in both regions, but they have limited effects on the labor supply of informal caregivers. In Southern Europe, in particular, such policies do little to increase caregivers' employment rate and may even widen the gap relative to non-caregivers. Subsidies targeted at informal caregivers instead generate stronger informal-care and labor supply responses, though their effects on employment depend on their design. The subsidy conditioned on employment is the most effective at reducing employment gaps, especially in Southern Europe, where informal care plays a more prominent role, whereas the subsidy that rewards caregiving outside of employment draws caregivers out of the labor force and widens the gap in both regions. These effects also depend on family structure. Subsidies can increase the probability that adult children provide informal care, but larger families tend to respond more strongly. At the same time, these policies do not fundamentally alter the underlying gradient in caregiving by number of siblings.

Both parent- and caregiver-targeted subsidies tend to raise the likelihood of providing informal care, but women generally respond more strongly than men. As a result, these policies widen the gender gap in caregiving. This widening is most pronounced under subsidies targeted at informal caregivers and in Southern Europe, where baseline gaps are already large. The amplification of the gap varies with family size, peaking in two-child families. This suggests that, although policies can successfully expand care provision, they often do so by reinforcing existing gender roles rather than by balancing caregiving responsibilities more evenly between daughters and sons.

Overall, these findings have direct implications for the design of elderly care policies. I show that accounting for family structure, intra-family interactions, and cross-regional differences is important, as policy effects are heterogeneous across families and regions. This underscores the importance of targeting interventions to the specific institutional and demographic context in which they are implemented.

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A Figures

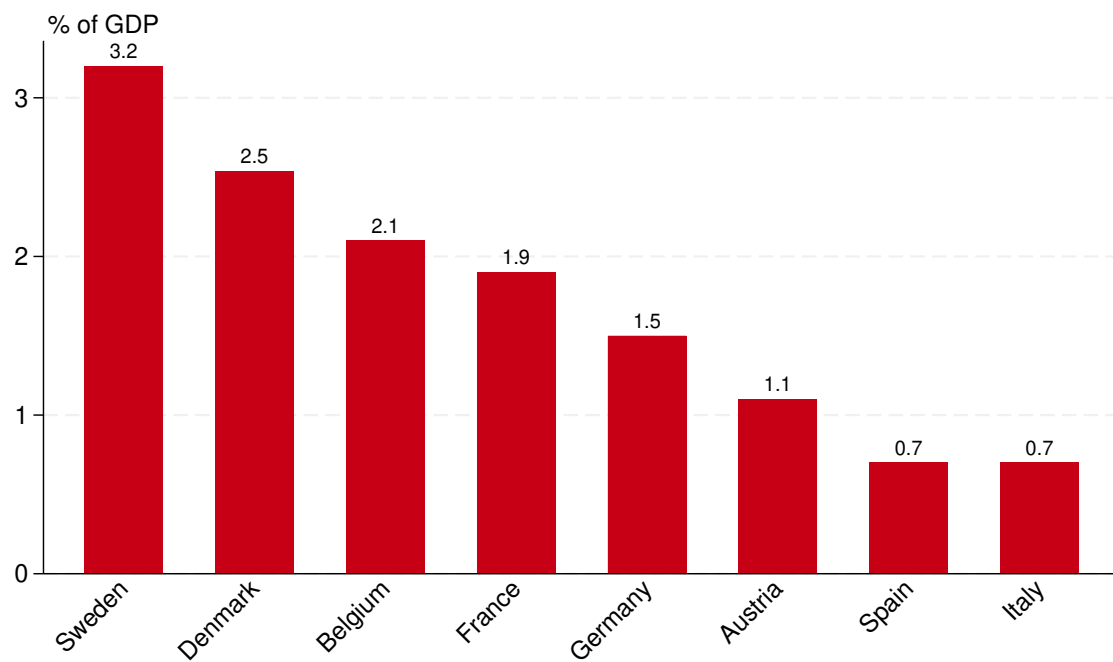


Figure A1: Public long-term care spending as a share of GDP (2017 or nearest year). Long-term care expenditure (health and social components) made by the government and compulsory insurance schemes. Source: [OECD \(2019\)](#).

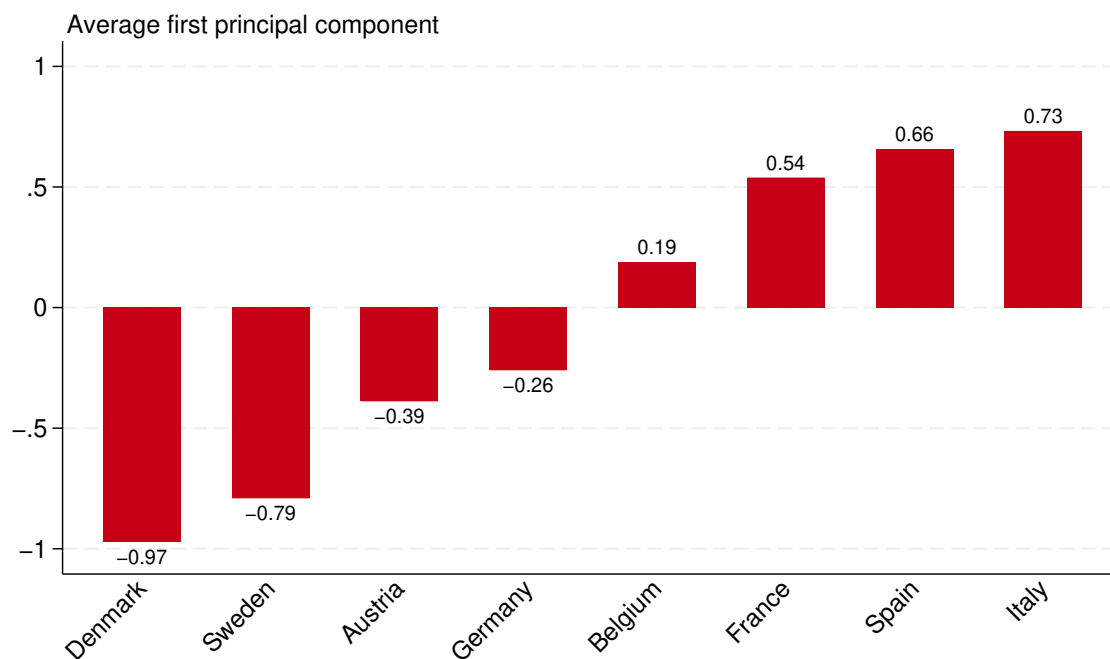


Figure A2: Strength of family ties. The figure plots an index of family ties constructed as the average first principal component of four questions that capture beliefs on the importance of family in life and the obligations between parents and children. Specifically, the questions ask about: (i) the importance of family in one's life, (ii) whether children should respect and love their parents unconditionally, (iii) whether parents should prioritize their children's well-being even at the expense of their own, and (iv) whether adult children have a duty to care for their parents when they are seriously ill or fragile. The resulting index summarizes the strength of family ties, understood as the normative expectations governing the relationship between parents and children. Source: Integrated Values Survey (1981-2021).

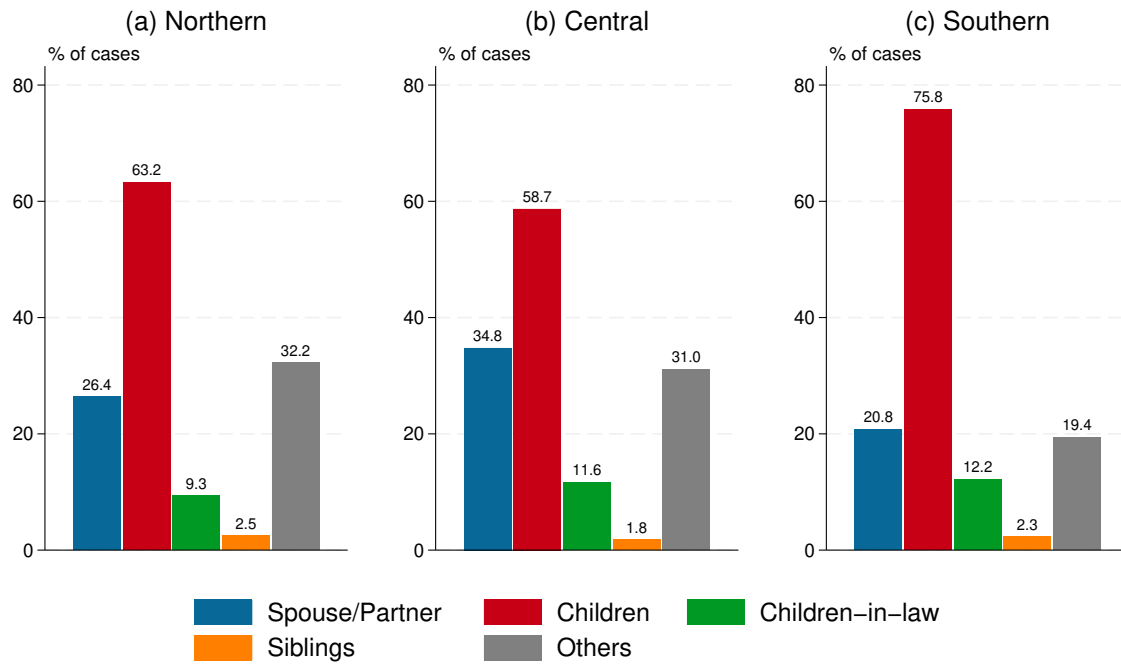


Figure A3: Sources of informal care received. The figure plots the percentage of individuals aged 70 or older with care needs and at least one child aged 60 or younger who receive informal care from a spouse or partner, child, child-in-law, siblings, or other sources, conditional on receiving some informal care. The country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). The alternatives are not mutually exclusive. Source: SHARE, waves 5 and 6.

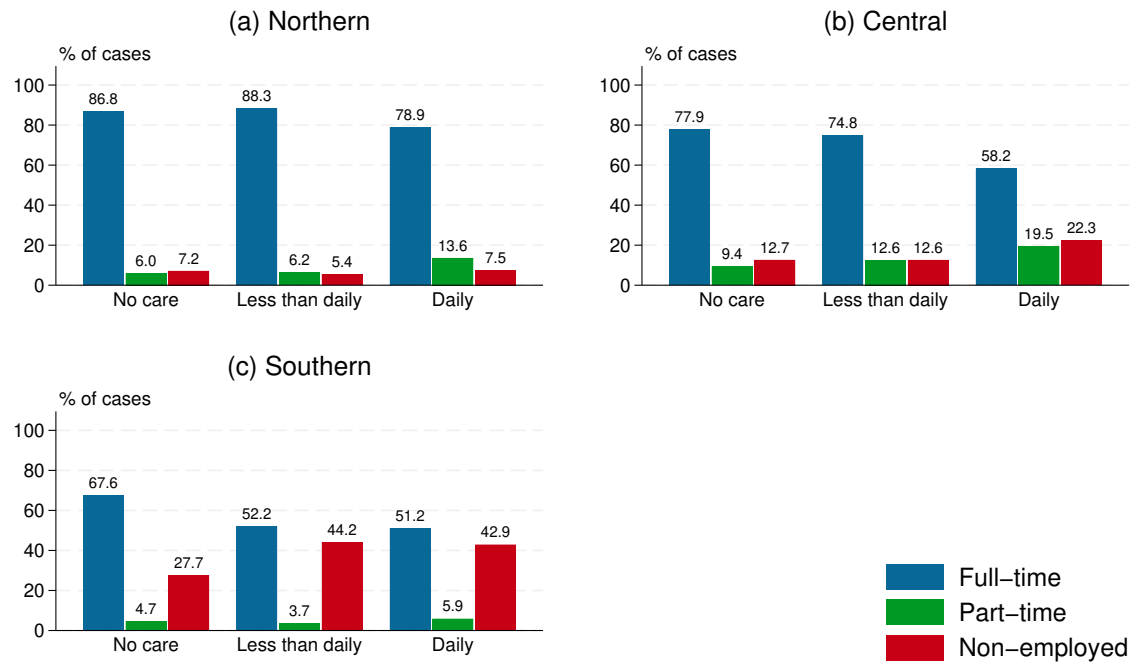


Figure A4: Employment status of children by frequency of informal care given to parents. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who are full-time employed, part-time employed or non-employed while giving informal care on a daily basis, informal care less frequently, or no care at all. The country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain). Source: SHARE, waves 5 and 6.

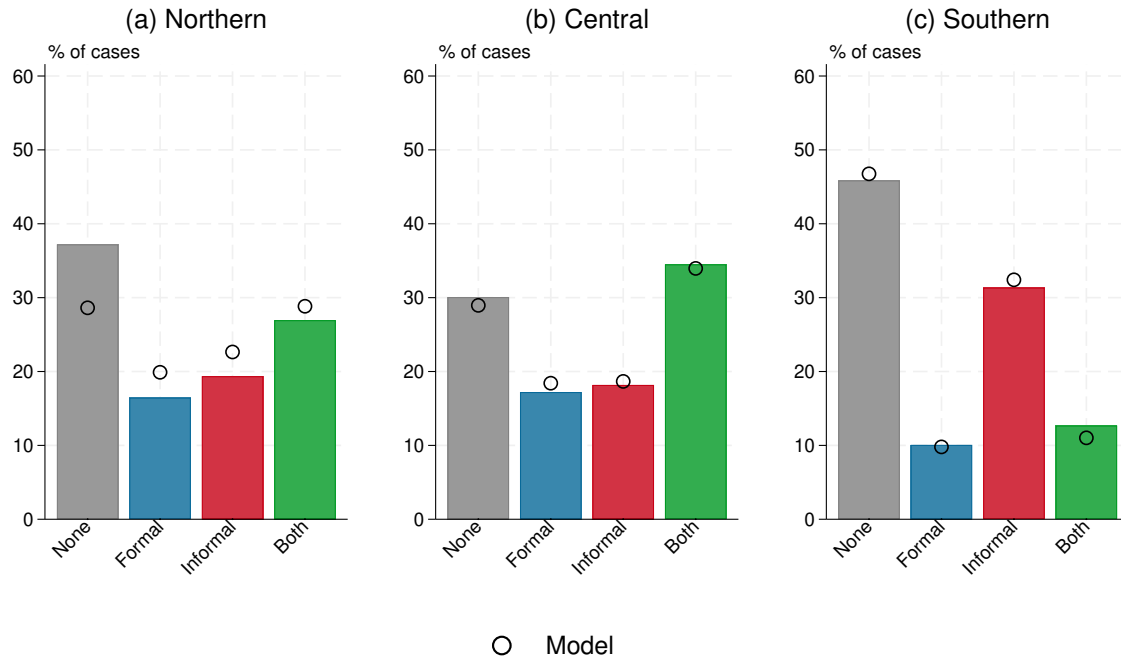


Figure A5: Type of care received by parents – Model fit. The figure plots the percentage of parents aged 70 or older with care needs who receive no care, only formal care, only informal care, or both types of care in the estimation sample (bars) and the model simulations (dots). The country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

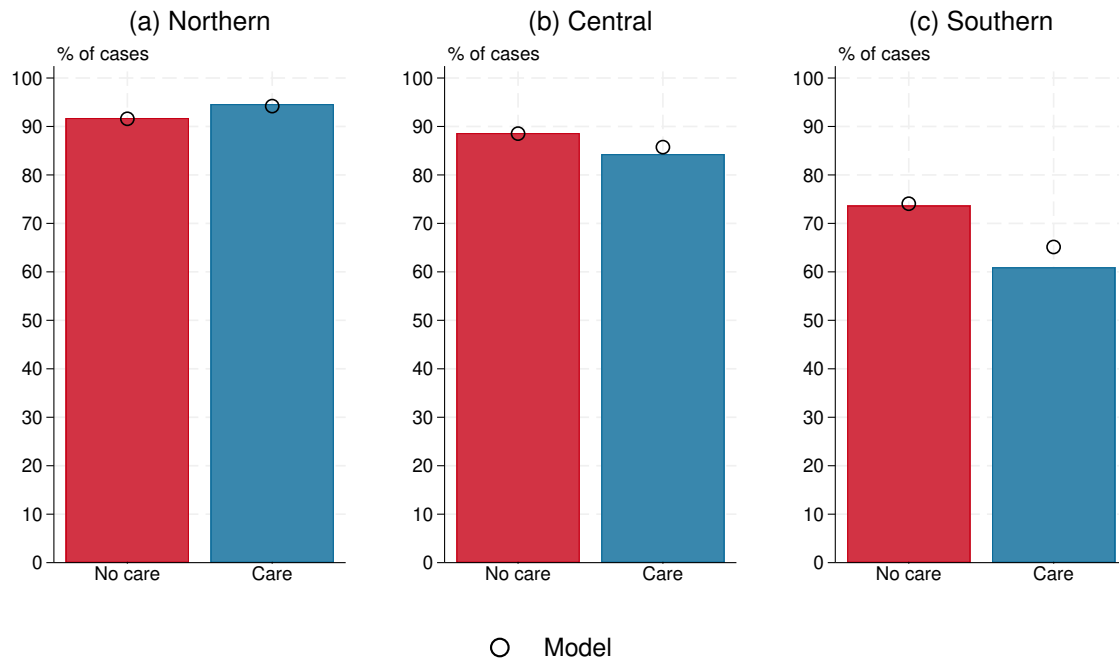


Figure A6: Employment rate of children by informal care given to parents – Model fit. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who are employed or non-employed while giving informal care or no care in the estimation sample (bars) and the model simulations (dots). The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

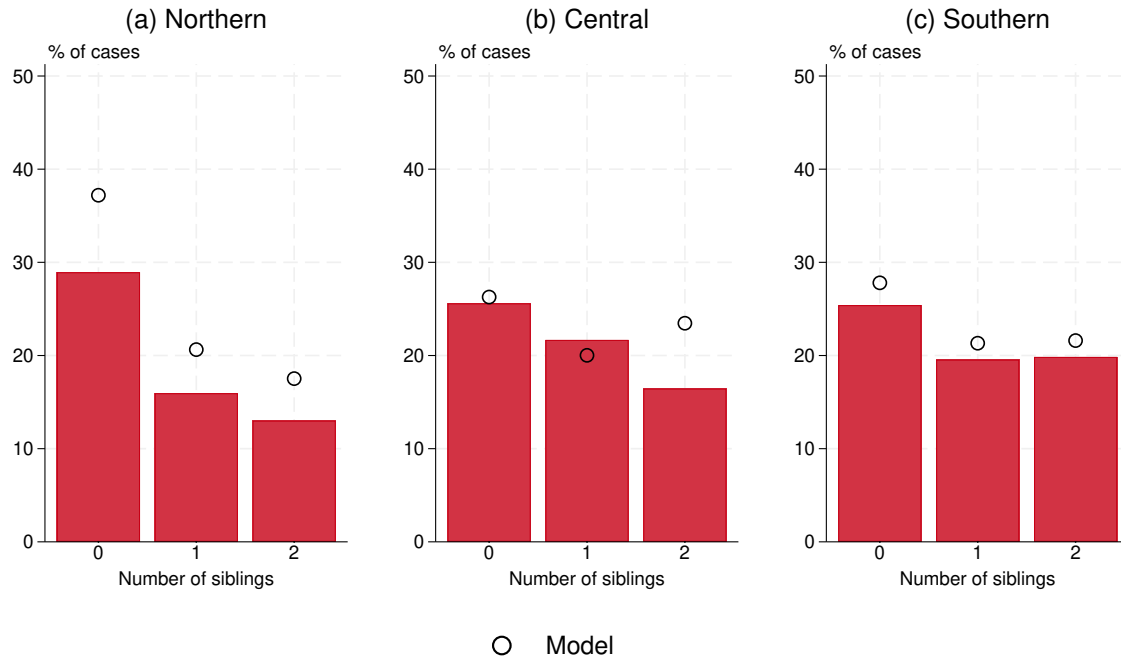


Figure A7: Probability of giving informal care to parents by number of siblings – Model fit. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them in the estimation sample (bars) and the model simulations (dots), by number of siblings of the caregiver. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

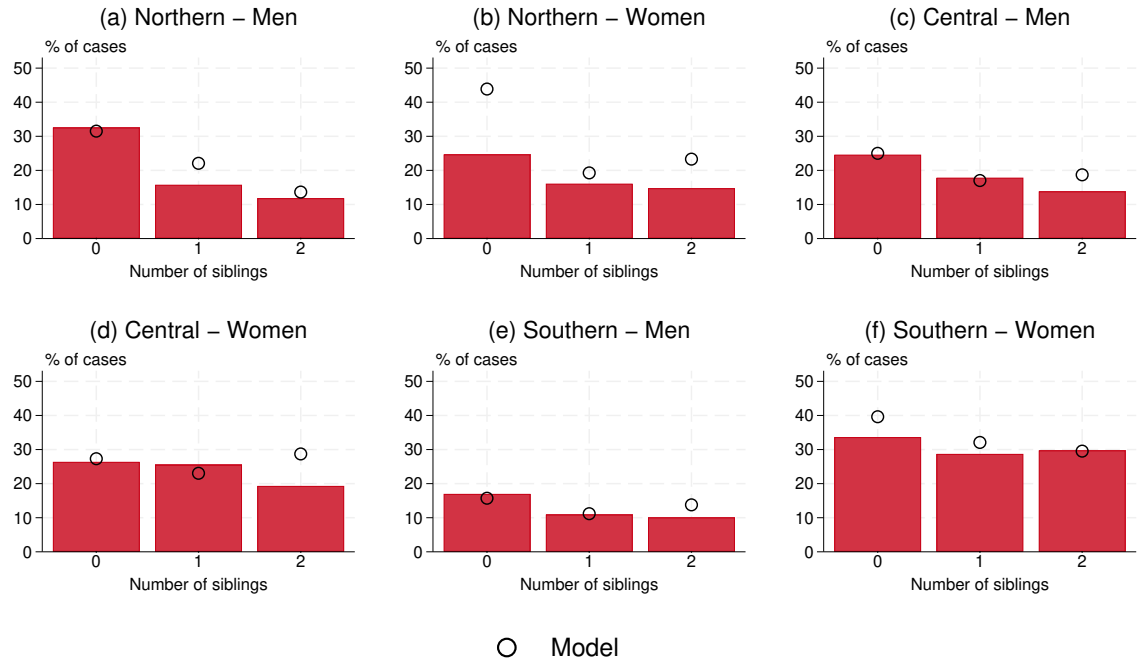


Figure A8: Probability of giving informal care to parents by number of siblings and gender – Model fit. The figure plots the percentage of individuals (men and women) aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them in the estimation sample (bars) and the model simulations (dots), by number of siblings of the caregiver. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

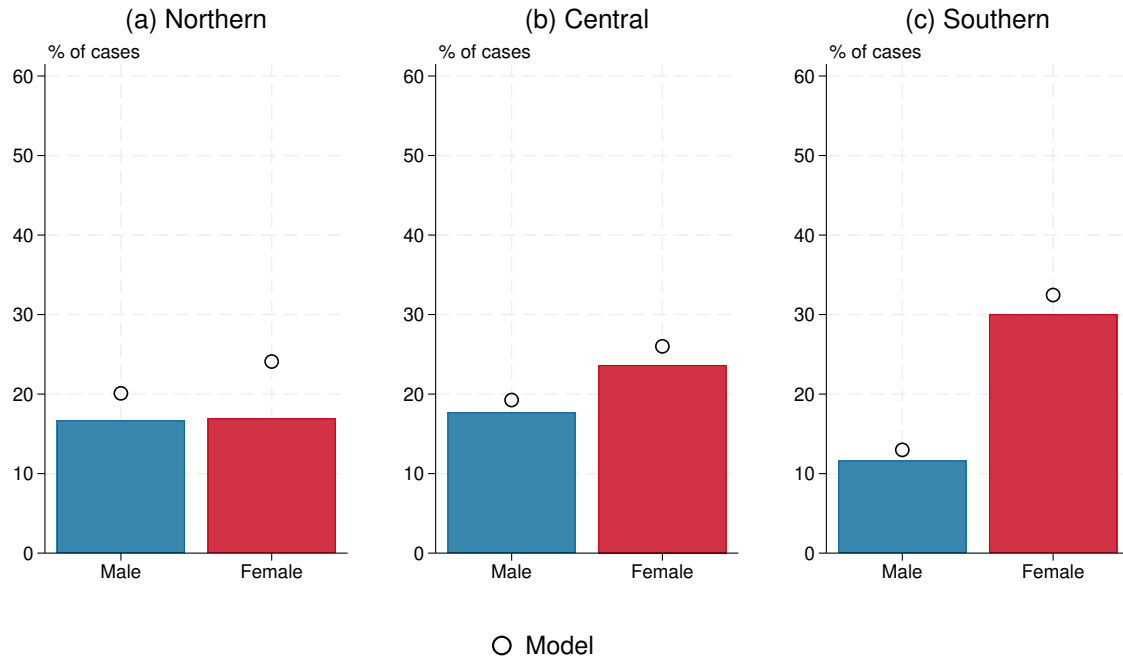


Figure A9: Probability of giving informal care to parents by gender – Model fit. The figure plots the percentage of individuals aged 60 or younger, with at least one parent with care needs aged 70 or older, who give informal care to them in the estimation sample (bars) and the model simulations (dots), by gender of the caregiver. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany) and Southern Europe (Italy and Spain).

B Tables

Table B1: Estimates of hours worked by region

	Northern	Central	Southern
Female (dummy)	-0.109*** (0.004)	-0.255*** (0.004)	-0.173*** (0.003)
Age	0.343*** (0.039)	0.186*** (0.031)	0.100*** (0.033)
Age ²	-0.013*** (0.002)	-0.008*** (0.001)	-0.003** (0.001)
Age ³	0.0002*** (0.00003)	0.0001*** (0.00002)	0.00004** (0.00002)
Age ⁴	-0.000001*** (0.0000002)	-0.0000008*** (0.0000001)	-0.0000002* (0.0000001)
College (dummy)	0.057*** (0.004)	0.113*** (0.004)	0.041*** (0.003)
Constant	0.311 (0.359)	2.045*** (0.276)	2.471*** (0.310)
Number of observations	29,409	81,422	63,459

Note: OLS estimates of logarithmic hours worked from the sample of employees in EU-SILC, years 2013 and 2015. Standard errors in parentheses. P-values: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B2: Wage estimates by region

	Northern	Central	Southern
Female (dummy)	-0.163*** (0.008)	-0.125*** (0.006)	-0.357*** (0.017)
Age	0.042*** (0.008)	0.015*** (0.004)	0.164*** (0.010)
Age ²	-0.0003*** (0.00009)	-0.00008* (0.00005)	-0.002*** (0.0001)
College (dummy)	0.181*** (0.009)	0.297*** (0.007)	0.534*** (0.018)
Constant	-0.417** (0.201)	2.335*** (0.104)	-1.886*** (0.252)
σ_ξ	0.610	0.619	0.806
Number of observations	40,043	112,076	110,192

Note: Heckman two-step estimates of logarithmic wages using EU-SILC data for years 2013 and 2015. Standard errors in parentheses. σ_ξ denotes the standard error of the residual in the wage equation. P-values: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B3: Number of children in the family

Number of children	Northern			Central			Southern			Number of outcomes
	Freq.	Percent	Cumul.	Freq.	Percent	Cumul.	Freq.	Percent	Cumul.	
1	135	23.40	23.40	854	32.46	32.46	747	26.71	26.71	8
2	246	42.63	66.03	895	34.02	66.48	956	34.18	60.89	32
3	125	21.66	87.69	527	20.03	86.51	627	22.42	83.30	128
4	57	9.88	97.57	231	8.78	95.29	312	11.15	94.46	512
5	8	1.39	98.96	67	2.55	97.83	88	3.15	97.60	2,048
6	6	1.04	100.00	36	1.37	99.20	30	1.07	98.68	8,192
7	0	0.00	0.00	11	0.42	99.62	25	0.89	99.57	32,768
8	0	0.00	0.00	4	0.15	99.77	5	0.18	99.75	131,072
9	0	0.00	0.00	5	0.19	99.96	5	0.18	99.93	524,288
10	0	0.00	0.00	1	0.04	100.00	0	0.00	99.93	2,097,152
11	0	0.00	0.00	0	0.00	0.00	1	0.04	99.96	8,388,608
12	0	0.00	0.00	0	0.00	0.00	1	0.04	100.00	33,554,432

Note: The table displays the absolute (“Freq.”), relative (“Percent”), and cumulative (“Cumul.”) frequencies of the number of children in the families included in the estimation sample, as well as the number of possible outcomes in the game for each family size.

Table B4: Choice frequencies – Model fit

	NENC		ENC		NEIC		EIC		NFC		FC	
	Data	Model	Data	Model	Data	Model	Data	Model	Data	Model	Data	Model
Denmark	7.64	6.12	70.58	71.02	1.48	1.39	20.30	21.48	41.38	49.05	58.62	50.95
Sweden	5.91	7.12	83.42	72.05	0.20	1.13	10.48	19.70	76.60	54.19	23.40	45.81
Northern Europe	6.87	6.57	76.32	71.48	0.91	1.27	15.90	20.69	56.58	51.27	43.42	48.73
Austria	6.24	8.74	69.87	67.53	3.34	3.90	20.55	19.83	45.81	47.77	54.19	52.23
Belgium	8.37	6.98	76.04	69.18	1.98	3.37	13.62	20.47	42.66	49.80	57.34	50.20
France	8.13	9.56	77.44	72.58	2.39	2.95	12.04	14.90	55.01	49.30	44.99	50.70
Germany	10.16	8.53	63.11	64.77	4.19	3.40	22.55	23.30	43.46	45.89	56.54	54.11
Central Europe	9.02	8.88	70.29	68.48	3.25	3.23	17.44	19.41	48.26	47.62	51.74	52.38
Italy	19.48	20.72	59.96	56.61	7.28	7.52	13.29	15.16	77.66	78.40	22.34	21.60
Spain	22.55	19.31	56.54	58.20	9.08	8.31	11.83	14.18	76.73	80.11	23.27	19.89
Southern Europe	20.87	20.08	58.41	57.33	8.09	7.88	12.63	14.72	77.24	79.18	22.76	20.82

Note: The table reports observed (“Data”) and simulated (“Model”) choice frequencies by country and region. The child’s choice alternatives in the model are *non-employment and no care* (NENC; base category), *employment and no care* (ENC), *non-employment and informal care* (NEIC), and *employment and informal care* (EIC). The parent’s choice alternatives are *no formal care* (NFC; base category) and *formal care* (FC).

Table B5: Care provision by number of children – Model fit

	Number of children						All families	
	1		2		3			
<i>A. Northern Europe</i>								
Percentage of families	26.7		48.6		24.7		100	
	Data	Model	Data	Model	Data	Model	Data	Model
Receiving only FC	19.4	15.9	16.0	21.3	13.7	22.0	16.5	19.9
Receiving only IC	12.6	26.6	20.9	21.5	24.5	20.2	19.4	22.6
Receiving both types of care	37.3	31.1	21.8	27.2	24.8	29.5	27.0	28.8
Receiving FC	56.7	47.0	37.9	48.4	38.5	51.5	43.4	48.7
Receiving IC	49.9	57.7	42.8	48.6	49.3	49.7	46.3	51.5
Receiving care	69.3	73.6	58.8	69.9	63.0	71.6	62.8	71.4
No child provide IC	71.1	62.8	76.9	72.1	77.1	75.6	75.3	70.2
One child provides IC	28.9	37.2	14.3	14.6	10.6	8.9	17.6	19.7
Two children provide IC	0.0	0.0	8.8	13.3	8.6	3.0	6.2	7.1
Three children provide IC	0.0	0.0	0.0	0.0	3.8	12.5	0.9	2.9
<i>B. Central Europe</i>								
Percentage of families	37.5		39.3		23.2		100	
	Data	Model	Data	Model	Data	Model	Data	Model
Receiving only FC	22.1	17.7	15.4	18.5	11.4	19.6	17.2	18.4
Receiving only IC	16.0	18.0	16.5	20.4	25.3	16.9	18.2	18.7
Receiving both types of care	36.3	33.1	36.3	34.0	27.9	35.5	34.5	34.0
Receiving FC	58.4	50.8	51.6	52.5	39.3	55.1	51.7	52.4
Receiving IC	52.3	51.1	52.8	54.4	53.2	52.4	52.7	52.6
Receiving care	74.4	68.8	68.1	72.9	64.6	72.0	69.9	71.0
No child provide IC	74.4	73.7	68.6	72.4	70.5	70.4	71.4	72.5
One child provides IC	25.6	26.3	19.4	15.1	13.5	6.6	20.7	17.8
Two children provide IC	0.0	0.0	12.0	12.5	12.0	5.1	7.1	5.9
Three children provide IC	0.0	0.0	0.0	0.0	4.0	17.8	0.9	3.8
<i>C. Southern Europe</i>								
Percentage of families	32.1		41.0		26.9		100	
	Data	Model	Data	Model	Data	Model	Data	Model
Receiving only FC	12.7	9.1	9.1	9.8	8.1	10.7	10.1	9.8
Receiving only IC	30.2	34.0	30.0	34.6	35.3	26.7	31.4	32.4
Receiving both types of care	11.7	10.6	13.4	9.0	12.9	14.8	12.7	11.0
Receiving FC	24.4	19.7	22.5	18.9	21.0	25.6	22.8	20.8
Receiving IC	41.9	44.6	43.3	43.6	48.2	41.6	44.0	43.4
Receiving care	54.6	53.7	52.4	53.5	56.3	52.3	54.1	53.2
No child provide IC	74.6	72.2	71.0	71.1	64.8	71.3	70.7	71.5
One child provides IC	25.4	27.8	18.8	15.1	16.9	9.0	20.6	17.9
Two children provide IC	0.0	0.0	10.1	13.8	12.3	3.3	7.2	6.5
Three children provide IC	0.0	0.0	0.0	0.0	6.0	16.4	1.5	4.1

Note: The table reports the percentage of families observed in the data and model simulations under different care arrangements, distinguishing between families with one, two or three adult children. “FC” denotes formal care and “IC” denotes informal care. Percentages are computed relative to all families in each column group.

Table B6: Type of care received by parents in baseline and policy simulations (%)

	Some care	Only formal care	Only informal care	Both types of care
<i>A. Northern Europe</i>				
Baseline	71.4	19.9	22.6	28.8
<i>B. Central Europe</i>				
Baseline	71.0	18.4	18.7	34.0
Parents receiving FC	76.7	23.4	15.1	38.2
All parents with care needs	72.0	18.0	19.9	34.1
Employed children giving IC	75.9	15.5	22.3	38.1
Non-employed children giving IC	74.3	15.6	21.7	37.0
All children giving IC	76.4	15.2	22.9	38.3
<i>C. Southern Europe</i>				
Baseline	53.2	9.8	32.4	11.0
Parents receiving FC	64.1	17.9	24.0	22.1
All parents with care needs	54.3	8.3	34.7	11.3
Employed children giving IC	62.2	6.8	41.9	13.5
Non-employed children giving IC	61.5	7.3	41.5	12.6
All children giving IC	63.8	6.5	43.5	13.7

Note: The table shows the share of respondents aged 70 or older with care needs who receive some care, only formal care, only informal care, or both types of care in baseline and policy scenarios. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany), and Southern Europe (Italy and Spain).

Table B7: Population effects of the policy experiments by country – Central Europe

Outcome	Austria	Belgium	France	Germany	Total
<i>A. Parents receiving FC</i>					
Only formal care	8,972	13,052	85,985	100,816	208,825
Only informal care	-6,423	-9,344	-61,558	-72,175	-149,500
Both types of care	7,625	11,092	73,075	85,679	177,471
Users of formal care	16,597	24,144	159,060	186,495	386,296
Users of informal care	1,202	1,748	11,518	13,504	27,972
Care users	10,174	14,800	97,503	114,320	236,797
<i>B. All parents with care needs</i>					
Only formal care	-810	-1,178	-7,759	-9,097	-18,843
Only informal care	2,251	3,275	21,576	25,298	52,400
Both types of care	240	349	2,298	2,695	5,581
Users of formal care	-570	-829	-5,460	-6,402	-13,261
Users of informal care	2,491	3,624	23,874	27,992	57,982
Care users	1,682	2,446	16,116	18,895	39,139
<i>C. Employed children giving IC</i>					
Only formal care	-5,273	-7,670	-50,531	-59,247	-122,721
Only informal care	6,456	9,391	61,868	72,539	150,253
Both types of care	7,441	10,824	71,312	83,612	173,190
Users of formal care	2,168	3,154	20,781	24,365	50,469
Users of informal care	13,897	20,215	133,180	156,151	323,443
Care users	8,624	12,545	82,649	96,904	200,722
<i>D. Non-employed children giving IC</i>					
Only formal care	-5,007	-7,283	-47,984	-56,260	-116,535
Only informal care	5,406	7,864	51,810	60,746	125,827
Both types of care	5,504	8,006	52,744	61,841	128,094
Users of formal care	497	722	4,759	5,580	11,559
Users of informal care	10,910	15,870	104,554	122,587	253,921
Care users	5,903	8,587	56,570	66,327	137,386
<i>E. All children giving IC</i>					
Only formal care	-5,736	-8,343	-54,967	-64,448	-133,494
Only informal care	7,528	10,951	72,143	84,587	175,209
Both types of care	7,836	11,399	75,098	88,051	182,384
Users of formal care	2,101	3,056	20,131	23,603	48,891
Users of informal care	15,364	22,350	147,242	172,637	357,593
Care users	9,629	14,006	92,275	108,190	224,099

Note: Each cell reports the implied change in the number of older individuals with care needs in a given care arrangement under each policy experiment, relative to the baseline, in Central Europe. Figures are obtained by applying the region-level percentage-point change (Table 2, Panel A) to the average population of older individuals with care needs in each country over years 2013 and 2015, estimated from SHARE waves 5 and 6. Because the model is estimated at the regional level, the percentage-point change is common to all countries in the region; the country columns therefore distribute the regional effect according to each country's population and do not represent country-specific behavioral responses. "Users of formal care" is the sum of "only formal care" and "both"; "users of informal care" is the sum of "only informal care" and "both"; "care users" is the sum of the three mutually exclusive arrangements. The policies are a subsidy to parents conditional on formal care (Panel A), a subsidy to all parents with care needs (Panel B), a subsidy to caregiving children conditional on employment (Panel C), a subsidy to caregiving children conditional on non-employment (Panel D), and a subsidy to all caregiving children (Panel E).

Table B8: Population effects of the policy experiments by country – Southern Europe

Outcome	Italy	Spain	Total
<i>A. Parents receiving FC</i>			
Only formal care	186,392	156,051	342,443
Only informal care	-192,077	-160,810	-352,887
Both types of care	255,254	213,703	468,957
Users of formal care	441,646	369,754	811,400
Users of informal care	63,177	52,893	116,069
Care users	249,569	208,943	458,512
<i>B. All parents with care needs</i>			
Only formal care	-33,525	-28,067	-61,592
Only informal care	52,542	43,989	96,531
Both types of care	5,964	4,993	10,958
Users of formal care	-27,560	-23,074	-50,634
Users of informal care	58,506	48,982	107,488
Care users	24,982	20,915	45,896
<i>C. Employed children giving IC</i>			
Only formal care	-67,661	-56,647	-124,309
Only informal care	216,937	181,623	398,560
Both types of care	56,924	47,658	104,581
Users of formal care	-10,738	-8,990	-19,727
Users of informal care	273,860	229,281	503,141
Care users	206,199	172,633	378,833
<i>D. Non-employed children giving IC</i>			
Only formal care	-56,651	-47,429	-104,080
Only informal care	209,110	175,071	384,181
Both types of care	36,470	30,533	67,003
Users of formal care	-20,181	-16,896	-37,077
Users of informal care	245,580	205,604	451,184
Care users	188,929	158,175	347,104
<i>E. All children giving IC</i>			
Only formal care	-74,740	-62,574	-137,314
Only informal care	254,007	212,659	466,666
Both types of care	62,042	51,943	113,985
Users of formal care	-12,698	-10,631	-23,329
Users of informal care	316,049	264,602	580,650
Care users	241,308	202,028	443,336

Note: Each cell reports the implied change in the number of older individuals with care needs in a given care arrangement under each policy experiment, relative to the baseline, in Southern Europe. Figures are obtained by applying the region-level percentage-point change (Table 2, Panel B) to the average population of older individuals with care needs in each country over years 2013 and 2015, estimated from SHARE waves 5 and 6. Because the model is estimated at the regional level, the percentage-point change is common to all countries in the region; the country columns therefore distribute the regional effect according to each country's population and do not represent country-specific behavioral responses. "Users of formal care" is the sum of "only formal care" and "both"; "users of informal care" is the sum of "only informal care" and "both"; "care users" is the sum of the three mutually exclusive arrangements. The policies are a subsidy to parents conditional on formal care (Panel A), a subsidy to all parents with care needs (Panel B), a subsidy to caregiving children conditional on employment (Panel C), a subsidy to caregiving children conditional on non-employment (Panel D), and a subsidy to all caregiving children (Panel E).

Table B9: Probability of giving informal care by number of siblings in baseline and policy simulations (%)

Number of siblings	0	1	2
<i>A. Northern Europe</i>			
Baseline	37.2	20.6	17.5
<i>B. Central Europe</i>			
Baseline	26.3	20.0	23.5
Parents receiving FC	25.0	24.9	23.5
All parents with care needs	25.0	25.4	27.4
Employed children giving IC	38.2	33.8	32.0
Non-employed children giving IC	31.5	31.4	31.2
All children giving IC	38.5	36.5	30.8
<i>C. Southern Europe</i>			
Baseline	27.8	21.3	21.6
Parents receiving FC	27.0	20.3	25.9
All parents with care needs	27.3	21.1	23.1
Employed children giving IC	40.6	31.4	32.9
Non-employed children giving IC	36.3	30.4	32.6
All children giving IC	41.6	32.8	35.9

Note: The table shows the percentage of individuals in the estimation sample who give informal care to their parents in baseline and policy simulations, by the number of siblings. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany), and Southern Europe (Italy and Spain).

Table B10: Care provision by number of children in baseline and policy simulations – Central Europe

	Baseline	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. One child</i>						
Receiving only FC	17.7	24.9	19.0	16.1	17.0	16.0
Receiving only IC	18.0	17.5	23.6	26.0	25.8	26.2
Receiving both types of care	33.1	34.0	27.9	32.9	30.4	33.0
Receiving FC	50.8	58.8	46.9	49.0	47.5	49.0
Receiving IC	51.1	51.5	51.5	58.9	56.3	59.2
Receiving care	68.8	76.3	70.5	75.0	73.3	75.2
No child provide IC	73.7	75.0	75.0	61.8	68.5	61.5
One child provides IC	26.3	25.0	25.0	38.2	31.5	38.5
Two children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
Three children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
<i>B. Two children</i>						
Receiving only FC	18.5	21.3	16.5	14.6	14.4	13.2
Receiving only IC	20.4	12.1	15.2	18.0	16.1	18.8
Receiving both types of care	34.0	43.3	40.1	43.6	43.8	45.3
Receiving FC	52.5	64.7	56.6	58.2	58.2	58.5
Receiving IC	54.4	55.4	55.2	61.6	60.0	64.1
Receiving care	72.9	76.7	71.7	76.1	74.4	77.3
No child provide IC	72.4	66.5	65.9	54.7	58.8	51.9
One child provides IC	15.1	17.2	17.2	23.0	19.7	23.3
Two children provide IC	12.5	16.3	16.8	22.3	21.5	24.8
Three children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
<i>C. Three children</i>						
Receiving only FC	19.6	24.5	18.5	15.9	15.1	17.2
Receiving only IC	16.9	15.8	21.4	22.9	23.8	23.8
Receiving both types of care	35.5	37.2	35.2	38.3	37.4	36.0
Receiving FC	55.1	61.7	53.7	54.1	52.5	53.3
Receiving IC	52.4	53.0	56.7	61.1	61.2	59.9
Receiving care	72.0	77.5	75.2	77.0	76.3	77.1
No child provide IC	70.4	68.1	65.0	57.6	58.5	58.4
One child provides IC	6.6	8.8	7.2	11.2	11.4	12.0
Two children provide IC	5.1	7.7	8.4	8.8	8.2	8.2
Three children provide IC	17.8	15.5	19.5	22.3	22.0	21.4

Note: The table reports the percentage of families in the estimation sample under different care arrangements, distinguishing between families with one, two or three adult children in baseline and policy simulations. “FC” denotes formal care and “IC” denotes informal care. Percentages are computed relative to all families in each column group. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment.

Table B11: Care provision by number of children in baseline and policy simulations – Southern Europe

	Baseline	Parents receiving FC	All parents with care needs	Employed children giving IC	Non-employed children giving IC	All children giving IC
<i>A. One child</i>						
Receiving only FC	9.1	21.2	9.6	7.6	9.1	8.3
Receiving only IC	34.0	24.5	34.4	42.0	39.5	42.9
Receiving both types of care	10.6	20.4	10.8	12.6	11.4	12.1
Receiving FC	19.7	41.6	20.4	20.2	20.4	20.4
Receiving IC	44.6	44.9	45.2	54.6	50.8	55.0
Receiving care	53.7	66.1	54.8	62.3	59.9	63.3
No child provide IC	72.2	73.0	72.7	59.4	63.7	58.4
One child provides IC	27.8	27.0	27.3	40.6	36.3	41.6
Two children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
Three children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
<i>B. Two children</i>						
Receiving only FC	9.8	16.5	7.6	6.7	6.6	5.7
Receiving only IC	34.6	23.1	34.0	41.7	42.6	43.1
Receiving both types of care	9.0	22.5	11.6	13.8	12.9	14.7
Receiving FC	18.9	39.0	19.1	20.5	19.6	20.4
Receiving IC	43.6	45.5	45.6	55.5	55.5	57.9
Receiving care	53.5	62.0	53.2	62.2	62.1	63.6
No child provide IC	71.1	72.0	71.2	57.7	58.3	55.1
One child provides IC	15.1	15.3	15.4	21.9	22.7	24.2
Two children provide IC	13.8	12.7	13.4	20.4	19.0	20.7
Three children provide IC	0.0	0.0	0.0	0.0	0.0	0.0
<i>C. Three children</i>						
Receiving only FC	10.7	15.7	7.8	6.0	6.1	5.5
Receiving only IC	26.7	25.1	36.2	41.9	42.7	44.8
Receiving both types of care	14.8	24.0	11.6	14.3	13.8	14.3
Receiving FC	25.6	39.7	19.4	20.3	19.9	19.8
Receiving IC	41.6	49.0	47.8	56.2	56.4	59.2
Receiving care	52.3	64.8	55.6	62.2	62.6	64.6
No child provide IC	71.3	65.2	67.7	56.0	55.2	51.3
One child provides IC	9.0	10.6	11.4	12.1	14.6	15.1
Two children provide IC	3.3	5.3	5.0	9.0	7.4	8.1
Three children provide IC	16.4	18.8	15.9	22.8	22.8	25.4

Note: The table reports the percentage of families in the estimation sample under different care arrangements, distinguishing between families with one, two or three adult children in baseline and policy simulations. “FC” denotes formal care and “IC” denotes informal care. Percentages are computed relative to all families in each column group. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment.

Table B12: Probability of giving informal care by gender in baseline and policy simulations (%)

	Men	Women	Gap (p.p.)
<i>A. Northern Europe</i>			
Baseline	20.1	24.1	-4.0
<i>B. Central Europe</i>			
Baseline	19.3	26.0	-6.7
Parents receiving FC	20.6	28.2	-7.5
All parents with care needs	22.5	29.6	-7.1
Employed children giving IC	29.7	38.5	-8.8
Non-employed children giving IC	25.9	36.7	-10.8
All children giving IC	29.4	40.4	-11.0
<i>C. Southern Europe</i>			
Baseline	13.0	32.5	-19.5
Parents receiving FC	12.3	35.4	-23.1
All parents with care needs	11.3	35.0	-23.7
Employed children giving IC	20.9	46.7	-25.8
Non-employed children giving IC	17.0	48.0	-31.1
All children giving IC	20.7	50.8	-30.1

Note: The table shows the percentage of individuals in the estimation sample who give informal care to their parents in baseline and policy simulations by gender of the caregiver, and the gap between men and women. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany), and Southern Europe (Italy and Spain).

Table B13: Probability of giving informal care by number of siblings and gender in baseline and policy simulations (%)

Number of siblings	0			1			2		
	Men	Women	Gap (p.p.)	Men	Women	Gap (p.p.)	Men	Women	Gap (p.p.)
<i>A. Northern Europe</i>									
Baseline	31.5	43.9	-12.3	22.1	19.3	2.8	13.6	23.3	-9.7
<i>B. Central Europe</i>									
Baseline	25.0	27.3	-2.3	17.0	23.0	-6.0	18.7	28.7	-10.0
Parents receiving FC	22.9	26.7	-3.9	20.1	29.7	-9.6	20.1	27.3	-7.2
All parents with care needs	22.9	26.7	-3.9	21.4	29.5	-8.2	23.5	31.7	-8.2
Employed children giving IC	37.0	39.2	-2.2	28.7	38.9	-10.1	26.8	37.6	-10.7
Non-employed children giving IC	25.9	36.2	-10.3	24.8	37.9	-13.1	27.1	35.7	-8.5
All children giving IC	36.3	40.3	-4.0	30.9	42.2	-11.3	24.0	38.4	-14.4
<i>C. Southern Europe</i>									
Baseline	15.7	39.6	-23.9	11.2	32.1	-20.9	13.8	29.5	-15.8
Parents receiving FC	15.5	38.3	-22.9	7.4	34.1	-26.6	16.4	35.5	-19.1
All parents with care needs	15.5	38.8	-23.4	7.7	35.2	-27.5	13.3	32.9	-19.6
Employed children giving IC	27.8	53.0	-25.2	16.8	46.9	-30.1	22.3	43.6	-21.3
Non-employed children giving IC	20.0	52.2	-32.2	11.8	50.0	-38.2	21.4	44.0	-22.6
All children giving IC	26.4	56.4	-30.0	16.9	49.7	-32.8	22.5	49.4	-26.9

Note: The table shows the percentage of individuals in the estimation sample who give informal care to their parents in baseline and policy simulations by number of siblings and gender, and the gap between men and women. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany), and Southern Europe (Italy and Spain).

Table B14: Employment rate of children in baseline and policy simulations (%)

	Employed (overall)	Employed non-caregivers	Employed caregivers	Gap between non-caregivers and caregivers
<i>A. Northern Europe</i>				
Baseline	92.2	91.6	94.2	-2.6
<i>B. Central Europe</i>				
Baseline	87.9	88.5	85.7	2.8
Parents receiving FC	88.7	88.8	88.4	0.4
All parents with care needs	88.2	88.3	87.9	0.4
Employed children giving IC	89.5	87.9	92.8	-4.9
Non-employed children giving IC	81.5	88.8	65.7	23.1
All children giving IC	88.3	87.8	89.3	-1.5
<i>C. Southern Europe</i>				
Baseline	72.0	74.1	65.1	8.9
Parents receiving FC	72.1	75.0	62.5	12.5
All parents with care needs	71.7	74.7	61.9	12.8
Employed children giving IC	75.6	75.1	76.7	-1.7
Non-employed children giving IC	64.6	75.2	42.6	32.6
All children giving IC	70.4	74.8	62.3	12.5

Note: The table shows the share of employed children overall, the share of children who are employed while giving informal care, the share of those who are employed while giving no care at all, and the gap between the last two in baseline and policy scenarios. The evaluated policies are a subsidy for parents, conditional on formal care; a subsidy for parents, unconditional on formal care; a subsidy for caregiving children, conditional on employment; a subsidy for caregiving children, conditional on non-employment; and a subsidy for caregiving children, unconditional on employment. The three country groups represented are Northern Europe (Denmark and Sweden), Central Europe (Austria, Belgium, France and Germany), and Southern Europe (Italy and Spain).

C Hours of Care

SHARE asks its interviewees about help they may have received from people they know, who can be family members living inside or outside the household, friends or neighbors. In Wave 5, I obtain the answers to these questions from the *social support* module, where respondents can name up to three different caregivers living outside the household, among whom their children can be included. In the case of caregivers living inside the household, they can name all the people who gave them help, including a maximum of nine children. Meanwhile, in Wave 6, I use the *gvchildren* module, which is only available in Waves 6 and 7, and makes information on the children of the respondents more easily accessible by collecting answers in several parts of the questionnaire. In this case, respondents can mention up to 20 children.

I consider children, spouses or any other person to be informal caregivers if the respondent reports having received personal care, practical household help, or help with paperwork from them in the twelve months before the interview. It should be noted, though, that the question collecting this information in Wave 5 is formulated differently when it refers to care received from people who live outside the respondent's household. In this case, SHARE asked about care received by the respondent and their partner together, instead of care received only by the respondent. Table C1 summarizes the way in which

each wave presents the information on the various care options.

In Waves 5 and 6, SHARE does not provide any information about the number of hours of informal care which survey respondents receive from their children or any other caregiver. To assign each child a number of hours of help given, I rely on data from Waves 1 and 2, where SHARE asked about hours of care given to parents living outside the household of the respondent.¹⁹ I regress the logarithm of this number on a set of characteristics of the potential caregiver, namely, the number of siblings, parental health, and dummies for the parent being widowed, living less than 25 kilometers away from the parents, gender, having children, and living in Northern or Southern Europe. Next, I use these estimates, reported in Table C2, to impute the number of hours of care given weekly by the children of the respondents in the estimation sample.

Table C1: Overview of data on care received in SHARE

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
OIC	Hours & frequency (household)	Hours & frequency (household)	–	Frequency (household)	Frequency (household)	Frequency (individual)	Frequency (individual)
IIC	Dummy (individual)	Dummy (individual)	–	Dummy (individual)	Dummy (individual)	Dummy (individual)	Dummy (individual)
FHC	Hours (individual)	Hours (individual)	–	–	Dummy (individual)	Dummy (individual)	Hours (individual)
NHC	Dummy (individual)	Dummy (individual)	Dummy (individual)	Dummy (individual)	Dummy (individual)	Dummy (individual)	Dummy (individual)

Note: The table summarizes the information on care received that is available in each wave of SHARE. The rows correspond to the types of care distinguished in the survey: *informal care provided by individuals who live outside the household of the respondent* (OIC), *informal care provided by individuals who live with the respondent* (IIC), *formal care received at home* (FHC), and *nursing home care* (NHC). For each form of care and wave, *hours* indicates that there is information about the number of hours of care received; *frequency* denotes that the survey reports if the respondent received care daily, weekly, monthly, or less often; and *dummy* represents that there is information on whether the respondent received care. In parentheses, *individual* and *household* indicate if the questions refer to care received only by the respondent or the two members of the couple together in case the respondent is married or living with their partner. Source: SHARE questionnaires and [Barczyk and Kredler \(2019\)](#).

I proceed similarly with the number of hours of formal care. In Waves 5 and 6, SHARE asked its interviewees if they had stayed in a nursing home or residential care facility, or received professional care, help with domestic tasks, or meals-on-wheels at home. However, it did not collect any information on the corresponding number of hours of care received. To approximate the number of hours of formal care that parents receive weekly in my sample, I use data from Waves 1 and 2, where the respondents report the number of hours of nursing care and help from paid professionals received at home.²⁰ I add 14.84 hours to this number in case the respondent received meals-on-wheels ([Barczyk and Kredler, 2019](#)) and regress the logarithm of it on a fourth-order polynomial of age, the number of children, the value of net assets, and a list of dummies for difficulties with ADLs, being cognitively impaired, being widowed, having at least one child living less than 1 kilometer away, and living in Northern or Southern Europe. With the resulting estimates, shown in Table C3, I impute the number of hours of care for those respondents in the estimation sample who received formal care at home. For those who stayed in a nursing home or residential care facility, I impute 168 hours (24 hours a day).

¹⁹SHARE stopped collecting this number after the second wave of the survey, and has never asked about hours of help given or received in the case the care recipient and the caregiver were living together.

²⁰After Wave 2, SHARE stopped providing information about the number of hours of formal help received at home, and this was not collected again until Wave 7. I use the first two waves of the survey and not Wave 7 to make imputations because the number of observations in the former is higher, and I also use these waves to deal with the analogous limitation in the case of informal care.

One additional feature of the care measures deserves comment. The indicators used to estimate the model (whether a parent receives informal care from a child, and whether a parent receives formal care) aggregate forms of help that differ in nature, combining personal care (assistance with activities of daily living, such as dressing, bathing, getting in and out of bed) with practical help, such as domestic tasks or assistance with paperwork. Because these may respond differently to the policies I evaluate, it is useful to set out how the underlying SHARE items treat the distinction and what can be measured consistently across the two waves I use. SHARE distinguishes between help provided by household members and other individuals outside the household of the respondent. The question about help from household members is asked specifically in terms of personal care, “such as washing, getting out of bed, or dressing”, in both Waves 5 and 6, so informal care from a co-resident is personal care by design. For help from individuals outside the household, the type of help is recorded for each caregiver only in Wave 6, where respondents report whether each helper provided personal care, practical household help, or help with paperwork. In Wave 5, the corresponding question asks jointly about personal care or practical household help and does not record the type that each individual helper provided. Because I pool Waves 5 and 6 to construct the estimation sample, a personal-care-only definition of care from non-co-resident children cannot be constructed consistently without discarding Wave 5.

Nevertheless, the composition of care suggests that the arrangements relevant for the policy experiments may be predominantly related to personal care. Among recipients of informal care from a child in the estimation sample, 46% in Central Europe and 71% in Southern Europe receive it on a daily basis. Daily caregiving tends to be hands-on personal care rather than occasional practical or administrative help. On the formal care side, nursing home care accounts for 16% of formal-care recipients in Central Europe and 13% in Southern Europe. The arrangements are also concentrated among the more dependent parents: 47% of the parents in the Central Europe sample and 80% in the Southern Europe sample have severe care needs, for whom care is more likely to involve personal assistance. Taken together, these patterns suggest that a personal-care-only specification of the model would sharpen the estimated effects rather than overturn the policy conclusions.

Table C2: Estimates of hours of informal care given to parents

	Log hours of care
Number of siblings	0.023 (0.020)
Parental health	-0.256*** (0.028)
Widowed parent (dummy)	0.034 (0.074)
Lives less than 25km away from parents (dummy)	0.182*** (0.065)
Female (dummy)	0.332*** (0.061)
Having children (dummy)	-0.185* (0.103)
Northern Europe (dummy)	-0.402*** (0.046)
Southern Europe (dummy)	0.473*** (0.077)
Constant	1.938*** (0.134)
Number of observations	2,150

Note: OLS estimates of logarithmic hours of informal care given to parents weekly by survey respondents in SHARE, waves 1 and 2. Standard errors in parentheses. P-values: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C3: Estimates of hours of formal home care received by parents

Log hours of care			
<i>ADL dummies</i>			
Dressing	-0.063 (0.085)	Cognitively impaired (dummy)	0.099 (0.118)
Walking across a room	0.480*** (0.143)	Age	27.589 (22.323)
Bathing/showering	0.038 (0.091)	Age ²	-0.502 (0.404)
Eating/Cutting up food	0.091 (0.148)	Age ³	0.004 (0.003)
Getting in/out of bed	-0.061 (0.143)	Age ⁴	-0.000 (0.000)
Using the toilet	-0.015 (0.155)	Number of children	-0.040* (0.022)
Preparing a hot meal	0.328*** (0.106)	Widowed (dummy)	0.228*** (0.067)
Shopping for groceries	0.087 (0.081)	At least one child lives less than 1km away (dummy)	-0.097 (0.085)
Using the phone	-0.595*** (0.151)	Net assets	0.000 (0.000)
Taking medications	0.491*** (0.149)	Northern Europe (dummy)	-0.277*** (0.067)
Working around the house	0.210*** (0.074)	Southern Europe (dummy)	-0.124 (0.094)
Managing money	0.084 (0.110)	Constant	-564.548 (460.746)
Number of observations	1,830		

Note: OLS estimates of logarithmic hours of formal home care received by parents weekly in SHARE, waves 1 and 2. Standard errors in parentheses. P-values: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.